CLINICAL

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UNIVERSIDAD AUTONOMA DE NUEVO LEON
ALERE FLAMMAM VERITATIS

CLINICAL LECTURES

ON

SURGERY,

DELIVERED AT ST. GEORGE'S HOSPITAL.

BY

SIR BENJAMIN C. BRODIE, BART., V.P.R.S.,

SERJEANT-SURGEON TO THE QUEEN;
SURGEON IN ORDINARY TO HIS ROYAL HIGHNESS PRINCE ALBERT;
ETC. ETC. ETC.

QUO PROSUNT OMNIBUS

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EDITOR'S PREFACE.

Sir Benjamin Brodie stands, confessedly, at the present time, at the head of the Surgical Profession of Great Britain. He holds the highest surgical appointment, that of Serjeant-Surgeon to the Queen, a station which he also occupied under the two preceding sovereigns. He has enjoyed for a long period an extensive practice, and his vast experience with his sound judgment and highly cultivated mind, renders his opinions of the highest authority.

His clinical lectures have always been exceedingly popular, and deservedly so, from their eminently practical character, the clearness of the author's language, and the plain common sense which they display. They are, however, almost entirely unavailable for reference, being scattered in the pages of various periodicals extending through a considerable number of years. Believing, that if brought together, they would constitute a body of doctrine highly instructive to the student, and useful to the surgeon as a practical guide, it was determined to collect them and issue them in the Library department of the Medical News. The eagerness with which the Numbers containing these lectures have been sought for, and the expressions of approval received from numerous correspondents fully confirm the correctness of the editor's convictions.

But little attempt has been made at arrangement in this volume, as it must necessarily have been imperfect from the manner in which the lectures were delivered,—most of them having been given in distinct series, with frequent references to those of the same course, and their order could

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not, therefore, have been changed without breaking up their connection and altering the language,—a liberty the editor conceived to be unjustifiable. Any inconvenience which this want of arrangement might occasion is obviated by the copious index which is appended.

Should sufficient materials be obtained, another volume may hereafter be added so as to complete the works of the distinguished author.

PHILADELPHIA,
March, 1846.

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LECTURES
ON SURGERY,

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ST. GEORGE'S HOSPITAL,

BY SIR BENJAMIN BRODIE, BART., F.R.S., &c.

LECTURE I.

INTRODUCTORY DISCOURSE.

GENTLEMEN.—A large proportion of those whom I now address are assembled for the first time, for the purpose of pursuing their studies in the Medical School of this Hospital; and their feelings on this occasion are not unknown to me; for, to a great extent at least, they must be such as I myself experienced, when long ago I was situated as they are at the present moment. Transplanted, perhaps, from some small community into this great city; the largest, the most populous, the richest that ever flourished; jostled in crowded streets; surrounded by palaces; where the high-born and the wealthy; where the most eminent statesmen; the most distinguished in literature, in sciences, and arts, and in every other human pursuit, are, as it were, fused into one mass to make the London world: contemplating the novel scene around you, but being not yet identified with it; it cannot be otherwise than that a sense of loneliness should come upon you in the intervals of excitement; that you should say, "What am I in the midst of so much bustle, activity, and splendour? who will be at the pains to watch the course of a medical student? who will know whether I am diligent or idle, or bear testimony in after-years to the correctness or irregularity of my conduct during this brief period of my life?"

But let not your inexperience lead you into so great an error. Even now, when you believe that no one heeds you, many eyes are upon you. Whether you are diligent in your studies; striving to the utmost to obtain a knowledge of your profession; honourable in your dealings with others; conducting yourselves as gentlemen; or whether you are idle and inattentive; offensive in your manners; coarse and careless in your general demeanour; wasting the precious hours, which should be devoted to study, in frivolous

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and discreditable pursuits; all these things are noted to your ultimate advantage or disadvantage; and in future days, you will find that it is not on accidental circumstances, but on the character which you have made as students, that your success as practitioners, and as men engaged in the business of the world, will mainly depend. By the time that you are sufficiently advanced for your lot in life to be finally determined, the course of events will have wrought mighty changes among us. Of those who are now the most conspicuous in station, and the most influential in society, many will have altogether vanished from the scene of their former labours; and others will be to be found only in the retirement of old age. Younger and more active spirits, your own cotemporaries, and those a little older than yourselves, will have occupied their places: and the tribunal, by which you will be judged of hereafter, will be composed of a different order of individuals from those to whose favourable opinion you would, at this moment be most anxious to appeal.

But I should be sorry if I were misunderstood as representing this to be the only or the principal motive which should lead you to avail yourselves to the utmost of your present opportunities. The knowledge which you will obtain as students, is to be the foundation of the whole of that, which many years of professional practice will afford you afterwards; and, if the foundation be insecure, the superstructure will be of little value. However imperfect may be the sciences belonging to the healing art, to bring them even to their present state has been the work of centuries. The industrious student may enter on the active pursuit of his profession with a scanty store of knowledge compared with that of which he will find himself possessed twenty years afterwards: but he is in the direct road to greater knowledge. He has the advantages of principles which have been established by the labours of many preceding generations; and this will render the subsequent efforts of his life comparatively easy. But he who has neglected his education must, as it were, begin anew; and he will find, when it is too late, that no combination of energy and talent will enable him to rise to the level of those who were, in the beginning, his more diligent competitors. He will, moreover, labour under another and still greater disadvantage. One business of education is to impart knowledge; but another, and still more important one, is to train the intellectual faculties. To acquire the habit of fixing your attention on the object before you; of observing for yourselves; of thinking and reasoning accurately; of distinguishing at once that which is important from that which is trivial; all this must be accomplished in the early part of life, or it will not be accomplished at all: and the same remark is not less applicable to qualities of another order. Integrity and generosity of character; the disposition to sympathize with others; the power of commanding your own temper; of resisting your selfish instincts; and that self-respect, so important in every profession, but especially so in our own profession, which would prevent you from doing in secret what you would not do before all the world; these things are rarely

acquired, except by those who have been careful to scrutinize and regulate their own conduct in the very outset of their career.

It cannot be too often brought before you, nor too earnestly impressed upon your minds, that being, in the present stage of your journey through life, in a great degree released from responsibility to others, your responsibility to yourselves is much increased. Your future fortunes are placed in your own hands; you may make them, or mar them, as you please. Those among you, who now labour hard in the acquirement of knowledge, will find that they have laid in a store which will be serviceable to them ever afterwards. They will have the satisfaction of knowing that, in practising their art for their own advantage, they are, at the same time, making themselves useful to their fellow-creatures: when they obtain credit, they will feel that it is not undeserved; and a just self-confidence will support them even in their failures. But for those who take an opposite course, there is prepared a long series of mortifications and disappointments. Younger men will be placed over their heads. Even where their judgment is correct, they will themselves suspect it to be wrong. With them, life will be a succession of tricks and expedients; and if, by any accident, they should find themselves elevated into situations for which they have not been qualified by previous study, they will find that this is to them no good fortune; the world will always compare them with better persons, and the constant anxiety to satisfy others, and to keep themselves from falling, will destroy the comfort of their existence. Whether it be in our profession or any other, I know of no individuals much more to be pitied than those whom fortuitous circumstances have lifted into places, the duties of which they are not well qualified to perform.

I trust that none among you will suspect that these observations are founded on any theoretical view of the subject, or that it is merely as a matter of course that I thus address myself to younger men. I wish to see those who are educated in this hospital, an institution to which I am indebted for so many advantages which I have possessed in life, go forth into the world useful and respectable members of an honourable and independent profession. I wish to see them obtain success, and worthy of the success which they obtain: and having now had a long experience in the history of medical students, and having been careful to watch their progress through life, I am satisfied that the only method by which this can be accomplished, is that which I have pointed out: and, I may add, that I have never known an individual, who thus applied himself seriously and in earnest to his task, whose exertions were not rewarded by a reasonable quantity of professional success—such as would be sufficient to satisfy any but an inordinate ambition. Beyond this, your lot in life may indeed be influenced by circumstances not altogether under your control. Accident may place one individual in a situation more favourable, and another in a situation less favourable to his advancement. One may have the advantage of greater physical powers, enabling him to undergo the same exertion with less fatigue, and to preserve his energies unimpaired, where those of another would be

exhausted; and, in like manner, one may have the advantage of powers of intellect which are denied to his competitors.

With respect, however, to the last-mentioned subject, I have no doubt that the difference is not so great as you, or the world generally, may suppose it to be. There are few persons who have not some talent, which, if properly cultivated, may be turned to good account, and he who is deficient in one kind of talent may excel in another. But the greatest talents may be wasted. They may be blighted by indolence; they may be used for base or improper purposes; or, they may be directed to too great a variety of objects. It is well, indeed, for you to have some diversity of study, so as to keep all your mental faculties in wholesome exercise; so that you may not be without some sympathies with those around you, and that you may avoid the evils of narrowmindedness and prejudice; still, whoever would be really useful in the world, and be distinguished in it, must act to a great extent on the principle of concentration, keeping one object especially in view, and making his other pursuits subservient to it. And let no one sit down in despair and say, "I have not the abilities of my neighbours, and it is needless for me to exert myself in competition with them." If you would know what your own powers are, you must try to use them. Industry is necessary to their development; and the faculties of the mind, like those of the body, go on improving by cultivation. It is impossible for you to form a right estimate of yourselves in early life, nor can you be rightly estimated by others. The self-sufficient, who do not keep before their eyes an ideal standard of perfection, who compare themselves only with those who are below them, will have an advantage with inexperienced and superficial observers; but I must say that I have never known any one to do any real good in the world, or obtain ultimately a bright reputation for himself, who did not begin life with a certain portion of humility. The greatest men are humble. Humility leads to the highest distinction, for it leads to self-improvement. It is the only foundation of a just self-confidence. Study your own characters; endeavour to learn, and to supply your own deficiencies; never assume to yourselves qualities which you do not possess; combine all this with energy and activity, and you cannot predicate of yourselves, nor can others predicate of you, at what point you may arrive at last. "Men," says M. Guizot, "are formed morally as they are formed physically. They change every day. Their existence is always undergoing some modification. The Cromwell of 1650 was not the Cromwell of 1640. It is true that there is always a large stock of individuality: the same man still holds on: but how many ideas, how many sentiments, how many inclinations have changed in him! What a number of things he has lost and acquired! Thus at whatever moment of his life we may look at a man, he is never such as we see him when his course is finished." These eloquent and philosophical remarks, made by the present Prime Minister of France, are not more applicable to those who are engaged in politics, than they are to those who are engaged in the pursuits of private life, and to none more than to yourselves.

It is not my intention on this occasion to give you any advice as to the detail of your studies. It is best that this should be left to your respective teachers. They will tell what lectures you should attend first, what afterwards; what hours you should devote to anatomy, what to the hospital practice; where you should take notes and where you need not do so. There are, however, some general suggestions, which I may venture to offer, without exceeding those bounds to which I wish that my observations should be restricted, and without taking on myself those duties which more properly belong to others.

The first effect usually produced on the mind of a medical student, is that of being bewildered by the number and variety of subjects to which his attention is directed. In one class-room he is instructed in chemistry; in another in the materia medica. In one place, the structure of the human body is unravelled before him; and in another, he contemplates the interminable varieties of disease, and the methods which are adopted for their cure. He sees none of the relations by which these different investigations are combined together, so as to form one science. He has the opportunity of learning a great number of facts, but for the most part they are insulated, and independent of each other; he can reduce them to no order, and the want of a proper arrangement and classification makes the recollection of them difficult and uncertain. But this is not peculiar to medical students. The same difficulty occurs to every one, who enters for the first time on an extensive field of research: and they must, indeed, be very indolent, and very unfit for the business of life, who suffer themselves to be disheartened by it. Have patience for a while; keep your attention fixed on the matters which are brought before you, and after every lesson that you have received, or at the close of every day, endeavour to recollect what you have seen and heard; and in the course of a short time there will be an end of the confusion; the mist which there was before you will have passed away; where every thing had been obscure, there will be a clear landscape; and the studies, which, when you were first initiated in them, were dry and irksome, will become interesting and agreeable. As you acquire a more extensive knowledge of individual facts, it must necessarily happen that the relations which they bear to each other will become more distinctly developed. This, however, does not seem to be the whole explanation. I cannot well understand what I have observed to happen in myself, without supposing that there is in the human mind a principle of order which operates without the mind itself being at the time conscious of it. You have been occupied with a particular investigation; you have accumulated a large store of facts; but that is all: after an interval of time, and without any further labour, or any addition to your stock of knowledge, you find all the facts which you have learned in their proper places, although you are not sensible of having made any effort for the purpose.

In the commencement of your studies, you will, at first, be altogether occupied in the acquirement of knowledge communicated to you by others. You will learn from lectures and from books what

others have learned before you, and what is there taught you must take for granted to be true. A student may be very diligent and industrious, and yet go no farther than this through the whole period of his education. He may become an accomplished person; full of information; a walking cyclopædia; and, at the end of his labours, may obtain the reputation of having passed through his examinations with the greatest credit. All this is as it should be, and those who think that to pass a creditable examination is the only object of their studies, will be quite satisfied with the result. But is it sufficient in reality? Are no qualifications required besides those, which are wanted for your examination? It is far otherwise, and no one will rise to be conspicuous in his profession, nor even to be very useful in it, whose ambition is thus limited. The descriptions of disease, and the rules of treatment, are simplified in lectures and in books; and if not so simplified, they could not be taught at all. But you will find hereafter, that disease is infinitely varied; that no two cases exactly, and in all respects, resemble each other, and that there are no exact precedents for the application of remedies. Every case that comes before you must be the subject of special thought and consideration; and from the very beginning of your practice, although what is taught in lectures and books may render you great assistance, you will be thrown in no small degree, on your own resources. There is no profession in which it is more essential that those engaged in it should cultivate the talent of observing, thinking and reasoning for themselves, than it is in ours. The best part of every man's knowledge is that which he has acquired for himself, and which he can only to a limited extent communicate to others. You will spend your lives in endeavouring to add to your stores of information; you will, from day to day, obtain a clearer and deeper insight into the phenomena of disease; you will die at last, and three-fourths of your knowledge will die with you; and then others will run the same course. Our sciences are, indeed, progressive; but how much more rapid would their progress be, if all the knowledge that experience gives, could be preserved. Now, these remarks are of practical importance to you all. You should begin to act upon them at an early period of your studies. Make out every thing relating to the structure of the body for yourselves. Do not altogether trust to what is told you in lectures and books, but make the knowledge your own by your own labours. Observe for yourselves the phenomena of disease, and the only way of doing this in an efficient manner is to take your own written notes of cases. I say, *your own* notes, for copying those taken by others, as far as the improvement of your own mind goes, is nearly useless; and when you have taken notes in the morning, write them out in the evening, and think of them, and compare them with one another, and converse on them with your fellow-students, and all this will render the investigation of disease a comparatively easy matter afterwards.

In these latter observations, I have anticipated some of those which I had intended to address especially to those among you who are on the point of offering themselves to the public as candidates

for practice. It would be a fatal error for you to suppose that you have obtained the whole, or even any large portion of the knowledge which it is necessary for you to possess. You have not done much more than learn the way of learning. The most important part of your education remains;—that which you are to give yourselves, and to this there are no limits. Whatever number of years may have passed over your heads, however extended may be your experience, you will find that every day brings with it its own knowledge; you will still have something new to seek, some deficiencies to supply, some errors to be corrected. Whoever is sufficiently vain, or sufficiently idle, to rest contented, at any period of his life, with his present acquirements, will soon be left behind by his more diligent competitors. By the young practitioner, every case that he meets with, should be carefully studied; he should look at it on every side; and he should, on all occasions, assist his own inquiries by a reference to his notes of lectures and to books.

But it will rarely happen, that in the beginning of a professional life, even the most diligent and the most successful person will be able to occupy the whole of his time with strictly professional pursuits; and the question must arise, "What is he to do with his leisure hours?" A most important question, indeed, it is; for the character and the lot of the individual must depend, in a very great degree, on the way in which such leisure hours are employed. If altogether devoted to what, dull as they generally are, the world calls amusements, these do but spoil the mind for better things; and if you trust to such desultory occupations as accident may bring, the result will be no better. You will be the victims of melancholy and *ennui;* and unreasonable despondency with respect to your future prospects will oppress your faculties, and deprive you of that spirit, and of those energies, which are absolutely necessary to your success. And these evils are easily avoided. How many branches of knowledge are there, which, if not directly, are indirectly useful in the study of pathology, medicine, and surgery! and all general knowledge, whether of literature, or of moral or physical science, tends to expand the intellect, and to qualify it better for particular pursuits. There is no excuse for a young professional man who does not devote some portion of his time to the general cultivation of his mind. His own profession have a right to expect it of him, and he owes it to his own character. Ours is no political profession. It is one belonging altogether to private life. Your place in society depends, not on your being mixed up with parties and factions; not on circumstances external to yourselves, but on your own qualities; you make it for yourselves You wish, I conclude, to be received in society as being on a footing with well-educated gentlemen. But, for this purpose, you must be fitted to associate with them; and this cannot be the case, if you know nothing of those matters which are the general subject of conversation among them. The world care little about those distinctions, which, for the sake of a more convenient division of labour, we make among ourselves; and a well-conducted and well-informed man will be just as well received

in society if he belongs to one grade of the profession as if he belongs to another. It is very much to the discredit of the great medical institutions in this country, that, except in some few instances, they have not given even an indirect encouragement to the obtaining a good general education, and, in one instance, the legislature have actually done their best to throw an impediment in the way. I know that many, nevertheless, have not been without this advantage; but they may improve themselves still further, and others may, in a great degree, make up for what they have lost, by a right disposal of their time in the early part of their practice.

It cannot be difficult for any one endowed with an ordinary degree of intelligence and curiosity, to fill up his vacant hours with pursuits that are no less interesting than useful. But your profession itself, from the moment you are established as practitioners, will possess a new interest very different from that which belonged to it during the period of your pupilage. Hitherto you have been acting under the direction of others, and on their responsibility. Hereafter, you will have to act for yourselves, and on your own responsibility. Whatever credit is to be obtained, it will be your own; and, on the other hand, where blame is due, you may be sure that no one will volunteer to divide it with you. In every case that comes under your care, you will have to account to your own conscience for having done the very best that it was in your power to do for your patients' welfare: you will have to account also to others; to your own immediate circle of friends and patients; to society at large; to all those whose favourable opinion of your character and conduct is necessary to your success in life. You will find yourselves surrounded by duties, responsibilities and anxieties, which were unknown to you as students. He who has not a full sense of the responsibilities which it involves, is unfit for our profession; and the anxieties of a professional life are but a wholesome stimulus to diligence and exertion. I say this, supposing them to be kept within reasonable bounds. You may allow your thoughts to dwell on subjects of anxiety until an entirely opposite effect is produced, and life is rendered miserable, and the mind enervated. Such a morbid sensibility is as mischievous on the one hand as a want of just sensibility is on the other. You must be careful to train the mind so that it may not fall into either of these extremes. Make every exertion to obtain knowledge, and to use it properly; and then keep it in your recollection that there are bounds to human knowledge, and to human powers; and that, in the exercise of our art, we cannot do all that is required of us; for, if we could, pain and misery would be banished from the world, man would be immortal, and the order of the universe would be disturbed. Do not begin life with expecting too much of it. No one can avoid his share of its anxieties and difficulties. You will see persons who seem to enjoy such advantages of birth and fortune, that they can have no difficulties to contend with, and some one of you may be tempted to exclaim, "How much is their lot to be preferred to mine!" A moderate experience of the world will teach you not to be deceived

by these false appearances. They have not your difficulties, but they have their own; and those in whose path no real difficulties are placed, will make difficulties for themselves; or, if they fail to do so, the dulness and monotony of their lives will be more intolerable than any of those difficulties which they may make, or which you find ready made for you. Real difficulties are much to be preferred to those which are artificial or imaginary: for, of the former, the greater part may be overcome by talent and enterprize, while it is quite otherwise with the latter. Then, there is no greater happiness in life than that of surmounting difficulties; and nothing will conduce more than this to improve your intellectual faculties, or to make you satisfied with the situation which you have attained in life, whatever it may be.

To be prepared for difficulties; to meet them in a proper spirit; to make the necessary exertion when they occur; all this is absolutely necessary to your success, whatever your profession or your pursuit in life may be. No one can be useful to others, or obtain real credit for himself, who acts on any other rule of conduct. But it is more easy to lay down the rule than to follow it, unless the mind be disciplined for the purpose from the beginning. The natural tendency of mankind is to indolence; to shrink from difficulties; to try to evade them rather than to overcome them. Never yield to this disposition on small occasions; and thus you will acquire a habit which will enable you to do what is wanted on great occasions, without any violent or painful effort. It is by neglecting their conduct in the smaller concerns of life that so large a portion of mankind become unequal to the performance of their higher and more important duties. If you would know a man's character, look at what he does in trifles, and, for the most part, you will be able to form no inaccurate notion of what he would be in greater things.

I have heard the following anecdote of a distinguished individual who afterwards rose to the highest honours of the legal profession. For several years, in the early part of his life, he had been wholly without professional employment. One term went, and another came; but that which brought briefs to others brought none to him. Still he was always at his post, and, disappointed but not discouraged, he continued to labour, laying up stores of knowledge for his future use. At last, it happened that he was employed as a junior counsel in a cause of great importance. The evening before the cause was to come on in the court in which he professed to practice, the senior counsel, or (as he is technically called) his leader, was seized with a sudden illness. No one of the same standing could be found to supply his place; and late in the evening the solicitor went, probably unwillingly enough, to the junior counsel, and represented to him under what circumstances he was placed, and that he must trust to him alone. All the hours of the night were devoted to the task. The knowledge which the poor obscure student had acquired now turned to good account. On the following day he gained such credit that his reputation was established; and from this time his elevation was rapid. Now this may perhaps be regarded as an extreme

case, but something like it must happen to every one who attains a high station afterwards. There are few so indolent that they will not make an exertion for the sake of an immediate reward; but it is a poor spirit that can accomplish no more than this. The knowledge which you acquire to-day may not be wanted for the next twenty years. You may devote whole days and nights to study, and at the end of the year may not be aware that you have derived the smallest advantage from it. But you must persevere nevertheless; and you may do so in the full confidence that the reward will come at last. There is nothing in which the difference between man and man is more conspicuous than it is in this; that one is content to labour for the sake of what he may obtain at a more advanced period of his life, while another thinks that this is too long to wait, and looks only to the immediate result. At first, the former may seem not only to make no greater progress than the latter, but even to be the more stationary of the two. But wait, and you will find a mighty difference at last. You cannot judge from the first success of a professional person what his ultimate success will be: and this observation applies especially to those who contend for the greater prizes, not only in our profession, but in the majority of human pursuits.

A thorough determination to attain an object is the first step towards its attainment.

If you wish to advance yourselves in the way of life which you have chosen, you must persevere in one undeviating course, wandering neither to the right nor to the left, or making such excursions as you make into other regions of knowledge subservient to your main pursuit. What is called a life of pleasure is incompatible with a life of business; and those who have a more noble ambition, who love knowledge for its own sake, must learn to limit their ambition, and not waste their talents or their reputation by grasping at too much. Those who would excel in all things will excel in nothing. They may excite the wonder of the educated and uneducated vulgar: but those who are the best qualified to judge will detect their weakness, and smile at their superficial acquirements; and, after all their labour, they may die at last, and leave the world no better than it would have been if they had never existed.

And here I can conceive that some among you may say, "Is there any thing which the medical profession can bestow, which will prove a compensation for the labour, the exertion, and the sacrifices which it entails upon us? Is it better to continue in it, or to turn aside to some other pursuit or employment? Indeed, it is well that this question should be thoroughly considered before it is too late; for, as far as I have seen the world, nothing is more ruinous than that unsettled state of mind which would lead you, when you are fairly embarked in one profession, to grow dissatisfied with it, and desert it for another. There are, I know, some remarkable instances in which the result was different; but it would be dangerous to quote these as precedents which you might safely follow, or to make the

example of a peculiar genius, like that of Erskine, the foundation of a rule for ordinary men.

I know of no profession that is worthy of being pursued which does not require as much exertion, as much labour, as many sacrifices, as that in which you are engaged; and I also know of none in which he who has the necessary qualifications is more sure of being rewarded for his labours. If it be your ambition to obtain political rank, or to have that sort of reputation which a political life affords, you will be disappointed; for, as I have already observed, our profession has nothing to do with politics. It belongs to private life; and the only other association which it has is that of science. There are few departments of either physical or moral science with which it is not, in a greater or less degree, connected; and there are some with which the connection is so intimate, that the study of them may be almost regarded identical. The study of anatomy and physiology is a necessary preliminary to that of pathology; and the former cannot be understood by any one who has not some knowledge of the laws of mechanics and optics. Animal chemistry is daily becoming more essential to physiology, and is even beginning to illuminate some of the more obscure parts of the science of disease. You are to look, not to political rank, but to the rank of science. No other rank belonged to Newton or Cavendish, to Hunter or Davy; yet their names will live in distant ages; and they will be regarded as benefactors of the human race, when the greater number of their more noisy cotemporaries, if remembered at all, are remembered without respect.

We are informed by his son-in-law and biographer, that, when Mr. Pott was seized with his last illness, he said, "My lamp is nearly extinguished: I hope that it has burned for the benefit of others." He addressed himself to his own family, and died on the following day; and, under such circumstances, it would be absurd to suppose that this was said merely with a view to produce an effect, or that these were any but his real and heartfelt sentiments. Undoubtedly it must be a great satisfaction at the close of life, to be able to look back on the years which are passed, and to feel that you have lived, not for yourselves alone, but that you have been useful to others. You may be assured, also, that the same feeling is a source of comfort and happiness at any period of life. There is nothing in this world so good as usefulness. It binds your fellow-creatures to you, and you to them; it tends to the improvement of your character; and it gives you a real importance in society much beyond what any artificial station can bestow. It is a great advantage to you, that the profession in which you are about to enter, if promptly pursued, is pre-eminently useful. It has no other object; and you cannot do good to yourselves without having done good to others first. Thus it engenders good feelings and habits; and I know of no order in society who, taken as a whole, are more disinterested, or more ready to perform acts of kindness to others, than the members of the medical profession.

Usefulness is the best foundation of independence. There are

some ways of life in which it is common for individuals to obtain unmerited advancement by the patronage of others. But you must be your own patrons. Your knowledge, your skill, your good character, will constitute your fortunes. Your dearest friends will feel that they are not justified in entrusting the lives and comfort of themselves and their families to your care, unless they have reason to believe that it is safe and prudent for them to do so, and that they can do nothing better; and so far, you are no more under an obligation to those who consult you than a landlord is under an obligation to the tenant of his house or land. Those who are well disposed towards you cannot help you unless you first help yourselves. But let me not be mistaken. It is well to be conscious that you are to rely on yourselves alone; and that even if you were base enough to cringe and stoop for the purpose of obtaining the favour of others, you could derive no permanent advantage from it. This is the independence which I mean; and not that proud and misanthropical independence which rejects the feeling of all obligations to others. Whoever gives you his good opinion, whatever his station in life may be, is, in some measure to be considered as conferring an obligation on you, and deserves to be regarded by you with kindness in return. Mankind are bound to each other by mutually receiving and conferring benefits. You cannot live in the world, and, at the same time, live apart from it, and say, "I will owe no thanks to others; for whatever advantages I may obtain I will be indebted to myself alone." All those who do justice to your real or supposed merits have a claim on your gratitude. As others will lean upon you, so you must be content to lean upon them. On no other terms can you form a part of the great community of mankind.

There are some employments which bring those who are engaged in them in contact more especially with the bad qualities of mankind; their pride, their arrogance, their selfishness, their want of principle. It is not so with your profession. All varieties of character will be thrown open to your view; but, nevertheless, you will see on the whole the better sides of human nature; much, indeed, of its weakness, much of its failings, much of what is wrong; but more of what is good, in it. Communicating, as you will probably do, with persons of all conditions, you will be led to estimate others according to their intrinsic qualities, and not according to those circumstances which are external to themselves: you will learn, that of the various classes of which society is composed, no one is pre-eminently good, or pre-eminently bad: and that the difference is merely this, that the vices and virtues of one class are not exactly the vices and virtues of another. You will have little sympathy with those prejudices which separate different classes from each other; which cause the poor to look with suspicion on the rich, and the rich to look down upon the poor; and while you cannot fail to perceive the great advantages which education gives, you will acknowledge, that, to be well educated, is not the necessary result of having the opportunity of education; that a bad education is worse than none at all; and that what are called the uneducated classes

present many examples, not only of the highest religious and moral principles, but of superior intellect, and of minds stored with valuable knowledge.

All this is good for your own minds; but it is a still greater advantage to you, that a good moral character is not less necessary to your advancement in the medical profession than skill and knowledge. Nor is it merely a strict observance of the higher rules of morality that is required. You must feel and act as a gentleman. I can find no word so expressive of what I mean as this. But let there be no misunderstanding as to who is to be regarded as a gentleman. It is not he who is fashionable in his dress, expensive in his habits, fond of fine equipages, pushing himself into the society of those who are above himself in their worldly station, that is entitled to that appellation. It is he who sympathizes with others, and is careful not to hurt their feelings even on trifling occasions; who, in little things as well as in great, observes that simple but comprehensive maxim of our Christian faith, "Do unto others as you would they should do unto you;" who, in his intercourse with society, assumes nothing which does not belong to him, and yet respects himself; this is the kind of gentleman which a medical practitioner should wish to be. Never pretend to know what cannot be known; make no promises which it is not probable that you will be able to fulfil; you will not satisfy every one at the moment, for many require of our art that which our art cannot bestow; but you may look forward with confidence to the good opinion of the public, which time will bring as your reward, and to act otherwise is to put yourself on a level with charlatans and quacks.

To obtain such competency as will place yourselves and your families above the reach of want, and enable you to enjoy such of the comforts and advantages of life as usually fall to the lot of persons in the same station with yourselves, is, undoubtedly, one of your first duties, and one of the principal objects to which your attention should be directed: but, nevertheless, let it never be forgotten that this forms but a part, and a small part, of professional success. If, indeed, money were the only object of life; if to enjoy the respect of others, and the approbation of your own conscience; to feel that you are doing some good in the world, and that your names will be held in esteem when you are gone out of it; if these things were to form no part of your ambition, then, indeed, you might possibly have your ambition gratified by pursuing a different course from that which I have pointed out. You might be unscrupulous in your promises; undertaking to heal the incurable; making much of trifling complaints for your own profit; claiming credit where none belongs to you; and you might try to advance yourself by what is often called a knowledge of mankind, or a knowledge of human nature. But how is that term misapplied! Knowledge of human nature, indeed! This is the most difficult, the most interesting, the most useful science in which the mind of man can be engaged. Shakspeare knew human nature, as it were, by instinct. It has been the favourite study of the greatest men; of Bacon, of Addison, of John-

son. But of those who are commonly spoken of in the world as knowing human nature, the majority are merely cunning men, who have a keen perception of the weak points of other men's characters, and thus know how to turn the failings of those who probably are superior to themselves in intellect, to their own account.

Generous feelings belong to youth, and I cannot suppose that there is a single individual present, who would not turn away with disgust from any advantages which were to be obtained by such means as these. Your future experience of the world, if you use it properly, will but confirm you in these sentiments; for you will discover that of those who strive to elevate themselves by unworthy artifices, it is only a very small proportion who obtain even that to which they are contented to aspire; and that the great majority are altogether disappointed, living to be the contempt of others, and especially so of their own profession, and, for the most part, ending their days in wretchedness and poverty.

There is only one other subject to which, in concluding this address, I think it right to claim your attention. You have duties to perform among yourselves, one to another. There is no one among us who does not exercise an influence, to a greater or less extent, over those with whom he associates, while he is influenced by them in return. In whatever orbit a man moves, he carries others with him. If the vicious have their followers, those who set a bright example of honour and integrity have their followers also. In like manner, industry in one leads to industry in another, and the mind which is imbued with the love of knowledge cannot fail to communicate some portion of that holy inspiration into the minds of others. These, which are among the higher responsibilities of life, have begun with you already. The course which you individually may pursue, does not concern yourselves alone. While you are making your own characters, you will help to make the characters of others. Let this consideration be ever present to your thoughts. It will give you an increased interest in life. It will extend your sympathies with those around you; and it will afford you an additional stimulus to persevere in those honourable exertions, for which you will, at no great distance of time, be rewarded by the respect of the world, and esteem of your own profession.

LECTURE II.

ILLUSTRATIONS OF SOME IMPORTANT CIRCUMSTANCES CONNECTED WITH OPERATIVE SURGERY.

THERE is no department of the healing art in which there is so much to interest or to excite both our own profession and the public, as there is in operative surgery. In the greater number of cases of disease treated by other means, it is difficult to say how much of the success obtained belongs to the remedies employed, and how much to the natural powers of the patient's constitution. But it is entirely different in those cases that are the subjects of operations. Recourse is had to this mode of treatment only when nature can go no further; and an operation, so far from being the direction of a natural process to a safe result, is, for the most part, an abrupt and rude interference with whatever nature is about. If a cure arise from an operation, it is to be attributed to that, and to that only: and thus it happens that some of the most splendid results obtained in the healing art are those which are claimed by the operating surgeon.

But an operation, while it may do good, may also be productive of evil. A man has a stone in the bladder; he is suffering torture; he has nothing but a frightful death to which he can look forward. As the least of two evils, he is contented to submit to the operation of lithotomy: and, it may be, that in the brief space of three minutes he is placed in a situation of perfect comfort, and that in forty-eight hours you are able to declare with confidence that his life is perfectly safe. A man may have a disease in the knee-joint, with carious bone and abscesses; he may be worn out by pain, by perspirations, sleepless nights, and other symptoms of hectic fever. You amputate the limb; and even on that very night he may sleep soundly; there may be no more perspirations, and in a week he may be gaining flesh, and present the aspect of health. But then, on the other hand, there are other cases, in which the patient, after lithotomy, may die within forty-eight hours, although he might have lived—in misery, it is true—had he been let alone, for a year or longer. So, in the case of amputation for a diseased knee-joint, the patient, instead of recovering, may die in the course of a few days, and very much sooner than he would have done had not an operation been resorted to.

This double result of operations adds to the interest which this part of surgery possesses, and to the responsibility which is entailed on those who practise it. But what adds still more both to the one and to the other, is this—that it is not only great operations, such as lithotomy, and the amputation of the thigh, that are attended with risk. A man died in this hospital from the consequences of the sting of a bee; and another died, in this hospital also, from those of the bite of a leech. A patient died in consequence of a wound, not an

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inch in length, on the inside of the knee, made for the purpose of dividing the saphena vein. I have known a patient die from erysipelas that followed the simple operation of cupping; and there have been not a few instances of fatal venous inflammation supervening after a common bleeding in the arm. A lady had a small encysted tumour on her head not larger than a pea. A surgeon who was at that time (for what I am speaking of was many years ago) an eminent man in his profession, removed the tumour, but did it imperfectly. The disease returned, and another surgeon, at that time in large practice also, removed it more effectually. The patient died from erysipelas of the scalp. So others have died from the removal of piles, and other apparently trifling operations.

Considering these different results that are obtained in operative surgery, you cannot but feel how essential it is that you should do every thing that can be done to make yourselves masters of whatever belongs to this part of your profession; that you should study the subject of each individual operation in its most minute circumstances; that you should be well acquainted with the anatomy of all the parts concerned in it; and that you should learn to be dexterous in the use of your knife, and of other instruments employed. You will also perceive that even these qualifications will not be in themselves sufficient. The surgeon who is engaged in operations must attend in all respects to his mode of life; and especially he should be of those moderate and temperate habits without which there can be no steady hand, no accurate eye; without which, also, there cannot be that activity and energy of mind, and readiness of conduct, which are so necessary to enable him to meet the unforeseen difficulties that will continually arise in the greater, and sometimes even in the smaller operations of surgery.

Some things to which you have to attend in an operation may be considered as special—belonging to that particular operation, and not to others. In operating for strangulated hernia, if you divide the stricture in one direction, you may wound the epigastric artery; while if you divide it in another, no such risk is incurred. In the operation of lithotomy, if you make your incision too extensive, you may cut through the whole of the prostate gland, and that is almost certain death to the patient. There are other things which belong to no operation in particular, but to operations generally, and it is to these last that I wish more particularly to direct your attention in the present lecture. You must not, however, lose sight either of the one or of the other if you would be accomplished operators.

An accomplished operator! That term may be used in various senses; but I will tell you, before I proceed further, in what sense I use it. I apply it, not to him who looks at his watch to see in how short a space of time an operation may be completed; nor to him who, during an operation, is putting himself in the situation of those who are looking on, considering what they will say, and anxious to appear dexterous in their eyes. According to my notions, he only is an accomplished operator who, before he engages in an operation, looks at all the consequences, both good and bad, which may ensue;

and earnestly endeavours to lay his plans so that there may be as great a chance as possible of the former being obtained, and of the latter being avoided; and who, while actually engaged in an operation, thinks neither of himself nor of the bystanders, nor allows any question to arise in his mind except as to what he should do to bring the case ultimately to a safe termination with the least possible distress to the patient.

Let me exhort you never to slur over a single case, nor proceed to the smallest operation, without having well considered what accidents may happen, what evil may follow, what degree of danger may ensue; and, having done so, let me advise you further, that you should, as far as you can, make the patient acquainted with all that you know upon the subject: or if he be not in a state in which he can judge for himself, then that you should make the same explanation to his friends. That you should do so is but an act of justice to your patient. It may be quite right for a man to run a risk by going through an operation, but it is not right that he should do so without knowing it, or at any rate not without his friends knowing it. But it is also an act of justice to yourselves. A surgeon has no business to take all the responsibility of an operation upon himself. The friends should never have the opportunity of turning round upon him afterwards, and saying, "you said there was no danger, and here my wife, my husband, or my friend, is dead." In some of the greater operations, indeed, there is not much explanation of this kind necessary, because the world very well know that where you perform lithotomy or amputate the thigh there is a certain degree of hazard. But do not overlook the risk even of the smaller operations. If I am asked whether there be any danger, I never answer that there is none: I say, perhaps, what I have said to you just now, that I have known a person to die in consequence of the sting of a bee, and the bite of a leech; but then I add, that the danger is so small that it is not to be put in comparison with that which will arise from allowing a disease to remain, which is itself a source of danger: or if the disease requiring the operation be one of no serious character, then I may observe, that the patient must decide for himself, whether it be not worth his while to incur a very small risk for the sake of the relief which the removal of the disease will give him. We must all be contented to incur such risks as these in many of the common concerns of life. You may go out on horseback, or on the top of a stage-coach, and may be thrown off and killed; you may be smashed on a railroad, or drowned when on board a steam-vessel. As these very trifling hazards are to be overlooked under other circumstances, so they are to be disregarded in the smaller operations of surgery. State all this to the patient, or his friends, in the way in which I have now stated it to yourselves. It will be a great comfort, and afford much peace of mind in the arduous profession in which you are engaged, if you attend to this advice. A man has a small tumour, and you remove it: the chance of mischief from the operation being not one in a thousand. But perhaps, you are performing small operations daily, and to you, therefore, the

chance is multiplied. It is almost nothing to the patient, but it becomes much to you; and it is especially for your own advantage that even these small fractions of danger should never be concealed.

There is no greater source of danger, you may well suppose, in operative surgery, than hæmorrhage. A large flow of blood may kill the patient instantly. If operators were careless on this point, there would be no want of examples of death from hæmorrhage: and even in spite of all the care that may be taken, it happens sometimes that patients die from loss of blood, either at the time of operation or very soon afterwards. When I was house-surgeon to this hospital, a patient had bleeding after lithotomy which could not be stopped, and he died in a few hours. I performed the same operation on a private patient, in whom there was hæmorrhage from the large veins, apparently in the neighbourhood of the neck of the bladder, which could not be stopped, and he also died in about a couple of hours. The danger from hæmorrhage is greatest in very early life. I have seen young children several times at the point of death from this cause. I accompanied an eminent surgeon, when I was young, to remove a nævus, or blood-vessel tumour from the back of a child's neck, (at that time nobody ever thought of removing those tumours except by the knife.) There was a good deal of bleeding at the time, but it appeared to have stopped. The child was put to bed, but in the course of a few minutes it was dead.

However, it certainly happens very rarely that patients die of hæmorrhage as an immediate result of an operation. Do not, however, think that hæmorrhage is of no consequence because it does not cause so frightful a catastrophe as this. The patient may survive a large hæmorrhage and be very well the next day, and the day after that, but it may lay the foundation of mischief, such as I shall describe in another lecture, which destroys the patient ultimately. Nor is this all. The patient may recover from the operation, and the wound may be healed, and yet, where there has been a copious hæmorrhage, the constitution of a delicate person, more especially of delicate women, may be so much damaged by it, that it may not recover it for some years. After an operation I have sometimes heard a bystander say, "Oh, he has lost no more blood than it will do him good to lose." It is painful to me to hear such an observation as this: be assured that an operation cannot be performed with too little loss of blood. The loss of a few ounces in a patient who has a stone in the bladder, complicated with disease of the kidneys, will make all the difference between life and death: and so it is in many other cases. If it is desirable that the patient should lose blood, you can always take it from his arm, and just as much as is wanted, and no more. There can at any rate be no advantage from the loss of an uncertain quantity of blood in an operation. Some people seem to me to have a notion that the loss of blood in an operation will make the patient less liable to inflammation afterwards. But I believe that it is just the reverse. Bleeding may relieve phlegmonous inflammation where it already exists, but it does not prevent its existence; and on the other hand, I have no doubt that it increases

the liability of the patient to other kinds of inflammation, such as erysipelas, or diffuse inflammation of the cellular membrane, or venous and arterial inflammation. Those asthenic inflammations, if I may use the expression, occur especially in those persons who have lost much blood. Let it be your object, therefore, in every operation, that it should be performed in such a manner that there should be as little waste of blood as possible.

And I should mention to you that even a large loss of blood before an operation may be productive of the most disastrous consequences afterwards. A man had a lacerated wound of the thigh, his limb having been caught in some mechanical engine. There was considerable bleeding. He became faint, and the bleeding stopped. He was brought into the hospital in a state approaching to collapse. There was a great deal of injury, and it was evident that nothing could be done but to amputate the limb. The patient lay in bed waiting for what we call reaction to take place. By and by the pulse rose, and the wound began to bleed. The house-surgeon ran for a tourniquet, which unfortunately was not at hand, and before it could be procured, the patient had lost an additional quantity of blood. We were then forced to wait till reaction took place a second time, and when it did so the limb was amputated. The patient was taken back to bed pretty well at first; all at once he felt an irresistible impulse to make water, but could not do it. A catheter was introduced, but the bladder was found empty. In a few minutes he died. On examining the body we found the heart flaccid and empty of blood: the vena cava superior and inferior, and the vena azygos, vessels which are generally full of blood, were all empty. The only blood that could be found was in the aorta and its larger branches. The heart had sent forth into the vessels the last drop of blood contained in it, but there was not a sufficient quantity of blood going the round of the circulation to fill the heart again.

To avoid an unnecessary loss of blood in operations, it is of course indispensable that you should have a thorough anatomical knowledge of the parts concerned; but you are not dependent on yourselves alone. Whatever may be your own skill, it will be insufficient, if you are not provided with a good assistant. It is sometimes better, when an operation is likely to be tedious, to take up the bleeding vessels as you go on; as, for example, in the dissection of some tumours, and even in some cases of amputation, where the patient has no blood to spare. Sometimes, where there is a long-continued dissection, you will find great advantage from using a silver knife with as sharp an edge as can be given to this metal. The silver knife will divide the cellular membrane and smaller vessels, but it will not divide any vessel of considerable size. As it divides the cellular membrane it also stretches it, and elongates the vessels which are in it, and you know that vessels which are stretched before they are divided, bleed but little.

It is a great mistake, (at least in my judgment,) to perform amputation without a tourniquet. I know, indeed, that you may stop the flow of blood in the femoral or in any other large artery, by the

pressure of a strong man's thumb; but by means of a tourniquet you may prevent the bleeding from the small vessels as well as the large ones, and I need explain no further why it should not be neglected.

There is another point, which it is always worth your while to consider before an operation. Has the patient any particular disposition to hæmorrhage? There are some families in which almost every individual is liable to bleed in the most alarming manner from the slightest causes—in whom a pinch of the skin will cause an ecchymosis, and a wound with the point of a pen-knife will be followed by a serious hæmorrhage. Whether in these individuals the coats of the arteries are, as some have supposed, unusually thin, and incapable of contraction, or whether there be some peculiarity in the blood, so that it does not readily coagulate, I cannot say; but we know well the fact of the existence of persons who have this hæmorrhagic tendency, and in whom operations are therefore more than usually dangerous. A man came to this hospital, many years ago, with a wound in his forehead, and he nearly bled to death. The flow of blood was stopped at last, not by tying particular vessels, but by a general pressure; but it returned: it was again stopped in the same manner, but it again returned, and it was not till a large slough had been made by caustic that the hæmorrhage was finally arrested. This man, when younger, had had a bad tooth, and he went to a dentist to have it drawn, but he very nearly bled to death. Some time after he had been at the hospital with his wound in the forehead, he had another bad tooth. At first he was afraid to have it drawn, remembering the danger to which he had been exposed, but at last his toothache drove him to a dentist, by whom it was extracted. There was an abscess at the bottom of the tooth, which was in the upper jaw. A profuse hæmorrhage followed the operation. I was called in, two or three days afterwards, and he had been bleeding all the time. I tried various ways to plug the alveolus, and at last applied the cautery. It stopped the bleeding only for a short period, then it returned; and all other means having failed, I tied the carotid artery. This also was unsuccessful, and the bleeding went on, and ended fatally. This patient's child had the same hæmorrhagic tendency, and very nearly bled to death from the bite of a leech. There was a gentleman belonging to a family of which I have seen many members, all of whom have this singular disposition to hæmorrhage. Upwards of twenty years ago, he sent for me to see him. He had symptoms of stone in the bladder, one of which was a most prodigious discharge of pure blood from that viscus. A surgeon whom he had consulted previously had declared him to to have a *fungus hæmatodes* of the bladder. I examined him, and found a stone. I recommended that he should go through the operation of lithotomy, but he said that he should bleed to death; and a circumstance had occurred, since I first saw him, that seemed confirmatory of his opinion. He had been cupped in the perineum, and the wounds made by the scarificators had bled profusely every other day for nearly three weeks. Having seen a good deal of him,

I partook of his fears, and was rather glad to avoid the operation. By and by he sent for another surgeon, who was in very large practice, and certainly had much more knowledge than I at that time possessed. He sounded him, found the stone, and said he had better be cut for it. "Oh!" said the patient, "I shall bleed to death." The surgeon, not being rightly informed on the subject, rather laughed at this: the operation was performed, frightful bleeding followed, which went on for twenty-four hours, and then the patient died.

There is another cause of fatal results at the time of, or immediately after, an operation; namely, the severe shock which under certain circumstances, it may occasion to the nervous system. Sir Everard Home, in the instructive lectures which he formerly gave in this hospital, was accustomed to mention the case of a man who had a diseased testicle. He was placed on the table to go through the operation of castration. The removal of the testicle is a very simple process; there is no bleeding but what is under command, and there was no bleeding here: but when the testicle was removed, they looked at the man, and he was dead. When I was a student in this hospital, there was a man with a large stone in the bladder. Sir Everard Home, who was a dexterous lithotomist, performed the usual operation. The stone broke to pieces, and that at first seemed to be rather a good thing than otherwise, for it is better to take out a very large stone piecemeal, than to drag it out entire. But this occupied a long period of time, there being a deep perineum, and a great number of fragments. The operation I believe lasted a whole hour; then the man was taken back to the ward, but he was dead before he was in bed. This was probably nothing but the effect produced on the nervous system by a long, painful, and anxious operation, upon a healthy subject; and for such a contingency as this you cannot in all cases be prepared. But you may be prepared for it in some cases by well considering the condition of the patient before you undertake the operation.

Suppose for example a man to have disease of the heart, with symptoms indicating ossification of the coronary arteries, that is, symptoms of angina pectoris; he will be much more likely to die from the shock of an operation than another patient; and therefore in him every thing but the smallest operation should be avoided.

In the early part of my professional life, I was present at an operation of lithotomy performed on a patient who had many urgent symptoms of stone in the bladder: the urine was full of bloody mucus, offensive to the smell, and tinged with blood. The suffering which the disease occasioned was almost beyond imagination; but still it was a case in which, notwithstanding the greatness of the suffering, no surgeon with the knowledge we now possess would venture on an operation. This class of diseases was not so well understood at that time as it is at present; and two of the most distinguished surgeons of the day agreed in recommending lithotomy. The operation was performed; it did not last three minutes, and there was scarcely any hæmorrhage. The patient was taken off the table, but

he was dead before he had been three minutes in bed. On examining the body, the prostate gland was found extensively ulcerated; and it seemed that the passing of the instruments over the ulcerated gland had produced that impression on the nervous system that proved thus instantly fatal. I witnessed another operation performed under exactly the same circumstances; except that there were several stones, and, therefore, that it was not so soon over. Before the patient was taken back to bed he was in a state of perfect coma, with stertorous breathing. In this condition he remained for some hours, and then died. A man was in the hospital with stone in the bladder, under the care of Mr. Ewbank: there was a consultation on the case, the question being whether the patient should undergo the operation or not. The symptoms were exactly similar to those which occurred in the two last-mentioned patients; and on the circumstances being stated to him, Mr. Ewbank at once gave up all thoughts of the operation. It was well that he did so; for on the following day the man died, and an extensive ulceration of the prostate, with disease of the bladder, was discovered on dissection.

Of course you may do a great deal towards preventing such a catastrophe by looking thoroughly into the case at first, and it will indeed, rarely happen that you may not anticipate and avoid the danger. Still such a case may occur as that of a patient suffering in an unusual degree from the impression which the operation makes on his nervous system, and in which, by the proper and timely exhibition of stimulants, the system may be supported under it, and the patient's life preserved.

LECTURE III.

ILLUSTRATIONS OF SOME IMPORTANT CIRCUMSTANCES CONNECTED WITH OPERATIVE SURGERY. (*Continued.*)

In the preceding lecture, I explained to you some of the ill consequences of operations, which are met with either at the time of their being performed, or immediately afterwards. In the present lecture, I mean to draw your attention to some other sources of danger, the results of which are not rendered manifest until a later period.

The effect of any local injury depends, *first*, on the nature and extent of the injury itself; and *secondly*, on the condition of the individual at the time of the injury being inflicted. In one state of constitution, the slightest and simplest wound may produce ill consequences, which even the largest and more complicated wound would not produce in another; and it is the duty of the surgeon, before he has recourse to an operation, to study the causes of this difference, and to make himself acquainted with the circumstances

on which its success or failure may depend. Evils which are anticipated may often be prevented, and at all events, it is always worth while to know what are the evils which may probably or possibly arise, in order that you may determine how far you are or are not justified in encountering them.

An operation may be followed by severe phlegmonous inflammation. You may remove a loose cartilage from the knee-joint, and in the course of forty-eight hours the synovial membrane of the joint may be distended with synovia, with great pain in the part, and symptomatic inflammatory fever; or there may be a similar phlegmonous inflammation of the stump after amputation of the thigh, ending, if it be not checked by art, in suppuration and abscesses on the surface of the bone, destruction of the periosteum, and death of the bone itself to a greater or less extent. In such cases it may be necessary to have recourse to what is commonly called antiphlogistic treatment, to take blood from the arm, to give purgatives and diaphoretics, and even to subject the patient to the influence of mercury. It is impossible to say, in all cases, whether it be or be not probable that symptoms of this kind will show themselves, but you may, nevertheless, be justified in expecting them in many instances. A person of plethoric habit, of good constitution, who has been living rather freely, without actual intemperance, is the individual in whom such inflammatory symptoms most frequently appear. You may especially distrust a patient, whose urine is unusually loaded with lithic acid, whether it be a clear high-coloured secretion, depositing red or brown crystals of lithic acid, or whether it becomes turbid on cooling, having a red sediment, composed chiefly of the lithate of ammonia, and staining the bottom of the vessel which contains it, so that it resembles in appearance what they call a pink saucer. The secretion of the kidneys, where it habitually exhibits the appearance which I have just described, always indicates an inflammatory condition of the system. The individual thus affected is in a situation which may be compared to that of a man who has a sword suspended over his head by a thread which may break, so as to put his life in jeopardy at any moment. You must not be surprised, if he be suddenly, and when he supposes himself to be in the best possible health, seized with inflammation of the pleura, or of the knee, or with a brain fever, and you may be assured he is so unfavourable a subject for an operation, that no operation ought to be had recourse to, except as a matter of absolute necessity, and with a view to avoid some very great and pressing danger. Under any other circumstances, let the operation be postponed until, by a regulated diet, by exercise taken daily, not to an immoderate extent, but yet so as to induce a free perspiration, by the exhibition of purgatives, and perhaps of small doses of the alkalies, you have brought the patient into a better state of health.

But the dangerous inflammations which occur after operations have, for the most part, an entirely different character from that of which I have just spoken. They are low asthenic inflammations, connected with a depressed state of the general system, and requiring

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a very different treatment from what is required in cases of active phlegmonous inflammations. Of these the most common is that which assumes the form of an exanthematous disease, and which we call erysipelas.

There is no greater source of danger to patients after operation than this; nor is there any more abundant cause for mortification to the surgeon, showing itself, as it does, not only after the most severe and complicated operations, but after those that are regarded the most trifling; not only after lithotomy, or an amputation of the thigh, but after the removal of an encysted tumour from the scalp, or the division of the prepuce on account of a phimosis, or the laying open of the smallest sinus in the groin, or near the rectum. Perhaps the wound made in the operation is healing favourably, and you suppose that your labours are brought to a prosperous termination, when some day, on visiting your patient, you find that he has had a rigor followed by fever, and at the end of twenty-four hours you find him labouring under erysipelas, which endangers his life, and keeps your mind in a state of suspense for the next fortnight.

It would be foreign to my present purpose to give you a history of erysipelas, or to direct the treatment which it requires. My object is merely to explain the peculiar circumstances under which it commonly arises, and to consider the means of prevention.

It has been supposed by some, that erysipelas is contagious, and that it is from this cause that you find it prevail to so great an extent at particular periods in hospitals all over the world. But you must be aware how difficult it is to distinguish between diseases which are communicated from one person to another, and those which affect many individuals about the same time, because they happen to be placed under similar circumstances, and are subjected to the same external influences. Now it has been my lot to live, during nearly the whole of my professional career, where I had abundant opportunities of watching the origin, progress and termination of this terrible malady, and the result is that I am led to believe that it is not really contagious. Exposure to cold and damp, and especially to the influence of these two causes acting in combination with each other, may be the immediate exciting cause; but, if I am not greatly mistaken, it may in nine cases out of ten be traced to a still higher source than this, namely, to a depressed and debilitated condition of the patient's constitution. The depressing effects of the cold north-eastern wind, which in this country prevails on an average for nearly three months between winter and summer, are felt and acknowledged by all, and erysipelas is never more prevalent than it is just at this period of the year. We may in the same manner explain the frequent occurrence of it during a season of extreme cold in winter, or of intense heat in summer. Then you may observe that it occurs especially after operations in which the patient has lost an unusual quantity of blood, and in those who either before or after the operation have been kept on a very low system of diet. We cannot regulate the winds of the spring months, nor the heat of summer, nor the cold of winter, but we may, I am satisfied, do a

very great deal towards counteracting their influence and lessening the danger of erysipelas, by using every possible precaution against an abundant hæmorrhage, by the prudent and judicious administration of nourishment, and by a cautious exhibition of such stimulants as wine and beer to those who are accustomed to them when in health. I was educated in the belief that the thing to be most apprehended after an operation was some kind of inflammation; and that the way to prevent inflammation was to keep the patient on low diet, and as long as I acted in accordance with these views, I was meeting with erysipelas at every turn of my practice. Many years have now elapsed since I became convinced that these doctrines are erroneous: that an operation is a shock to the system, making a great demand on the vital powers: that the effects of this shock are often much aggravated by loss of blood: that a very scanty diet actually makes the patient more liable to certain kinds of inflammation than he would be otherwise; and that our rule of practice ought to be rather to sustain his powers by allowing him wholesome nourishment, and not to add to the influence of other depressing causes that still worse one of starvation. I assure you, and I assert it most positively, that if you attend to the rule which I have just laid down, although you may not prevent erysipelas altogether, you will find it to be a rare instead of common occurrence, and I can scarcely express to you how much greater has been the comfort of my life, and how much less cause I have had for professional anxiety, since I altered my mode of practice, than was the case formerly.

Let me not, however, be misunderstood as recommending that the subjects of operations are to be crammed with animal food, or that wine and porter and brandy are to be freely and indiscriminately administered. As I have already explained to you, there are some individuals who require to be placed on a more moderate system of diet than that to which they have lately been accustomed, to prepare them for an operation; and in the majority of cases, food should be given cautiously for the first day or two after the operation has been performed, and under all circumstances it will be necessary for the surgeon to watch the present symptoms, to make himself acquainted with the patient's previous habits, and to be careful not to administer either animal food or stimulants in such quantity as to excite the pulse, or increase the heat of the skin; or to load the stomach with that which it cannot easily digest. It is dangerous to keep a patient very low who has been accustomed to a very full diet; and it is also dangerous all at once to supply a very full diet to one who has been accustomed to a very scanty fare. An individual who has been in the habit of drinking nothing but water, will require wine and porter and brandy only in a very small quantity, or on extraordinary occasions; while another, who is habituated to the use of such stimulants, cannot be deprived of them more than a very few days, without suffering materially from the privation. I have often in this hospital found it expedient to give a gin-drinker a moderate quantity of gin even on the day immediately following some operation or dangerous accident.

Another inflammatory affection which sometimes arises as the consequence of an operation, has its seat in the veins which have been tied or divided. This occurs under circumstances very similar to those under which we meet with erysipelas; beginning some days after the operation was performed, and being frequently ushered in by a rigour, but being a more formidable disease than erysipelas, inasmuch as it attacks more important organs, and as it generally terminates in suppuration, and in a collection of pus in the cavity of the inflamed vessel. This disease when once begun is little under the dominion of remedies, but much may be done towards preventing its existence; and all the experience which I have had on the subject would lead me to believe that, like erysipelas, it has its origin in a low asthenic state of the system, and that those persons are especially liable to it who have been much lowered by hæmorrhage at the time of the operation, or by a too scanty diet before or afterwards. Arterial, in some instances, accompanies venous inflammation, and it is to be attributed to the operation of the same predisposing causes.

Another source of mischief after operation is what may be called *gangrenous inflammation;* that is, an inflammation which proceeds almost immediately to a termination in gangrene and sloughing. This assumes a somewhat different form in different cases.

A large gross fat man, who had been much addicted to drinking spirits, was admitted into this hospital, when I was assistant-surgeon, with an enormous irreducible inguinal hernia in a state of strangulation. I divided the stricture, which was in the external abdominal ring, and did nothing more. The bowels acted freely afterwards, but on the third day the skin in the neighbourhood of the wound was inflamed, and in some places, there were vesications on its surface. The inflammation extended rapidly to the rest of the integuments of the abdomen, and in two days more the whole of them were in a state of mortification. The patient died.

You meet with the same disease, though not exactly in the same shape, in what is commonly called "a sloughing stump" after amputation. The stump inflames, and becomes swollen, painful and tender. You are compelled to loosen the bandages. A dirty serous discharge exudes through the dressings. After four or five days you remove the plasters and find not only that there is no attempt at union, but that the whole of the cut surfaces are in a state of gangrene. Sloughs become separated, but others are formed, and thus a rapid destruction of the soft parts takes place, leaving the bone projecting, deprived of periosteum, and dead in the centre.

In another case a diffuse inflammation extends along the cellular membrane producing an effusion of serum and ill-formed pus. At first the surface of the skin has only a dingy reddish hue; but the cellular membrane underneath has lost its vitality. Mortification of the skin follows in patches, and often takes place to a great extent. Sometimes the progress of these frightful changes is rapid, the whole of a limb being involved in them, and the patient sinking, from the impression which they have made on his system, in the course of five or six days. At other times the progress is comparatively slow,

and a fortnight may elapse before the fate of the patient, as to life or death, is finally determined.

But whatever may be the exact character which the gangrenous inflammation assumes, you may be assured that it is always an indication of a low and depressed state of the patient's constitution. According to my experience, it occurs especially in those who have been habitually intemperate, indulging in the free use of spirituous or strong fermented liquors. In persons of such habits it is always prudent for you to avoid the performance of an operation, except it be a matter of absolute necessity. If that necessity should exist, and symptoms of gangrenous inflammation should ensue, bear in mind that to treat it by blood-letting, and what are commonly called antiphlogistic remedies, is, for the most part, the way to make it more rapid in its progress, and more destructive. A treatment the directly opposite to this is what is really required; and with a view to prevention, the safest thing to do, in the case of a person of intemperate habits, is to allow him a certain quantity of his accustomed stimulus from the beginning, that is, even from the day of the operation.

But it is not in drinkers of spirituous and fermented liquors alone that we meet with this kind of inflammation. Persons of a broken constitution from other causes are liable to it also. Dr. Prout has observed that those who labour under diabetes are affected with carbuncle in a great number of instances. A gentleman labouring under diabetes received an accidental wound on one side of his head. Within a week he was dead, a victim to extensive inflammation and sloughing of the scalp. If he had been in health, such a wound as he received would have been of no consequence; but in the state in which he was, the removal of a small encysted tumour from his scalp would have been equally fatal. I have had the misfortune of losing three patients out of the great number on whom, in the course of the last thirty years, I have performed the operation of applying a ligature to internal piles. In each of these cases, on examination after death, I found diffuse inflammation and a sloughy condition of the cellular membrane between the mucous membrane of the intestine and muscular tunic, and also externally to the muscular tunic as high as the mesentery, and even between its layers. In one of them there was a diseased condition of the kidney, and the urine, which was carefully examined by Dr. Prout, was found to be loaded with albumen, and of a very high specific gravity (1·035). In the second there was a diseased condition of the kidneys also. The urine unfortunately was not examined, but you will know pretty nearly what it must have been when I tell you that in the bladder I found a solid oval body of the size of an almond, and having an appearance like that of amber; in short, a fibrinous calculus; and, as it happens, the only specimen of this variety of urinary deposit which has come under my observation. The third case was that of a patient who had laboured under disease of the digestive organs, and was of a broken constitution. At first I had refused to perform the operation on him, on account of the general state of his health, and advised him to return to his residence in the country.

He came back to me, however, some time afterwards, suffering so much inconvenience that he said he must get rid of the disease at all hazards. I have told you the result. Since these cases occurred, wherever I have had any doubts about the state of the patient's health, I have always examined the urine. I do not say that the existence of albumen in the urine is in all cases to prevent an operation; for I have no doubt that it is sometimes accidental and temporary: and you must be aware that in some instances (as in those of hæmorrhoids attended with very profuse discharges of blood), the danger from the disease may be so great that, even if there be danger from the operation, such danger must be overlooked. Still, this condition of the urine should always be regarded as a reason for proceeding very cautiously; and I should be always very unwilling to have recourse to an operation where it proved to be habitual.

For the sake of making the subject as plain as possible, I have described these varieties of inflammation, which sometimes follow operations, as being quite separate and distinct from each other. Still in practice you will not unfrequently find them existing in combination. One patient will have erysipelas terminating in sloughing and abscess, and when you examine the body after death, you will find the veins to be filled with pus also. Another has diffused inflammation of the cellular membrane in the first instance, but after some time inflammation bearing all the characters of erysipelas shows itself in the integuments. Again, erysipelas may all at once proceed to gangrene and sphacelus. A young woman had a small scirrhous tumour removed from her neck. On that very evening she had a rigor. On the following morning there was well-marked erysipelas of the skin of the neck, extending downwards over the whole of the anterior part of the chest. No proper reaction had taken place after the rigor; the pulse was small and weak, and the extremities were cold. In a few hours the whole of the skin affected by the erysipelas was in a state of mortification; and in less than forty-eight hours from the time of the operation the patient was no more. A poor girl, who came from the country to be admitted into St. George's Hospital, on her journey had the skin of one breast slightly chafed by the whalebone of her stays. On the following morning she had a severe rigor, from the effects of which she never completely recovered. Erysipelas supervened, beginning where the skin had been chafed, and extending rapidly over the whole of the forepart of the chest. The skin thus affected became almost immediately gangrenous, and she died with it in a state of complete mortification in the course of three or four days from the commencement of the attack. Both of these cases occurred in the summer, when the heat was most unusually intense; and they taught me a lesson which I have never forgotten—namely, that operations which are not of an immediate necessity should not be performed when the temperature of the atmosphere is very much above the ordinary standard.

There is still another class of inflammatory affections to which the attention of our profession has of late years been much directed, consequent on accidental injuries, and on surgical operations, which

I must not pass over unnoticed. The seat of these inflammations is not in the part which has been injured, or which has been the subject of the operation, but at a distance from it. A man has an injury of the head, and, when he dies some time afterwards, you find deposits of pus in the lungs, or abscesses of the liver. In another case there are symptoms of cellular inflammation and suppuration about the neck of the bladder after lithotomy; but death does not take place immediately: the case is protracted; and before he dies, the patient suffers from swelling, inflammation, suppuration and sloughing of the parotid glands; for there is a purulent deposit in each of the knee-joints. In other cases there are deposits of pus in the cellular membranes, or of serum, lymph and pus, in the perito neum or pleuræ.

Now it has been supposed by some that, in these cases, the secondary disease is always connected with venous inflammation, and that the circumstance may be explained by supposing that pus secreted by the inner surface of the veins is carried into the torrent of the circulation, and afterwards deposited, even without any inflammatory process, in some other and distant organ. I cannot, however, believe that this is the true theory of the disease. In a case of compound fracture of the right leg, in which the patient died at the end of a month with deposits of pus in the lungs and liver, and in the cellular membrane over the abdominal muscles, and near the left (or opposite) groin, the veins were most carefully examined everywhere, but no venous inflammation could be detected. In another man, who died after a surgeon had most injudiciously applied the caustic potash to the skin over the occiput, so as to make a slough of all the soft parts, and expose the bone itself, I had the opportunity of examining the body after death, and found the *dura mater* detached from the inside of the bone to the same extent as the destruction of the pericranium had taken place on the outside; and no trace either of venous inflammation in the injured part, or of suppuration on the surface of the dura mater; while the peritoneum was universally inflamed, and the intestines were agglutinated to each other by coagulated lymph. I might, if it were necessary, produce a great number of similar examples; but these are quite sufficient for my present purpose. Having now watched the progress of a great number of cases of this description, I am led to believe that these secondary inflammations are to be attributed not to the entrance of pus into the vessels, and the transfer of it when secreted in one part through the medium of the circulation to some other part of the body, but to the long continuance of a low febrile excitement of the system. However that may be, these cases are replete with danger. The rule is, that they terminate fatally; and the exceptions to this rule are very rare.

Still such exceptions exist, and every now and then you will find the secondary inflammation to subside without going on to the deposit of pus. One such case is probably in the recollection of some of those whom I now address. It was that of the last patient (George Bean), in whom I tied the external iliac artery before I

resigned my office as surgeon to the hospital. On the evening after the operation, the whole of the abdomen became painful and tender; the pulse was frequent; the skin hot; the tongue dry and brown. Some blood was taken from the arm. On the following day, as the symptoms continued, Mr. Cutler, in my absence, repeated the blood-letting. On the second day after the operation, the symptoms being not at all relieved, I destroyed the adhesion of the edges of the wound with a probe, and gave exit to some sanious matter collected within. Finding that the man had been a dram-drinker, instead of having recourse to further depletion, I now ordered him some medicine containing ammonia, and a small quantity of wine, with some beef-tea, &c. On the following (that is, the third) day none of the local symptoms were relieved, and the constitutional symptoms were much aggravated; and in addition to that which had existed previously, there was a most intense pain, with swelling and tenderness in the right shoulder, (that is, the shoulder on the opposite side to that on which the artery had been tied.) I now left off all medicine, and prescribed half a pint of red wine to be taken daily, with such nutriment as the stomach would receive. The pain in the shoulder, with some degree of swelling, continued for a considerable time; but on the quantity of stimulus being further increased, this, as well as the other symptoms, gradually subsided, and the patient ultimately recovered. I am induced to mention to you briefly the principal circumstances of this case, because, as they were instructive to myself, so I hope that they may be not uninstructive to you. They show that a secondary inflammation, such as might be expected in the common course of things to proceed to a purulent deposit, may, in some instances, be made to terminate in resolution. They furnish also an example of a low inflammatory affection in a person accustomed to the use of spirits, being relieved not by bleeding, antimonials and purgatives, but by a directly opposite method of treatment; namely, the prudent exhibition of stimulants and nourishments: thus confirming the observations which I have already made on this important point in surgical practice.

Besides the various sources of danger after operations to which I have just called your attention, and which are all connected with inflammatory action, there are others not less important which are connected with derangement of the function of the nervous system.

As a wound made accidentally may be followed at the expiration of ten days or a fortnight by symptoms of tetanus, so that made by the hand of the surgeon may produce the same unfortunate result. You must not, however, (in this climate, at least,) allow the apprehension of this terrible disease to enter into your calculation. It is just as probable that it will occur after the most trifling operations, such as you perform daily, as after those which are most difficult and complicated; and the chance of this occurrence after either the one or the other is so very small, that for all practical purposes you may regard it as none at all. If you were to take account of such small chances as this, you would not take a journey on horseback for fear of being thrown off your horse and killed; nor

would you venture to travel in a mail-coach, or in a railroad-carriage. Besides, we have no such knowledge as will enable us to say in what particular case it is most probable that tetanus will occur, nor how it is to be avoided or prevented.

You have heard of, and most of you have witnessed a disturbed state of the nervous system which sometimes follows local injuries, and to which M. Dupuytren has given the name of traumatic delirium, though that of traumatic mania would be a more appropriate appellation. This disease may follow the injury done by an operation as well as that which arises from an accident. The case is always replete with danger, and not unfrequently, even in spite of the most judicious treatment, the termination of it is fatal. It is not my intention to occupy your time by giving an exact history of the symptoms and progress of the disease; these being, I doubt not, well described in the systematic course of lectures delivered in this theatre by Mr. Cæsar Hawkins. It is sufficient for my present purpose that I should observe that the symptoms vary somewhat in different cases, and that the degree of danger varies also.

Now, according to my observations, the cases in which this disturbed state of the nervous system follows accidental injuries and operations in the London hospitals, are chiefly those of individuals who had habitually indulged too much in the use of fermented and spirituous liquors, and especially of dram-drinkers; and in the majority of these cases, the symptoms immediately follow the sudden abstraction of the accustomed stimulus. A man who has been accustomed to drink his bottle of wine daily, with the addition, perhaps, of some porter at his dinner, or to swallow daily one or two pints of gin or brandy, should, after an operation, (unless there be some very potent reason against it,) be at once allowed a moderate proportion of his usual liquor, and, perhaps, a still larger quantity afterwards: or if attention has not been paid to this in the first instance, and the symptoms of traumatic mania have begun to show themselves, wine, or gin, or brandy, with the addition of the acetate or muriate of morphia, should be immediately exhibited with a view to arrest its progress. In some few cases of persons whose habits have predisposed them to this disease, there may perhaps be inflammatory symptoms of such a nature as to justify or demand the use of the lancet, and other methods of depletion, in the first instance. This treatment, however, will only make the patient more liable to traumatic mania afterwards, and his life will certainly be sacrificed unless you exercise a sound judgment in choosing the exact moment of time in which you shall alter your treatment, and substitute the cautious exhibition of stimuli and opiates for that which you had employed previously.

Nervous symptoms, which are essentially, though not in all minute particulars, of the same character as those which arise in persons who have been too much addicted to strong potations, may arise under other circumstances. In the museum of this hospital you will find the lower portion of a tibia divided longitudinally, and exhibiting the cavity of an abscess in the cancellous structure imme-

diately above the ankle. I shall give you briefly the history of this case, as it will serve to illustrate our present inquiry, and is of much interest. The patient was a young man about twenty-four years of age, and he consulted me rather more than eighteen years ago under the following circumstances. He had an enlargement of the lower extremity of the right tibia, with pain, which was constant and at all times severe; but he was subject to paroxysms, in which his sufferings were described as being most excruciating. These paroxysms recurred at irregular intervals, confining him to his room for many successive days, and being attended with considerable constitutional disturbance. He had consulted many surgeons, without deriving any advantage from their advice. The remedies which I prescribed were of no more avail than those which he had taken before; and when I proposed to him that he should lose his limb, he gladly consented to the operation. The preparation to which I have referred you sufficiently explains the nature of the disease; but the termination of the case is that which is most to our present purpose. The patient bore the operation with the utmost fortitude, so that a bystander could not have supposed that he suffered the smallest pain. Immediately afterwards, however, he became restless and irritable, and too much disposed to talk. Unfortunately, in the evening there was hæmorrhage from the stump, which ceased on the removal of the dressings and coagula, though not until a considerable quantity of blood had been lost. During the night he had no sleep, and on the following morning, he was restless and incessantly talking, with a rapid pulse. The symptoms became aggravated. There was no disposition to sleep, and the pulse became so rapid that it could be scarcely counted. Until the third or fourth day the tongue remained clean and moist; and afterwards it became dry and somewhat brown. There was constant delirium. The pupils were widely dilated; and the sensibility of the retina was so completely destroyed, that the glare of a candle was not perceptible, even when held close to the eye. Death took place on the fifth day after the operation. No morbid appearances were detected in the *post-mortem* examination.

There can be no doubt that the immediate cause of this patient's death was a disturbed state of the nervous system consequent on the shock of the operation, but probably aggravated by the secondary hæmorrhage afterwards; and it is reasonable to suppose that the state of constant misery and excitement in which he had lived for many years, and which, as I was informed, had rendered his temper unusually irritable and capricious, made him more liable to be thus affected than he would have been otherwise.

In other cases, a corresponding predisposition may be traced to an originally imperfect construction of the nervous system, showing itself, as the patient attains the age of puberty, in the form of aggravated hysteria; or perhaps, at a more advanced period of life, in that of mental derangement. I have seen several remarkable cases of severe nervous symptoms following even small operations in the former class of patients. The history of such cases would of itself

occupy a lecture, and it is sufficient for my present purpose that I should call your attention to them, and that I should state, as the result of my experience, that those who labour under disease of the nervous system are among the most unfavourable subjects for all kinds of operation. Even in the case of a young woman who is more than commonly hysterical, I advise you to proceed with caution. Her powers of life are weak; she will ill bear any considerable hæmorrhage; and she is more liable than others not only to a dangerous disturbance of the nervous system, but also to those low inflammatory affections consequent on operations, of which I have spoken formerly. I do not say that you are never to recommend an operation to persons of this description; but I am satisfied that you ought to have a very sufficient reason for doing so; and I advise you, if an operation be determined on, to make every possible provision against much loss of blood; and to endeavour to sustain the powers of the system by the careful administration of nourishment, and even of stimuli afterward.

I need scarcely tell you, that, as a general rule, the existence of organic disease in any organ that is concerned in the vital functions should be regarded as a great objection to a surgical operation. To perform the operation of lithotomy where the existence of a stone in the bladder is complicated with disease in the kidney, is almost a sure method of shortening the patient's life. To lay open a fistula of the rectum where there is also disease of the lungs, will probably cause the tubercles and vomicæ of the latter to become more rapidly developed. Nothing but the most pressing necessity can justify an operation under such circumstances. Still, such necessity may exist; and when it does exist, you are not to shrink from the responsibility of doing what is required. You may be called to a patient who has an aneurism in the popliteal artery and in the aorta at the same time. To tie the artery in the thigh, where such a complication exists, and where there is nothing in the state of the popliteal aneurism to cause immediate danger, would be madness; but to hesitate to do so, if it were on the point of bursting, would be cowardly and cruel.

Gentlemen, in thus describing to you the various sources of danger after surgical operations, my object has been not to diminish, but to increase your confidence in operative surgery. The surgeon who goes blindly on, not looking at the evils which may probably or possibly ensue, is a mischievous member of society; while he who proceeds with circumspection, and makes it his business to learn what those evils are, will know how to avoid them, and although he cannot always command success, still it will be only on some comparatively rare occasions that he will experience the bitter disappointment of finding that the efforts which he has made for his patient's good have turned out to his disadvantage.

LECTURE IV.

ON MORTIFICATION.

A PART of the animal body may lose its vitality, while the rest continues to live. We say then that it is mortified; and the process by which this change is brought about we call mortification, or sphacelus. The term gangrene properly signifies the commencement of mortification, or that condition of the affected part which immediately precedes mortification. But it is somewhat loosely employed, and not unfrequently is used as synonymous with mortification and sphacelus. This change, by which a living organ returns to the state of dead matter, viewed in connection with the changes by which it is preceded, and those which follow it, is one of the most interesting subjects in the whole science of pathology, and the treatment to be employed under these circumstances forms one of the most important inquiries belonging to practical surgery; and I am sure that you will not think your time ill bestowed if I call your attention to these matters in this and the following lectures.

The causes of mortification, as I shall explain to you hereafter, are various. If the part affected be one immediately concerned in the vital functions, the death of the entire animal is a speedy, if not an immediate consequence. If the part affected be one not directly necessary to life, still if mortification exist to a very considerable extent, so great an impression will be made on the whole system that the same result will probably ensue. Otherwise, after a certain period of time, another process becomes established, by which the dead part is separated or thrown off from the living. We distinguish this process, when it occurs in soft parts, by the appellation of sloughing, and the part separated is called a slough. When, however, it occurs in the hard parts, as in the bones or cartilages, we call it the process of exfoliation, and we give the name of exfoliation to the dead bone which has become detached.

Sloughing and exfoliation are accomplished by ulceration of the living parts in contact with the dead. A thin layer of the living parts is absorbed, and the dead part is left lying loose on the ulcerated surface.

The period of time required for the completion of the process of mortification differs according to the circumstances under which the mortification takes place: it may be very slow; it may be rapid; it may be almost instantaneous; as I shall explain to you more fully hereafter. The period required for the completion of the after-process of sloughing varies also; *first*, according to the state of the system, and the activity of the vital powers generally; *secondly*, according to the organization of the part in which the disease occurs: thus, other circumstances being the same, the sloughing of the skin

is much sooner accomplished than that of tendon, or than the exfoliation of bone; *thirdly*, according to the state of the neighbouring living parts, without reference to the state of the general system; thus, if there be much inflammation in them, the ulcerative process proceeds much more rapidly than when the inflammation is very slight; and *lastly*, as long as the mortification continues to spread there can be not even the commencement of the process of separation. The reason of this is so obvious that it can require no explanation.

I have seen mortification begin in an old man's toe, and be gradually spreading even for months, up the foot and leg, without the least appearance of a line of demarcation, or the least attempt at sloughing. In the same manner a piece of dead bone may continue adherent to the living even for some years. If the disease, on which the death of the bone depends, can be arrested, as it sometimes can, (by mercury for example, or by sarsaparilla,) the exfoliating process begins immediately, and when begun it is completed as soon as under ordinary circumstances.

The separation of the dead part is followed by another series of changes, which terminate in healing—or cicatrization. But these changes are not at all different from those which occur when there is a loss of substance in other ways, and it is not my intention, therefore, to enter into the consideration of them at present.

Having offered these general observations on the subject, I shall proceed to consider the various circumstances under which mortification may take place, and the treatment which it requires, accordingly as it arises from one cause or from another.

MORTIFICATION FROM INFLAMMATION.

Mortification is described as one mode in which inflammation terminates. A very intense degree of inflammation may lead to this result in any structure, or in any constitution; but a moderate degree of inflammation may lead to it also in particular cases. Inflammation of cellular membrane terminates in mortification more readily than inflammation of the skin; and in persons of bad constitution, the cellular membrane is more likely to mortify than in others. You see examples of this over and over again in the cases of the diffuse cellular inflammation which occurs in dram-drinkers. A small puncture of the leg, or a compound fracture in which the injury is apparently trifling, may, as you know, cause inflammation extending gradually from the foot to the buttock, and the whole cellular membrane may, in the course of a few days, become a putrid slough. I have seen a case in which a patient became affected in this manner from a leech-bite; and another in which a similar mischief followed the sting of a bee, and both these patients died. From what has since fallen under my observation, I have little doubt that they were both dram-drinkers, though I was not sufficiently acquainted with the subject to have my attention directed to it at the time. In the case of the man stung by the bee, however, something may, perhaps,

be attributable to the operation of the animal poison; and I shall revert to this point hereafter. I once lost a patient with diffuse cellular inflammation ending in mortification after the simple operation of castration; and I was disposed to attribute this unfortunate result, in a great degree, at least, to the operation having been performed after a long course of the tincture of iodine.

If inflammation of the skin terminates in mortification, independently of any antecedent inflammation and mortification of the cellular membrane beneath, the inflammation is usually intense; the surface of the skin is of a dark red colour, and there are severe pain and tenderness. As the inflammation advances, the skin assumes a livid appearance; a serous fluid is thrown out under the cuticle, which is thus elevated in the form of blisters; and then the skin itself perishes. If the mortification takes place to any great extent, the general system suffers. The pulse is feeble, irregular, intermitting; the countenance is anxious; the skin becomes cold; there is an utter incapability of exertion; and after a few days, and sometimes sooner, the patient dies. If the constitution does not suffer in this manner, or if the patient survives the shock, after a few days the separation of the slough begins to take place, and this is the first step towards a complete recovery.

In cases of diffuse cellular inflammation, the occurrence of mortification is preceded by an abundant infiltration of serum. In some instances the serum is of a peculiar yellow colour, and the skin over the whole body, and the *tunicæ conjunctivæ* of the eyes, may assume the same appearance. I do not know to what cause this yellow tinge is to be attributed. The patient looks as if he were jaundiced; but he is not so in reality, for there is no bile in the urine. When mortification of the cellular membrane has begun to take place, the constitution suffers in the manner which I have already described. If the patient survives the shock, or lives for some time under it, the mortification of the cellular membrane is invariably followed by mortification of the skin over it to a greater or less extent.

Allowing for the difference of function in the affected organs, the foregoing description will apply pretty nearly to all cases in which inflammation of the soft parts terminates in mortification. If there be mortification of the intestine, there is an effusion of dark-coloured serum into the abdominal cavity. Whenever the part which mortifies is situated internally, so that the putrid serum formed round the slough cannot escape, the constitution suffers much more than where it is situated externally, and especially an intermitting pulse and hiccough are often added to the other symptoms. Probably these more aggravated symptoms are to be attributed to the pent-up putrid matter being in part reabsorbed into the circulation. I shall mention some circumstances hereafter which seem to favour this opinion.

It proves an interesting subject of inquiry, how it is that inflammation terminates in mortification; or what is the pathological explanation of this phenomenon? and this leads us to the question as to the nature of inflammation itself. Mr. Hunter describes it as

consisting in an increased action of the small blood-vessels. If increased action be indicated only by a greater degree of contractility in the coats of the vessels, the theory is evidently wrong; for microscopic examination proves that there is no such thing. But, in fact, this is not what Mr. Hunter meant: and in another sense of the words he is clearly right; for the vessels of an inflamed part secrete serum, lymph and pus, and build up new structures; in short, they do many things which they do not do under ordinary circumstances; and all this affords an abundant evidence of increased action. Another theory of inflammation which has been of late promulgated in opposition to that of Mr. Hunter is that the essential part of it is a debility, a weakened state of the capillaries; and the propounders of this theory refer to the dilatation of these vessels in proof of it. But I own that I can discover no reason to believe that the dilated state of the capillaries proves any thing, except that there is something in the condition of an inflamed part which makes a greater supply of arterial blood necessary, and that they have the power of adapting themselves to those new circumstances. Nor is this power limited to the capillaries. It exists in the arterial trunks, in which the capillaries have their origin. Thus, in an animal killed by arsenic, in whom the poison produces extensive inflammation of the mucous membrane of the stomach and intestines, the branches of the mesenteric are seen dilated to double their natural diameter. In like manner, when muscles are in exercise, or when a gland is pouring forth an abundant secretion, the capillaries become dilated so as to admit the increased quantity of blood which under those circumstances of greater activity of the organ is required; but no one dreams of their being therefore in a state of debility, and I see no difference, in this respect, between those cases and that of inflammation. But microscopic examination proves something more than the mere dilatation of the capillaries. "The blood itself is affected. It loses its globular structure, and previously to this the globules themselves are observed to have lost their repulsive properties, and either to agglomerate together, or to adhere to the sides of the vessel in which they are contained," and not unfrequently they seem to stagnate, so as to choke up the vessel altogether, and destroy the circulation in it. Now if this happens in many vessels, the vitality of the part cannot be maintained, and thus the occurrence of mortification is easily explained. There is, however, something more than this in some instances. For example, let us suppose a case of inflammation of the cellular tissue of the scrotum. The cells are filled with serum. They are fully distended and the skin is on the stretch. If nothing be done to the part, the cellular membrane first, and the skin afterwards, will mortify to a great extent. But make some incisions with the point of a lancet, and the serum escapes in sufficient quantity to relieve the tension, and the mortification is in great measure, or perhaps, wholly, prevented. It is reasonable to suppose, that, in consequence of the extreme distension, the fluid in the cellular membrane causes so much pressure on the vessels which supply the skin as to impede the passage of the blood through them, and that the punctures of the scrotum and

the escape of the serum prevent the mischief which would otherwise have ensued, merely by removing the pressure. When a common abscess opens, as it sometimes does, by mortification and sloughing of a portion of the skin over it, we are not to regard the mortification as the mere result of inflammation, any more than in the case which I have just stated. The ulcerative process going on under the skin destroys a portion of the vessels by which the skin is supplied, and the pressure of the matter probably prevents the free passage of the blood through those which remain; and thus a due suppy of blood being prevented, the skin perishes.

Treatment of cases in which inflammation terminates in mortification.—Whatever tends to lessen the violence of the inflammation, ought to prevent, or check the progress of, the mortification; and, on these grounds, the patient ought to derive benefit from the abstraction of blood.

But, on the other hand, the abstraction of the blood by which the life of a part is supported, if carried beyond a certain point, is of itself an adequate cause of mortification; and the abstraction of even a small quantity of blood may lead to this result under certain circumstances.

It is not by a reference to principles alone that you can learn how you should act in this dilemma. Experience is our safest guidance, and on this as on many other occasions, the mere practical surgeon will have a great advantage over the mere scientific pathologist.

If the inflammation be intense, if the pulse be strong and full, the countenance flushed, and the skin hot,—that is, if there be marks of great general excitement of the system, it is probable that the patient will derive benefit from blood-letting; and if you have reason to believe that he is of what may be called a sound constitution, blood may be drawn to a considerable extent, and the blood-letting may be repeated. I have often adopted this practice under these circumstances with the greatest success, not only where the purple colour of the skin and the existence of vesications showed that mortification was impending, but where it had actually begun; and have had the satisfaction of seeing the progress of the mortification immediately suspended. You will have no better opportunity of watching the beneficial results of such a mode of treatment than in some cases of sloughing sores or chancres on the *glans penis*. While you administer opium and stimulants, the marginal inflammation increases, and the sloughing continues to spread. Take some blood from the arm, and the inflammation becomes abated, and the progress of the sloughing is suspended. Repeat the blood-letting, and the sore assumes in a short time a healthy aspect. In such cases I have known nature accomplish what was wanted, while a timid surgeon was doubting how to act. There has been a spontaneous hæmorrhage; the patient has lost half a pint or even a pint of blood. Immediately the pain, the tension of the surrounding part, the redness, and the general excitement, have been relieved; and in the course of a week the sloughs have separated, and the sore has become covered with healthy granulations.

But there are other cases in which blood-letting would be as mischievous as it is useful under the circumstances which I have just described.

Let us suppose a patient who has been a dram-drinker, or who, belonging to the more affluent classes of society, has indulged in too copious libations of wine, or whose constitution has been otherwise impaired, and that he has received some injury of the leg, followed by diffuse inflammation, which threatens to terminate in sloughing of the cellular membrane, and afterwards of the skin; or in whom the mortification of these textures has already begun: let us suppose also that although inflammation is spreading rapidly, it is not marked by any very urgent symptoms: that the pulse is small and feeble; and the countenance expressive of anxiety. Now, if, under these circumstances, you abstract even a moderate quantity of blood, it is probable that you will hasten the progress of the local mischief; and if blood-letting be employed to a considerable extent, it will certainly destroy what little chance there might otherwise have been of the patient's recovery. Let us suppose another case. There is a chancre or other sore on the penis. It is surrounded by a languid inflammation; the neighbouring parts are gradually assuming a dark livid appearance; the pulse is small and quick, or no excitement of the general system. Under these circumstances also, the abstraction of blood, instead of checking, will cause a more rapid progress of the disease.

Now it is highly important that you should learn to distinguish these two classes of cases from each other: and in a great number of them you will have no difficulty in doing so. You cannot, however, draw any exact line between them: and cases will occur in practice, in which you cannot exactly determine in the first instance, which is the proper course for you to pursue. Here you must proceed cautiously, watching daily the operation of the remedies which you employ, and persevering in one mode of treatment, or adopting another, according to the effect produced; and frequently it may be right to take away a moderate quantity of blood in the first instance, and to have recourse to an opposite mode of treatment almost directly afterwards.

In order that I might bring the subject before you in its simplest form, I have hitherto referred merely to the question of blood-letting. But of course this involves much other treatment. Where blood-letting is proper active purgatives will be proper also, as well as saline and diaphoretic medicines; and every thing in the shape of stimulating liquors and food should be avoided. Where blood-letting, on the other hand, is improper, though aperient medicine may be required, very active purgatives should be avoided. The patient should be allowed such diet as his stomach is capable of digesting; and he should have wine, or ale, or even brandy or gin—the quality, as well as the quantity, of the stimulus varying according to the character of the symptoms, and his previous habits. I say his previous habits; for it is essential that you should always inquire what these have been, and act accordingly. It is rarely safe to deprive a dram-

drinker, for any considerable time, altogether of his usual stimulus; and the effect of a judicious exhibition of it is very remarkable, not only in arresting the progress of mortification, but in abating the violence of the inflammation which leads to it. Decoction of bark, quinine, and other tonics, may be useful under certain circumstances; but I must say that the longer I live, and the more I see of these cases, the less is my faith in such remedies, while inflammation and mortification are going on: and I am satisfied that they often do great harm, by loading the stomach, and interfering with the digestion of food. At a later period, however, when the progress of the mortification is stopped, and the sloughs are beginning to separate, I have no doubt that they are eminently useful. The repeated trials which I have made, and seen made, of ammonia, have not left on my mind any more favourable impressions of this remedy than those which I entertain of bark and quinine. It is a temporary stimulus; but alcohol, prudently administered, is much better: and my observation leads me to suspect that large doses of ammonia, if persevered in for a considerable time, tend to depress the vital powers, and lessen the chances of recovery. Opium is useful under certain circumstances; as where there is severe pain; or where the inflammation or mortification depends on the operation of a specific poison.

I have already had occasion (with a view to explain the pathological phenomena of mortification) to advert to the effects of incisions made through the skin into the cellular membrane, when the cells of the latter are exceedingly distended with serum. Whether the explanation which I then ventured to offer of the mode in which this serous infiltration operates in producing mortification be or be not correct, there can be no doubt that the evacuation of the serum, and the consequent relief of tension, will go far towards preventing an extensive mortification in all cases, and will prevent it altogether in a great many. It is not, however, always necessary for this purpose that we should make scarifications or incisions. Mere acupunctures are not unfrequently sufficient. I have on many occasions requested the house-surgeon of this hospital to make punctures where this serous infiltration of the cellular membrane was going on, every morning and evening, or whenever he had the opportunity of doing so; and it often has happened that nothing more was required. But of course this simple practice is useful only in an early stage of the disease — where there is that state of things which may lead to mortification, but where mortification has not actually taken place. Where sloughs of the cellular membrane have begun to form, or where an infiltration of pus has begun to follow the infiltration of serum, mere punctures of course will be insufficient. Incisions or scarifications will then be required; and they should be of sufficient extent to allow the serum and pus to escape freely, and to relieve the tension of the skin. But they should not be more than this: first, because such painful operations are a great shock to the nervous system of a person in vigorous health, and a very great one indeed to one who is weakened by previous disease: secondly, because this shock is not given to the system once for all, as, if the inflammation

spreads, it may be necessary that the incisions should be repeated: thirdly, because in proportion to the extent and depth of the incisions, is the danger of hæmorrhage; the occurrence of which, to any considerable extent, is sufficient to prevent the patient's recovery. In making the incisions, you should always bear in mind that it is of vital importance that there should be as little hæmorrhage as possible; and here you will find the advantage of having some active and intelligent assistants, who will carefully watch your lancet or scalpel, and whenever they see a vessel beginning to bleed make pressure with the finger on it. Ligatures may be sometimes required; but not in general. The divided vessels under these circumstances bleed profusely in the first instance, but they soon contract, and the pressure of the finger for a few minutes is usually sufficient to stop the hæmorrhage altogether.

The foregoing observations apply to all cases in which inflammation of cellular membrane has alreay begun to terminate in gangrene, or threatens to do so, whether the inflammation be phlegmonous or erysipelatous, or that peculiar variety of inflammation which produces carbuncle. The effect of scarifications in preventing the further progress of mortifications of the skin in all these cases is very remarkable; but under certain circumstances, they produce a still greater benefit to the patient. Whenever putrid matter is pent up round a slough of the cellular membrane, the system is, as it were, poisoned. The sulphuretted and carburetted hydrogen gas evolved during the decomposition of dead animal matter, seems to pass, in part at least, into the circulation, and produces the most dangerous symptoms. The incisions, which relieve the tension of the skin, allow these noxious gases to escape, and the relief which this affords to the patient is most remarkable. I might, if it were necessary, enumerate a great number of cases in illustration of what I have just observed. One, however, will be sufficient: and this I am tempted to relate, because the subject is one of great importance, and because a particular instance may serve to impress it more on your minds than a mere general observation. I was called some few years since to see a gentleman, who appeared to be actually on the point of death. His extremities were cold; his pulse barely perceptible. It was doubtful whether he was sensible or not. He made, on being roused, several imperfect attempts to speak, but could say nothing intelligible. Below the right hypochondrium there was a considerable tumour; the skin being of a dark red colour on the verge of mortification. I said to myself this gentleman ought not to be allowed to die without it being ascertained what this tumour is. On examination with the fingers I perceived a sort of emphysematous crackling, and only an imperfect fluctuation. On making a free incision, I discovered underneath the discoloured skin what might be called a quagmire of slough. A small quantity of putrid matter escaped. But there escaped also such a quantity of noisome and offensive gas, apparently sulphuretted hydrogen, that I could scarcely bear to remain in the room. The stench pervaded the whole house, and even could be perceived in the garden round it. Within two minutes after the performance of

this operation, so trifling in appearance, but so important in reality, the patient looked up, and said quite distinctly, "What is that you have done which has made so great a difference in my feelings?" At the same time the pulse returned at the wrist, and from this moment he recovered without any further unfavourable symptoms. After a few days sloughs came away, probably of muscle, cellular membrane and peritoneum, in a confused mass; and with them a gall-stone of moderate size—explaining, to a certain extent, at least, the origin of the disease.

The cases in which you will most frequently have occasion to resort to the employment of scarifications are those of diffuse cellular inflammation of the extremities, whether it be phlegmonous or erysipelatous, and those of carbuncle. But there is another class of cases, which occur after injuries, and often after slight injuries of the scalp, in which the same treatment will be required; to which, before I conclude this present lecture, I am tempted to draw your attention. *First*, because they will serve to illustrate the observations which I have already made; and *secondly*, because the disease is one with which you ought to be made acquainted, but which, as far as I know, has not been distinctly described by surgical writers. Here, as in cases of erysipelas of the skin, there is a rigor followed by an attack of fever preceding the local symptoms. The latter show themselves in the form of pain in the neighbourhood of the wound or contusion, and an œdematous swelling of the scalp, without any redness of the skin. The swelling pits on pressure. It spreads over the whole scalp to the forehead, and sometimes over the whole face, the skin still retaining its natural colour, or even appearing paler than natural. The progress of the swelling is accompanied by pain in the head, and a continuance of febrile symptoms. In some cases, the disease, after having continued for ten or twelve, or perhaps fourteen days, begins to subside; the serum which caused the œdematous swelling being gradually absorbed without any further mischief. In other cases suppuration takes place underneath the scalp, with extensive sloughing of the cellular membrane, and this is followed by sloughing not only of the scalp above, but of the pericranium underneath. I have known the latter destroyed to such an extent as to lay bare a large portion of the bone of the cranium. If you would prevent all this great mischief, you must by one method or another relieve the tension caused by the œdematous effusion into the cellular membrane. Simple acupunctures are often sufficient for this purpose, provided that they are repeated once or twice daily for several successive days. Where a sufficient quantity of the serum does not escape by the punctures, large openings are required, and incisions must be made through the scalp, and the subjacent textures, quite down to the cranium. These must be repeated from time to time, as the disease extends from one part of the scalp to another. The appearances observed when these incisions are made explain in some degree the seat and nature of the disease. There is a slight effusion of serum immediately underneath the scalp; but the great effusion, and that on which the tumefaction chiefly depends, is

underneath the tendon of the occipito-frontalis muscle; and here the effusion is in some instances so extensive, that I have known the tendon to be separated as much as half an inch, or even more, from the pericranium. A large quantity of serum immediately escapes on the incision being made, the tension is of course relieved, and the destruction of the parts is prevented. I suspect this disease to be a form of erysipelas, although the skin is not usually inflamed, as every now and then it assumes the character of true erysipelas as soon as it reaches the face.

Let us now suppose that mortification has taken place to a certain extent; that the progress of it is arrested; that the system survives the shock; what further local treatment is required?

Indeed, I have little faith in any. The separation of the slough is a natural process. It is usual to apply stimulating, or as they are called, digestive ointments; solution of chloride of soda; stale beer poultice, and other things of the same kind. But my own experience would lead me to believe that the process of separation will go on just as fast with the simplest treatment, such as that of a bread and water poultice, or a linseed poultice, or wet lint with a piece of oiled silk over it. The constitutional treatment at any rate is of much more importance than any topical applications. Bark may generally be given with advantage; but the discreet administration of wine and a nourishing diet is of more importance still. Of course no general rule can be laid down. You must study the existing symptoms and act accordingly.

LECTURE V.

ON MORTIFICATION. (*Continued.*)

MORTIFICATION FROM STRANGULATION OR LIGATURE.

I now call your attention to some other varieties of mortification.

A ligature drawn round any part of the body, so as to intercept the communication of the great vessels and the heart, may cause that part to perish. But the effect of the ligature is not the same in all cases; and it does not always produce mortification in the same way. You apply a bandage round the arm before you bleed a patient, to make the veins of the forearm become distended, the object being merely to stop the circulation in the superficial veins. If you take it off at the end of a few minutes, the hand is at once just as it was before the ligature was applied. If you were to leave it on for twelve hours, the whole hand and forearm would become swollen, and would remain swollen for some time after the bandage was removed. The swelling in such a case arises from the congested state of the veins, and from the consequent effusion of some of the

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serum of the blood into the cellular membrane. If the ligatare round the arm be still tighter, so as to obstruct the circulation to a greater extent, but without arresting it altogeher, the same effect is produced, namely, serous effusion, which may continue for some time after the cause which produced it is taken away. The first effect, then, of a ligature which obstructs the circulation without arresting it completely, is to produce serous infiltration of the cellular membrane, and an œdematous swelling. The different kinds of dropsy depend on the same principle. Disease in the heart, impeding the circulation through it, gives rise to anasarca of the legs, and dropsy of the pericardium and pleura. Disease of the liver produces dropsy of the peritoneum.

But let us suppose that a ligature is applied in this manner round the arm, and allowed to remain, so that the impediment to the circulation continues. A low sort of inflammation is set up, the œdematous swelling and the tension are aggravated, and this may terminate in mortification.

This is one kind of mortification from ligature. But let us suppose that the ligature is drawn tighter still: that it completely intercepts not only the venous but the arterial circulation. It is evident that the part below the ligature, being altogether deprived of that supply of scarlet blood which is necessary to the maintenance of vitality, must lose its vitality; and this, then, is another way in which a ligature produces mortification.

In the course of your practice you will meet with numerous cases illustrative of the different effects of ligatures according to the degree of constriction which they occasion. Thus, a woman has a femoral hernia. A large portion of intestine is protruded through the narrow crural ring in the act of coughing. The ligature is as tight as possible. The strangulation is complete. The arterial circulation as well as the venous is completely obstructed. If you perform the operation for strangulated hernia on such a patient, even in half an hour, you may find the intestine dead. But if (as generally happens) the degree of constriction is less, in consequence of the opening being larger, or the protruded intestine being smaller in quantity, then the venous circulation is obstructed more than the arterial; there is no mortification immediately: there is venous congestion, followed by inflammation, which may end in mortification in the course of two or three days, or, perhaps, not until after the lapse of a longer period. A man has a phimosis. He pulls back the prepuce, and the orifice becomes a stricture behind the *corona glandis*. There is venous congestion. The glans is swollen, assumes a purple colour, then becomes exceedingly inflamed, and that inflammation is followed by mortification. Again, a patient has internal piles. They protrude at the anus; the sphincter muscle acts spasmodically upon them. They cannot be pushed back through the sphincter; the return of venous blood is prevented; they swell, inflame, and, in the course of a few days, they mortify. By and by the slough drops off, and the disease is cured.

You will now understand the principle which ought to be kept in view when we use ligatures in surgical operations. You cure

internal piles by a ligature. If you draw the ligature only moderately tight, you do not kill them at once: they swell: they inflame: they may die at last, but not till after a painful and tedious process. But if the ligature be drawn as tight as possible, it stops the flow of the arterial as well as of the venous blood, and the piles die directly. This is the way in which a ligature should be applied in almost all cases of surgical operation: it should be drawn as tight as possible. In dealing with piles, or nævi, or tumours of the tongue, the tighter you draw the ligature the sooner the sufferings of the patient are over. If you do not draw it tight, he suffers for a very long time, and very greatly; nay, perhaps severe constitutional symptoms may ensue.

I have said that when you apply a ligature in a surgical operation, your object should be to stop the flow of arterial blood at once; and you might suppose that if the ligature was kept on for half an hour, or an hour, that would be sufficient; that the part being deprived of the flow of arterial blood for such a time it would certainly lose its vitality. But this is not exactly the case. You apply a ligature round an artery, draw it as tight as you can; it divides the middle and inner coats, but only compresses the outer coat. It makes a slough of a little piece of the latter; and when the ligature comes away at the end of ten days, or a fortnight, you find the slough in it. But if you cut off the ligature in half an hour, or an hour—an experiment which has frequently been made—there is no slough. The artery may be obliterated, or it may not, by the effusion of lymph; but the piece of the outer coat that was included in the ligature recovers itself: at least it does not come away as a slough. I once had occasion to observe the same thing illustrated on a larger scale. I had a patient with a malignant tumour of the tongue, which, according to the method suggested by Sir Everard Home, I determined to remove by ligature. I drew the double ligature as tight as I could; and when I saw the patient half an hour afterwards, the piece of tongue included in the ligature was quite livid and apparently dead. I saw him again in three or four hours, and found him suffering a great deal of pain and inconvenience. It occurred to me that the piece of the tongue had been dead for some time, and that I should, perhaps, give relief by cutting off the ligature. With some little trouble I succeeded, but, to my great annoyance, the next day I found the whole piece, which appeared to be dead, alive again. The ligature, therefore, in surgical operations, must be drawn as tight as possible, and then left on until it is separated by a natural process.

MORTIFICATION FROM PRESSURE.

Parts may be killed by pressure. The mode of death here is nearly the same as when parts are killed by ligature. The difference being simply this: the pressure is like a ligature applied to a broad surface, operating not on the arterial and venous trunks, but on all the small vessels and capillaries. Mortification from pressure is

chiefly observable when the pressure is made on parts which lie over a bone where there is no cushion of flesh between the skin and the bone. If the pressure be very tight, it may produce mortification immediately. I remember that when I was a student, a man came into the hospital with a fracture of the leg. The surgeon applied splints, and drew a bandage over them round the foot as tight as possible. The next day the man was in a great deal of pain and suffering. The bandage was removed, but it had already occasioned a broad slough of the skin over the instep. I have in other instances seen sloughs produced in the same manner, as it were instantaneously, in consequence of bandages being applied too tight.

But in the great number of cases where mortification is the result of pressure, it does not occur immediately, but after the lapse of some time; and it is not a direct but a secondary consequence of the pressure. A man, for instance, is bed-ridden; he lies on a hard mattress; he becomes very thin; the skin over the os sacrum becomes tender to the touch, it inflames, assuming a dark red colour; vesications form upon it; the inflammation goes on, and ends in mortification. Hence, though pressure may produce immediate mortification in some instances, yet in ordinary cases it does so by causing inflammation first, which inflammation, the pressure being continued, ends in the same manner.

This kind of mortification from pressure takes place under certain circumstances more readily than under others. A man is weakened by continued fever, and, from the state of debility in which he then is, pressure on the skin over the os sacrum and other projecting parts of bone will produce mortification, while it would not produce it if he were in vigour and health. After injuries of the spinal cord, mortification from pressure is very readily induced. A man has the spinal cord torn through in the middle of the back; and you find, almost before you suspect that there is any thing wrong, a great slough over the sacrum. Nay, the pressure of the mattresses against the ankles will, in such cases, produce mortification. I have known mortification to begin in the ankle within twenty-four hours after an injury of the spine; and a remarkable circumstance it seems to be, that injuries of the spinal cord should thus lessen the vital powers, so as to make the patient liable to mortification, when we consider how many circumstances there are that would lead us to doubt whether the nerves have any influence over the capillary circulation. The circulation, viewed by a microscope, in a frog's foot, goes on just the same whether the nerves are divided or not. In an experiment which I was making on poisons, I divided all the nerves in a dog's axilla; I then divided all the skin which was attached to the anterior extremity, and then the muscles and cellular membrane, so that there was an absolute want of union between the extremity and the trunk, except by means of the axillary artery and vein, which I left untouched. The animal, at the expiration of twenty-four hours, was killed; but the limb maintained its vitality perfectly all the time. In spite, however, of this and of other circumstances which I might mention of the same kind, a concussion of the spinal marrow makes

the patient liable—and sometimes almost immediately—to mortification of the parts below.

Patients are more or less liable to mortification from pressure, accordingly as they are more or less emaciated. A man with a good cushion of fat between the skin and the os sacrum, or the skin and the great trochanter, is not so liable to the formation of sloughs in those parts as a thin one; and that for obvious reasons.

When you suspect that pressure on any part is so great as to be likely to occasion mortification, you can do nothing but remove the pressure. When a bandage is placed in a case of fracture, you must remove it as soon as you suspect that the swelling of the parts has made it very tight, lest mortification should follow. When a patient has been so long confined to his bed, that you expect mortification will take place, you must endeavour to guard against it. It is more easy to prevent it than to stop it when it has once begun. How, then, is this to be accomplished? If a patient lies on his back, the skin sloughs over the os sacrum; if on one side then it sloughs over the great trochanter. Endeavour, when you can manage it, to make a patient vary his posture. If he can be shifted, let him lie at one time on his back; at another on his side: nay, let him turn round, and lie occasionally on his face. If you have what they call a prone couch, properly constructed for the purpose, he may, in many instances, use it to great advantage. In one of the worst cases of this kind, when mortification had begun, I used to turn the patient on his face many hours in the day, and with perfect success. But sometimes the patient cannot be shifted. There may be fracture of the thigh, and he must lie always on his back. You must then endeavour to take off the pressure by other means—by an air cushion with a hole in the centre, the tender part over the os sacrum being in the hole of the cushion. But in all cases where you use an expedient of this kind, you should first apply a piece of common soap plaster, spread on calico, over the part, to support it. If you merely place the hole of the cushion under the os sacrum, the skin will bulge into the hole, and the patient will lie as bad as if there were no hole at all, or even worse. The same rule applies to all cases where you use contrivances to take off pressure, as in those of corns and bunions. In cases where you can have recourse to it, the water-bed is very useful in preventing mortification from pressure. Dr. Arnott's hydrostatic or water-bed diffuses the pressure everywhere. When you lie on a mattress, the pressure is thrown on all the prominent parts of the body, and little elsewhere; but in using the water-bed the water rises to fill up the hollow places, and the pressure is not greater on the sacrum than on other parts. No doubt this bed is the best method which has yet been contrived for preventing mortification from pressure—the only objection to it is, that it is not applicable to all cases. In cases of compound fracture of the thigh or leg, for example, it would not give sufficient steadiness to the injured limb.

But another plan may be adopted to prevent mortification from pressure—that is, to prevent the inflammation which precedes it. The thicker the cuticle the more it will protect the parts beneath it.

You may, if you attend to it in time, add to the thickness of the cuticle by stimulating the surface of the skin. Nurses know this very well, for when patients are bed-ridden, they wash the parts subjected to pressure with brandy. What is better, is a lotion composed of two grains of oxymuriate of mercury to an ounce of proof spirits. When you think that a patient is likely to be confined so long in bed that there may be mortification from pressure, wash the parts two or three times a day with this lotion. I have found it useful in other cases where a patient suffers from pressure. A man has a rupture which requires to be supported by a very powerful truss. It galls and frets the skin, and may at last cause inflammation and sloughing; but under the use of the lotion, a thicker cuticle is generated and this mischief is avoided.

The sores which remain after the separation of a slough produced by pressure, are to be treated like common sores; this being kept in view, the skin will slough again if pressure be continued. You must, if possible, contrive to take the pressure off these sores; but, unfortunately, it is not always possible for you to do so, and in spite of all your care and trouble, slough will form after slough, exposing the sacrum or trochanter, or other bony structures, whatever they may be.

MORTIFICATION FROM CONTUSIONS AND TRAUMATIC GANGRENE.

I now come to speak of mortification from a blow or other mechanical severe injury. It may be said that pressure is mechanical injury, but I now speak of sudden injury operating for a short space of time such as a contusion or a wound.

The effect of mechanical injury may be to produce mortification, which is confined to the parts actually injured. For instance, a man gets a kick on the shin, and the next day there is a slough, and the skin is dead, just where he was kicked. Why? Because the kick bruised the skin against the bone, ruptured the capillary vessels, and destroyed the organization in the part, so that life could not go on. But here the mortification is confined to the part actually injured. A remarkable circumstance happens in some of these cases. The cellular membrane has not so much vitality as the skin, and therefore perishes more easily. A blow will disorganize the cellular membrane which will not disorganize the skin. A man came into the hospital who had had a severe blow on the instep; there was a purple appearance, but no very extensive ecchymosis, and I thought nothing of it. The next day I found the part inflamed, the following day there was a good deal of swelling, and on the third day the skin was beginning to slough. I divided the skin with a lancet, and found a large slough on the cellular membrane. The blow had pressed the skin and the cellular membrane against the bones of the instep, and had killed the latter but not the former. The slough of the cellular membrane would have been followed by an extensive sloughing of the skin if, acting on the principle explained in my last lecture, had I not divided the latter freely. In cases in which you

suspect that the cellular membrane may be destroyed while the skin is not, you must watch the patient, and if there be swelling and inflammation you should divide the skin, and save it from perishing as far as you can, though you cannot save it entirely.

But in other cases the mortification is not confined to the part actually injured, but may extend to the greater part of the limb. These are the cases to which the name of traumatic gangrene is applied. A man sustains a severe injury in the leg, and a great part of it mortifies. It would appear that the mode in which traumatic gangrene is produced varies in different cases. Mr. Guthrie, for example, describes a case in which mortification of the leg took place as high up as the knee, in consequence of a blow on the back of the leg. The limb was amputated, and when he came to dissect the parts it was found that the blow had lacerated the lining membrane of the popliteal artery, in consequence of which there had been effusion of lymph into the cavity of that vessel, stopping it up. That alone might not have produced mortification, but the anterior and posterior tibial arteries were torn through also, and the result of this double injury was that the limb, not getting a proper supply of blood, perished. In this case the pressure of extravasated blood might have contributed, in some degree, to produce the mortification. But local extravasation of blood, if it exist to a great extent, is, of itself, sufficient to produce this effect. When I was house-surgeon, a man was brought into this hospital with some kind of tumour about the groin, but no pulsation was felt in it, and no one suspected that it was an aneurism. There was severe pain felt in the thigh, evidently arising from pressure on the anterior crural nerve, and the event proved that there was an aneurism, though it had not been indicated by the usual signs. It burst one day into the cellular membrane; the man screamed out as if he was being murdered, so horrible was the pain. The next day there was gangrene as high up as the groin, and the man died in about a fortnight. On dissection we discovered an aneurism of the internal iliac artery, which had burst under Poupart's ligament. The extravasation of blood had prevented the circulation from being carried on in the limb, and hence it mortified. There was a man in the hospital long ago, who had popliteal aneurism. I had fixed the day for tying the femoral artery; but on the day previous to this the aneurism burst into the calf of the leg, and the next day the limb was in a state of mortification; so that instead of tying the artery I amputated the leg. The vessels below were all quite pervious, and the circulation would have gone on very well but for the pressure produced upon them by the immense extravasation of blood. No doubt, in many cases of traumatic gangrene, this is one principal cause of mortification.

But traumatic gangrene takes place in another way, and, to illustrate what I mean, I will mention the circumstance of a case which occurred in the hospital some few years since. A poor boy was jumping over a ditch, and came with considerable force upon his feet. There was a compound fracture of the leg above the ankle.

The external wound was trifling, but it was evident that a great shock had been given to the foot and leg. Four days afterwards the limb was in a state of mortification as high as the knee, and the mortification seemed to be extending to the thigh. I amputated the thigh as high up as I could, near to the great trochanter. We dissected the limb very carefully. The large arteries, and also the large veins, were quite pervious. There was, in fact, no injury whatever to the arterial trunks; but the cellular membrane, the muscles, and, in short, all the structures, seemed to be more or less disorganized. There were spots of ecchymosis in the large nerves; the periosteum was universally detached from the fibula, and very nearly so from the tibia. How does the periosteum adhere to the bones? By the small vessels. It is evident, then, that the shock of the accident must have occasioned a great injury to the small vessels connecting the periosteum to the tibia and fibula, and the probability is, that the same kind of injury inflicted on all the capillary vessels of the limb laid the foundation for the mortification. I do not see how the occurrence of mortification in cases like this can otherwise be explained.

It has been a sort of *dictum* of the schools of surgery, that you should not amputate while mortification is going on; and certainly, when there is mortification from ossified arteries (as I shall hereafter explain), or where there is mortification from inflammation, you ought to wait for the mortification being stopped, and for the formation of a distinct line of separation, before you proceed to an operation. But it must have been palpable to every body who took the pains to consider the subject, that this rule would not apply to all cases of mortification. For example, a man has a strangulated hernia; when you open the sac you find the omentum strangulated, a part of it dead, and the mortification still extending. You would not hesitate in a case like this to cut off the dead and dying omentum. If piles were undergoing the process of mortification from being strangulated by the sphincter muscle, you would not hesitate to cut them off. You may conceive many other cases, in which the cause of mortification is local, and to which the general rule which I have just mentioned does not apply. Baron Larrey has the credit of having pointed out more distinctly than had been done before, that where there is mortification from local injury, you may venture to amputate, though the mortification is still spreading. But I apprehend that the operation must be had recourse to at once, and that the case admits of no delay. If, in consequence of local injury to a limb, mortification has begun, but has not yet produced any severe shock on the system, there you may amputate. But where the mortification has been going on for some days, so that the system has begun to be influenced by it, the pulse getting weak, perhaps intermitting, and with great prostration of strength, in such a case you must not venture to amputate. Under such circumstances it is probable that the system is not in a state to bear the additional shock of the operation. However, I believe that cases enough may be adduced to prove that Baron Larrey's rule of not waiting to amputate till the mortification has stopped, is applicable in a great number of instances

where the disease arises from local injury. It is good in theory, and there is now sufficient experience to enable us to say that it is good in practice also.

LECTURE VI.

ON MORTIFICATION. (*Continued.*)

DESTRUCTION OF PARTS BY CAUSTICS.

Parts may be destroyed by the application of various substances, which exercise a chemical action on the materials of which their organization is composed. We call these substances *caustics*, and sometimes *escharotics*. This is a subject of especial interest in practical surgery; and in considering it I shall not confine myself to the *modus operandi* of caustics, but I shall extend my observations to the modes of using them, and explain some of the principal occasions on which you may, in the treatment of diseases, have recourse to them with advantage. I have no scruples in doing this, as I am not restricted by the rules of a systematic course of lectures, and need have no object in view, except that of making these discourses as useful to you as possible.

I have said that caustics act chemically, destroying in this manner the organization of the parts to which they are applied. If there be any exception to this general rule, it is in the case of *arsenic*, in the operation of which there seems to be something peculiar. I make this observation, because it has appeared to me, that while other caustics have a manifest action on the dead body, it is not so with arsenic. I very much suspect that arsenic acts merely on the fluids, while ordinary caustics act on the fluids and solids also. However, I offer this to you as a conjecture, and as a matter deserving of further inquiry, and not as a well-established fact. All other caustics which I have made the subject of experiment produce a distinct alteration in the condition of the dead body, though different in appearance from what they produce on the living, in which they operate on the fluids as well as on the solids, and in which the blood moving in the small vessels conveys their influence beyond the surface to which they are actually applied.

A great variety of chemical agents may be employed as caustics. It would be an endless task for me to describe all of those with which I am myself acquainted; and if I were to do so, a multitude of others would be left unnoticed, of which I have no experience. I shall only speak of those which we are in the common habit of employing, and the right use of which will, if I am not mistaken, enable you to accomplish all that can be accomplished in this way.

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act slowly, others rapidly; some produce much pain, others comparatively little pain: the pain caused by some is very severe for a short time, by others less severe, but of longer duration: some destroy a part to a much greater extent than others: the slough made by one kind of caustic will separate much sooner than that made by another. The period occupied by the separation of the slough seems to depend on the quantity of surrounding inflammation. If the inflammation of the margin be considerable, the slough is soon thrown off; whereas, if it be trifling, it may remain attached for a long time. If the caustic be applied merely to granulations, the slough separates much sooner than if it be applied to the skin or to other parts of original structure.

There is no class of cases in which you will have such frequent occasion to apply caustic, as those of exuberant granulations, such as are commonly called *proud flesh*. In some cases in which there is little disposition to form new skin, the granulations rising above the level of the skin in the neighbourhood, it is important that they should be destroyed. On these occasions we commonly use the nitrate of silver, and it is quite a sufficient caustic for this purpose. You rub the part with it pretty freely, and the next day the exuberant granulations have disappeared, partly by sloughing, and partly by absorption. There are, however, occasions on which you will find a great irregular mass of unhealthy granulations beyond what the nitrate of silver will easily destroy. Such granulations as those to which I now allude are frequently generated over an old carious surface of bone, and you will then find that the ointment which I am going to mention makes an excellent caustic application for them. It is a very old prescription, but not the worse on that account. The ointment consists of verdigris, sulphate of copper, nitric oxide of mercury, of each two drachms, oxymuriate of mercury one drachm, with as much hog's lard as is necessary to blend them together. This may be spread on lint, and one or two applications will be sufficient to destroy a very large mass of fungous granulations.

One mode of making an issue is by means of caustic, and for this purpose we generally employ caustic potash (potassa fusa), or strong nitric acid. The former may be rubbed on the part until it has penetrated through the skin, and that is enough. If you continue rubbing it afterwards it goes deeper than is necessary, and generally gives rise to considerable bleeding. This caustic continues to spread after you have ceased to apply it, and you must make an allowance for this when you use it, otherwise you make too large a slough. The concentrated nitric acid spreads a little after it has been applied, but not so much as the caustic potash. The nitric acid is applied by means of lint on the end of a probe dipped in the acid, and rubbed for several minutes on the surface. I have seen issues made by the nitrate of silver made into an ointment and laid upon the part. It makes a slough of the skin, and as far as the mere issue is concerned, will do very well; but it is very slow in its action, and causes ten times the pain produced by other caustics.

When an issue is open you want to keep it so, while, perhaps, it has a tendency to heal; and there are other occasions on which

something is required to prevent sores or the orifice of a sinus from healing. A man may have a small abscess by the side of the anus. If the orifice heals, the matter collects within, and a large abscess is formed, which should be prevented if possible. In these cases the best thing that can be done is to touch the margin of the issue, or the orifice of the sinus, now and then with the caustic potash. It makes a slough which takes some time to come away, and the application of it once in ten days or a fortnight will answer that purpose. I have seen the nitrate of silver frequently used with the same intention; but in fact it promotes cicatrization, and heals the sore or the sinus, instead of keeping it open.

There is an occasion on which you will not unfrequently have occasion to apply caustic, and where it is very material, indeed, that it should be done in a careful and scientific manner. I refer to cases in which a person has been bitten by a rabid dog, or a dog supposed to be rabid. It is evident that in either case the treatment must be just the same. On these occasions it is better to excise the part thoroughly and to take out a good deal of the surrounding parts. But it sometimes happens that this cannot be very easily accomplished. A person, for instance, is bitten in the palm of the hand; the dog's tooth penetrates into it, and it would be a very serious thing to cut out tendons, nerves, and every thing else down to the metacarpal bones. Or it may be that you had supposed that you had cut out the part completely, and yet find on examination that the tooth has penetrated further, where you cannot very easily follow it with the knife. On these and similar occasions, you can do nothing better than trust to the application of caustics. Mr. Youatt, the veterinary surgeon, who has had great dealings with rabid dogs, tells me that when he has been bitten he has always applied the nitrate of silver, and he is alive and well now: so that in his case this kind of caustic has answered the intended purpose. But, then, he applies it at the very instant when he is bitten; whereas very few of your patients have the nitrate of silver in their pocket or could apply it if they had. The best caustic, I apprehend, to use on these occasions, is the caustic potash; and for this reason; that it dissolves the parts with which it comes in contact, and that then the dissolved caustic penetrates still further beyond the part to which it has been actually applied. If the tooth penetrate into the cellular membrane, some of the saliva may have gone to the cells beyond; and if you apply the nitrate of silver, or the nitric acid, these will coagulate the fluids and harden the solids, and they will not diffuse themselves, like the caustic potash. A convenient way of applying the latter on these and some other occasions is this—melt some of the caustic potash in a silver or platina spoon, and when melted dip into it the blunt end of a probe, and it will come out with a varnish of the caustic upon it; dip it in again and again, until a button of caustic of sufficient size is formed upon it. By means of a probe thus armed you may carry the caustic into a narrow wound, so that you are sure it will penetrate wherever the dog's tooth has penetrated; and then, from the particular nature

of the caustic (as I have explained), you may be certain that it will penetrate still further, and as far as the saliva can have reached.

Caustics may often be used very advantageously for the purpose of destroying diseased lymphatic glands. A man has chronic inflammation and enlargement of the glands in the groin, forming a considerable tumour. The skin over them ulcerates, forming at last a large ill-conditioned ulcer, which will not heal. What is the reason of this? Because no ulcer will heal unless it has a healthy basis, and here the basis is a mass of diseased glands. These diseased glands may take a long time to recover themselves—not merely months, but one or two years, and as there are plenty of glands to spare, there is no harm in destroying them. You may effect this by the caustic potash, but not very well; you want some kind of caustic which will lie in the substance of the diseased glands and destroy their inner structure as well as their outer surface. The form of caustic I am going to mention was used by the late Mr. Pearson, from whom I had the prescription. It consists of one ounce of crumb of bread, two drachms of oxymuriate of mercury, one drachm of red oxide of lead. These are to be mixed together, kneaded with the fingers, and formed into a sort of paste. The paste should be rolled into little conical troches, and these, if left to dry, become hard like bread seals. These troches may be stuck into the enlarged gland like pins into a pincushion. They produce no effect at first, but in the course of a little time they begin to act, and the patient knows this by the pain produced. This lasts for some hours, and if a sufficient number of the troches be employed, the whole of the gland is at once destroyed. If any portion remains not destroyed it is easy to effect it by repeating the process. I do not know whether the red-lead answers any useful purpose; I suppose not, but I found it in the original prescription, and on all occasions where I find a particular prescription to do just what is wanted, I am unwilling to alter it.

Caustic may be applied to various morbid growths; and I am inclined on the whole, when these can be easily destroyed by caustics, to use them in preference to the knife, and for these reasons:—*First*, the former are on the whole much less formidable to the patient; *secondly*, if I am not very much mistaken, there is less chance of any ill consequences from the application of caustic than from even a small operation with a knife. For example, you very seldom find an attack of erysipelas follow the use of caustic, certainly much less frequently than after the use of the knife. Again; the slightest wound in certain constitutions will be followed by that diffuse inflammation of the cellular membrane, terminating in gangrene, which I noticed in a former lecture. But I do not recollect that I ever saw the same thing to happen after the use of caustic. The cases, however, to which caustics are applicable, are only those in which the morbid growth is of small size, and placed quite superficially. Undoubtedly it would cause too great a shock to the constitution, and too much suffering to the patient, for him to have a morbid growth of very large size destroyed in this manner.

There is a very common kind of morbid growth, in the form of

warts and condylomata, which occur in women about the pudenda, and in men on the glans penis and about the anus. These are very easily destroyed by caustic. The nitrate of silver will destroy warts on the glans penis very well, if they are of limited extent, but not when they are collected in large masses. In such cases as these strong nitric acid may be employed. Rub the warts with it, and repeat the application from time to time till the whole are destroyed. The following application will answer the purpose very well in cases where the warts are not very extensive—a drachm of muriatic acid, added to three drachms of muriatic tincture of iron. This destroys the warts very well, but not very rapidly. The application must be repeated every day for some time, till the warts shrivel, decay and drop off. There is a very common escharotic, and a very useful one for warts, on the glans penis or pudenda, where they do not exist to a great extent—namely, equal parts of powdered savine and verdigris. This being sprinkled on the warts destroys them, partly by making them slough, and partly by promoting their absorption. Another excellent caustic, on this and some other occasions, is this: take half an ounce of strong nitric acid, add to it half a drachm of white oxide of arsenic. It makes a beautiful blue solution, consisting of the nitrate of arsenic dissolved in nitric acid. This may be applied to the warts by means of a probe armed with lint; and it has a double operation. The nitric acid acts immediately, and, when it has done acting, the slough contains a certain quantity of arsenic, which continues to operate afterwards. Having this double action you may suppose that it is a very efficient caustic.

On this occasion, as on many others on which you use nitric acid, without care, you will be in danger of burning the neighbouring textures. A woman who has warts on the pudenda wishes to have them destroyed, but she has no desire that the skin in the neighbourhood should be burned. This, however, will happen, unless you take care to prevent it. If you use nitric acid you should have at hand a solution of the bicarbonate of potash, by applying which you may neutralize the acid as it flows beyond the surface on which it is intended to act, and stop its operation. I may observe here, once for all, that there are many occasions when it is necessary to use similar precautions. Indeed, almost always when you use a caustic, it is prudent to have some counter-agent at hand to stop its action if it goes on a wrong part. Acids may be neutralized by alkalies; caustic potash may be neutralized by vinegar. If you are afraid of nitrate of silver burning the neighbouring parts, its action may be neutralized by common olive oil; a solution of the bicarbonate of potash will decompose chloride of zinc—and so with other caustics.

Caustic may be used with great advantage in many cases for destroying the congenital vascular tumours which we see so frequently in children—nævi, as they are sometimes termed.

There are small vascular spots, not exactly congenital, though they occur in early life, which present themselves on the face of children, and which not unfrequently are objects of some anxiety, especially in the higher classes of society, as they form rather ugly red specks

on the face. On examining one of them with a lens you see one large vessel in the centre, and small branches radiating from it. These spots, in most instances, if let alone, will disappear spontaneously. If, however, this does not happen, you may destroy them in the following manner. The principal vessel is near the surface. Touch it through the cuticle for an instant with strong nitric acid, and it will contract and become obliterated. This is best done by means of a pointed piece of glass, which they sell as a sort of toy under the name of a glass pen. It is in truth as bad a pen as possible, but it answers this purpose, and some other purposes in surgery, extremely well. If the acid flows over the cheek, you may neutralize it by a little bicarbonate of potash. But this will not destroy these vascular stars in every instance; and there is another and still a more certain method of proceeding. Puncture the principal vessel from which the others radiate, with a lancet, and then introduce into the puncture, merely for a single instant, a very fine piece, scraped like a pencil, so as to have a sharp point of the caustic potash. Touch it for a moment only; that will be quite sufficient. But even after so slight an application, you will see that the caustic has also burned the margin of the skin, and unless you adopt other measures a trifling mark will be left. For this nothing is required but the application of a small piece of lint soaked in vinegar.

There are some congenital nævi which are altogether cutaneous. There is a very intricate plexus of little vessels filled with scarlet blood in the skin, which, being elevated above the surface of the surrounding skin, assumes an appearance which may be compared to that of a raspberry. If a nævus of this kind be of large size it must be removed by the knife or by a ligature, but if it be small, you may destroy it very well with caustic. You should not employ the caustic potash, for that would produce bleeding, but rather have recourse to nitric acid, which detroys the nævus sufficiently, while at the same time it coagulates the blood in the small vessels, rendering the nævus more solid than it was before. With a bit of stick, or a probe armed with lint, and dipped in the strong nitric acid, paint the surface of the nævus, taking care that you include the whole, but that you do not burn the neighbouring parts. This makes a slough of the surface of the nævus, and destroys it at the same time that it coagulates the blood in the small vessels below, and thus renders them impervious. But, as I stated just now, this method is applicable only where the nævi are of small size.

There are subcutaneous nævi formed by vascular tumors in the texture *under* the skin, and not *in* the skin itself. These put on a different appearance from the cutaneous nævi before mentioned. The blood here is seen not of a scarlet, but of a purple colour, because the skin lies over it. These may be destroyed by caustic when they are of small size; and even when they are of large size, if it be a great object to avoid the scar which must exist after the removal of them by the knife or by ligature. These vascular nævi have sometimes been cured by vaccination. Half a dozen punctures have been made with a lancet armed with vaccine lymph. The

pustules being crowded together in the nævus, a good deal of inflammation has ensued, with some degree of sloughing, and altogether the nævus has been cured. But you cannot depend on this method —at least so I am informed by those who have practised it, for I have not tried it much myself. But you may, on the same principle, very easily cure a nævus of this kind by caustic. For this purpose I have a very narrow lancet, perhaps about the eighth of an inch in width: I introduce it into the middle of the nævus, and move it in different directions, so as to cut to pieces, as it were, its vascular structure. I then have a probe armed by dipping the round end into the nitrate of silver melted in a platina spoon. This is to be introduced into the puncture made by the narrow lancet, and moved about, so that wherever the lancet has divided the blood-vessels, this may penetrate. It causes inflammation and sloughing, at the same time obliterating the vessels beyond the margin of the slough. When the slough is separated, there is a slight discharge of pus for a few days, and if the tumour be of small size you will find that it is cured; but if it be large the application must be repeated. I have used this on several occasions with great advantage, especially when the tumour has been on the face, where it was a great object not to destroy the skin. If you remove one of these tumours either by the knife or by ligature, you must in either case leave a large cicatrix. But by applying the caustic in the way which I have mentioned you save the skin that lies above it. I was last year called to see a little child that had one of these subcutaneous nævi at the end of the nose, which gave it a very ugly appearance. A good part of the alæ of the nose was involved in the tumor, and to have cut it out would have disfigured the child for life. I treated it according to the method which I have just explained. Several operations were required, but they succeeded perfectly; the child is quite cured of the nævus, and I will not say that you see no mark at the end of the nose, but there is so little that, unless your attention were called to it, you would not know that any thing had happened. I have destroyed an extensive nævus covering a very large portion of the face in the same manner, there being very little or no scar afterwards.

There is another class of cases which may be very conveniently treated with caustic, and in general much better than with the knife. I mean those tumours which I have been in the habit of calling half malignant, and which occur on the face chiefly of elderly people. A man has a soft tumour upon the face, covered by a smooth skin, and not exactly a wart. On cutting into it you find it consists of a brown solid substance, not very highly organized. A tumour of this kind may remain on the face unaltered for years, and then when the patient gets old, it may begin to ulcerate. The ulcer spreads slowly but constantly, and if it be left alone it may destroy the whole of the cheek, the bones of the face, and ultimately the patient's life; but it may take some years to run this course. So far these tumours in the face, and these ulcers, are to be considered as malignant. Nevertheless they are not like fungus hæmatodes or cancer, and for this reason: that the disease is entirely local. It does not affect the

lymphatic glands, nor do similar tumours appear in other parts of the body. I have generally been in the habit of destroying these tumours with caustic, and when they are of small size I prefer caustic to the knife, for the reasons I have formerly mentioned. If a patient applies to you with one of these tumours as large as a pea or a horse-bean, not ulcerated, but beginning to increase in size, you may proceed in the following manner. First, make a crucial incision through the substance of the tumour with a lancet. Then, as soon as the hæmorrhage has ceased, apply the caustic potash in the incision. You may destroy the tumour if you please by letting the caustic act on the skin without using a lancet, but its destruction is much more easily accomplished in the manner which I have suggested. One application is generally sufficient; the slough comes away, and the sore heals. Perhaps it will be asked—Is there not this objection to the use of caustic; namely, that some time is necessary for the slough to come away—then a further time for the healing of the wound? and does not all this make the process of cure more tedious than it would be if the knife were used instead? The fact is, that a wound always heals much more readily after the application of caustic than after the use of the knife. Take two cases—if you destroy one tumour of a given size by the knife, and then the other, supposed to be of the same size, by caustic, in spite of the time occupied by the separation of the slough, the sore in the former case will be healed sooner than that in the latter.

If the tumour be ulcerated, this is favourable rather than otherwise to the use of the caustic, because it saves the trouble of dividing the part with a lancet. When, however, the tumour has been of long standing, and has produced an extensive ulceration, the caustic potash will not well answer the purpose. There will be so much bleeding from the large surface that the caustic will expend its action on the blood, and will produce but little effect on the disease. You may then destroy the tumour with nitric acid, but the best applications, according to my experience, are the chloride of zinc or arsenic. There is, however, one very serious objection to arsenical caustics applied to a large surface; the arsenic is sometimes absorbed, producing severe constitutional symptoms. There was, in former times, a Miss Plunkett, a quack, who pretended to cure cancer, and it was known afterwards that her secret consisted in the application of arsenical caustics. An old medical practitioner, whom I knew in the early part of my professional life, informed me that it had fallen to his lot to see many of Miss Plunkett's patients, and that after the application of her caustics many of them died, from what seemed to be inflammation of the bowels. It is, indeed, notorious that the topical application of caustic to a great extent is very likely to produce the same poisonous effects as arise from an absorption of arsenic from the alimentary canal. The chloride of zinc acts merely locally; it is not absorbed into the constitution, and its use is not attended with any constitutional disturbance, nor productive of the smallest danger. I generally use the chloride of zinc by mixing it with an equal quantity of flour. It deliquesces from the moisture of the atmosphere, or you

may add a little water to make it into a paste, which is to be spread on lint. If you want a deep slough, spread the paste thick; if a thin one, spread it as thin as you please. The depth of the slough depends on the thickness of the paste, and the thicker it is the longer the action of it continues. The application of the chloride gives the patient a good deal of pain, which you must make him endure as well as you can by giving him opium. Some patients suffer much more than others; some will not require any opium at all, others will require it in great abundance; but when the action of the caustic has ceased, there is an end to the pain, and the slough comes away in a few days. If the ulcerated surface be of large size, and the disease of much depth, a second application may be required. When the disease is situated over a bone, I generally like to procure a thin exfoliation of the latter, and the caustic accomplishes this very well, acting on the bone, but not to any great depth. The exfoliation takes place in a few weeks, and when the thin layer of dead bone has come away, healthy granulations are seen beneath. Sometimes, after having destroyed a great part of an ulcerated tumour with chloride of zinc, a small portion of it may be left here and there, to which you may apply the caustic potash, or solution of arsenic in nitric acid. This solution of arsenic, or any other preparation of arsenic, may be applied to a small surface very safely. Observe that what I object to is its application to a very large surface.

Ulcerated tumours, similar to those which occur on the face, are sometimes met with on the scalp, and these too may be destroyed with caustic. You must, however, apply it in these cases with great caution, and for this reason—if you destroy at once a large piece of the pericranium, the destruction of it is likely to produce a separation of the dura mater from inside the bone. A case of this kind which I saw long ago made a great impression on my mind. A surgeon applied the caustic potash to the scalp with a view to make an issue in a man's head, who was labouring under a headache, and nothing else. He made a slough down to the bone, and exposed a piece of the occiput as large as half a crown, or larger. The patient was soon seized with a set of strange symptoms, and died. It was found that the dura mater had become detached from the inside of the bone just opposite the part where the pericranium was destroyed on the outside; and it was clear that the sloughing of the dura mater was the cause of the man's death. I mention this case to show that you must be cautious in the use of caustic when you apply it to the scalp; but you may apply it in that situation, nevertheless, if you proceed in a prudent manner. I had lately a very successful case of one of these half malignant tumours of the scalp, which was much ulcerated, and had been going on for some years. I applied caustic to the different parts in succession, not making a fresh application until the slough made by the former one had come away. By proceeding in this manner the bone was not killed, except a very thin layer on the surface, and the patient was cured.

You may, with proper precaution, apply caustics to parts situated internally, even to the inside of the mouth, and to the inside of the

female urethra. In that disease which we call *epulis*, a red tumour that looks like the gum, and which becomes connected with it, (though I believe that it really has its origin in one of the alveoli,) you may use caustics with great advantage. It is in vain to destroy the outer part of such a tumour, that is, the part connected with the gum, unless you also destroy the inner part where it originates in the alveolar process also; and from the surgeon not being aware of this circumstance I have in several instances known repeated operations with the knife, as well as the application of hot iron and caustics, fail. The caustic which I find in general to be most convenient in these particular cases, is the caustic potash. You must fix it at a right angle to the end of a pair of dressing forceps, and secure it well by tying thread round it. The caustic should be scraped small enough to enter the alveolus, the teeth having been previously removed. Having thus destroyed the disease where it originated, you may apply the caustic to that portion which is outside, and connected with the gum. But you will say that it will burn the tongue or the cheek; and so it will, if you are not careful. You must let your assistant hold open the cheek, and while you apply the caustic he must have at hand a brush dipped in vinegar, which he is to apply whenever the caustic spreads beyond where it ought to be applied. I do not recommend this kind of treatment in the case of a large *epulis*, in which it will probably be necessary to take out a portion of the jaw; but it is perfectly applicable to many cases in the early stage of the disease. With a somewhat similar precaution you may apply caustic to destroy the vascular excrescence, to which I have before referred, of the female urethra—a disease first described by Sir Charles Clarke, and of which you will find some account also in my lectures on Diseases of the Urinary Organs. For these cases you should be provided with a silver tube or shield, closed at one end and open on one side. Introduce this into the female urethra, so that the vascular fungus may project into the open side of the tooth, and there apply the caustic. Here also you must trust to your assistant dabbing the neighbouring parts with some liquid which will act as an antidote to the caustic; a solution of bicarbonate of potash, if you use the nitric acid, or vinegar if you use the caustic potash. In general, in these cases, it is better before you use the caustic to remove as much of the excrescence as you can with a pair of scissors.

I have spoken of the application of caustics to some cases of what I have called half malignant disease; but occasionally they may be employed in cases of true malignant disease; such as scirrhus and fungus hæmatodes. If one of these tumours is of large size, it is better to use the knife; in fact you cannot remove it otherwise. But there are instances of smaller tumours in which you may use caustic with great advantage. I will give you an example. A lady consulted me concerning a scirrhous tumour of the breast. The tumour was very small, but there was a scirrhous gland in the axilla, and where there is one scirrhous gland you may be nearly certain that there are several others, though you cannot perceive them through the skin. I did not therefore recommend an operation. She came to town a year

afterwards; the tumour had ulcerated, and there was severe and indeed almost intolerable pain. I applied to the ulcerated surface of the tumour a paste of flower with the chloride of zinc. The tumour was apparently destroyed, and the sore cicatrized. She continued well for a considerable time. Another tumour then showed itself in the neighbourhood of the cicatrix, which was also attended with excessive pain, and that was destroyed in the same manner, as was a third tumour that appeared afterwards. By this treatment her life was prolonged a full year and a half; and during this time she was in a state not of misery, but of comparative comfort, being generally free from pain. She died at last of effusion of fluid into the chest.

A lady, whom I attended last winter, had a fungous growth over the head of the tibia. It had all the appearance of malignant disease, was of considerable size, and was partly ulcerated. There had been a tumour there before, and her country surgeon had removed it, but the disease had returned. I removed it a second time with the knife, and, as far as I could see, I removed not only the diseased structure, but the parts beyond to a considerable extent. The wound appeared quite healthy, and went on healing favourably. Just, however, as it was healed, and when the patient had fixed the day for going out of town, there appeared on the margin of the wound, where there had been nothing before, a tubercle, which seemed to be precisely similar to what the other tumor had been in its origin. I destroyed this tubercle with caustic, and the sore thus made healed. A second and a third appeared, which were also destroyed in the same manner. No others have since shown themselves, and I cannot but entertain some hopes that the disease is really eradicated.

I must not recommend you to use the chloride of zinc without giving you this caution respecting it. Never apply it except where there is an ulcerated surface. If you apply it to the skin, you must first put on a blister to remove the cutis, as otherwise it will scarcely act at all. But even when the cuticle is removed, it will not act for the first twenty-four hours; and it will then begin to produce intolerable pain, which will continue for four or five days. When the tumour is covered with skin, you must use the caustic potash, or nitric acid, first; and when the superficial slough has come away, if the further use of caustic is indicated, the chloride of zinc may be had recourse to.

LECTURE VII.

ON MORTIFICATION. (*Continued.*)

HOSPITAL GANGRENE—ACTUAL CAUTERY—MORTIFICATION FROM ANIMAL POISONS; FROM COLD; FROM SUDDEN LOSS OF BLOOD; FROM INFLAMMATION OF ARTERIES.

I THINK it worth while to point out another case in addition to those alluded to in the last lecture, in which the destruction of parts by caustic may be resorted to with great advantage. I refer to phagedenic and sloughing sores, whether they be those that occur upon the organs of generation in persons who have been exposed to syphilitic affection, or whether they be those that appear on other parts of the body, to which the term *hospital gangrene* is usually applied. The destruction of the parts by a powerful escharotic frequently seems to destroy the poison on which the phagedena and sloughing depends. The best caustic for this purpose is the concentrated nitric acid, applied so as to make a slough of the diseased surface, and extending to the parts just beyond it. The destruction of them to a greater depth than this is unnecessary. This method of treatment was first had recourse to, if I remember right, by Mr. Welbank, who wrote a very interesting paper on the subject.

I have taken this opportunity of speaking of some of the principal cases in surgery to which the destruction of parts by caustic is applicable; but you will find a great number of others in practice in which you may employ them with advantage. I need not, however, occupy your time further on this part of our subject. The observations which I have already offered will be easily applied to other cases; and will, I trust, be found sufficient to initiate you in this department of surgery.

DESTRUCTION OF PARTS BY HEAT:—THE ACTUAL CAUTERY.

The organization of the living body may be destroyed by the application of intense heat. A moderate degree of heat does not at once destroy vitality: it produces a peculiar kind of inflammation, with vesication of the skin; but a great degree of heat destroys at once the vitality of the part to which it is applied. Of course, the action of heat is altogether chemical. No part will live if its organization be destroyed; and heat destroys the organization. There is one thing worthy of notice respecting the slough made by a hot iron: it is separated sooner than the slough made by caustic—that is, the two sloughs being of the same extent, that which is made by a hot iron is separated at an earlier period than that made by caustic.

The reason of this is sufficiently evident. If you look at the injured part there is a much greater degree of inflammation round the slough made by the former than there is round that made by the latter.

The destruction of a part by the application of heat to a small extent is attended with no constitutional disturbance; but if it be to a great extent, the constitution is affected in proportion to the quantity of parts destroyed. This, however, is remarkable—that where on the surface of the body there is an absolute destruction of the skin by intense heat, the constitution often suffers, in the first instance, much less than if a slighter degree of heat had been applied to the same extent of surface. You will have frequent opportunities of verifying this observation, if you watch the comparative effects of burns and scalds in the cases admitted into the hospital. I have been surprised sometimes to find, where a great deal of skin has been completely destroyed, how little the constitution has resented the injury immediately after it had been inflicted; but it resents it enough afterwards, and when the period arrives at which the slough should be thrown off, then the general system suffers. I remember a lady who had both her arms burned, so that nearly the whole skin of each upper extremity was completely dead; yet her constitution seemed almost unconscious of the shock. When, however, the time came, at which the slough should have been separated, she began all at once to sink, and died in a day or two.

The actual cautery may be used for surgical purposes on the same principle as caustic; and there is one occasion on which the former will certainly do what the latter will not effectually accomplish—it will stop hæmorrhage. In some cases of dangerous hæmorrhage from a great quantity of small vessels, or from large vessels, which cannot be secured on account of their being deeply seated, the actual cautery is very serviceable. I have often found it useful on these occasions; but otherwise I have not much had recourse to it. I have indeed employed it on other occasions formerly, but I did not find it do any thing which caustics would not have done as well or better, and it is much more alarming, much more frightful both to the patient and to bystanders. It was the habit of surgeons here fifty or sixty years ago, to use the actual cautery to a great extent, and it appears to be one of the many proofs of the advancement of English surgery that we have got rid of this rude piece of farriery.

MORTIFICATION FROM ANIMAL POISONS.

I mentioned in a former lecture that I had seen a man who died of extensive sloughing of the cellular membrane, after the sting of a bee. I stated that I had attributed this chiefly to his being of a bad constitution, though, perhaps, something might be attributed to the influence of the animal poison. My reason for making the latter observation was this: there are certain animal poisons which have the effect of producing mortification, especially of the cellular membrane. There is a work of the Abbé Fontana, in which he describes

a great number of experiments on the smaller animals, made with the poison of the viper, and the principal local effect that he observed was gangrene of the bitten limb. When I was first assistant-surgeon, a man was brought into this hospital under the following circumstances. A rattlesnake was exhibited as a sight in Piccadilly, and this poor fellow went to see it. He was a carpenter, and having dropped his rule into the rattlesnake's cage, he introduced his hand to take it out, and the snake bit him. He was immediately brought to the hospital, in a state approaching to that of syncope, with violent pain extending up the arm. The next day the whole arm was swollen, and the skin looked purple; there were vesications upon it as if sloughing were going on in the subcutaneous cellular membrane. The man lingered here for nearly three weeks, and then died. At the time of his death, there was extensive mortification of the skin of the forearm: and the whole of the cellular membrane, from the bitten finger up to the shoulder, was in a state of slough. From the appearance in the beginning there could be no doubt that the sloughing process of the cellular membrane had begun immediately after the injury was received. The skin itself seemed to have mortified only because it lay over the dead cellular membrane; and what is curious, the muscles underneath were not at all affected. The poison seems to act, as far as its local operation is concerned, especially on the cellular membrane. Not only was this proved by this particular tissue sloughing so extensively, but it was also proved by this circumstance, that within an hour after the bite extravasations of blood (ecchymoses) might be traced in the cellular membrane as high as the shoulder, thence downwards on the side of the chest as low as the false ribs, presenting altogether a very singular appearance. The poison, indeed, seemed to operate on the cellular membrane neither in the direction of the nerves, nor in that of the absorbents, nor in that of the blood-vessels. In fact, it is difficult to explain the local effects produced by this virulent poison from the anatomical structure of the parts, or on any known physiological principles. I am in possession of the notes of an experiment made by the late Mr. Ewbank (who died some years ago, having been my colleague in the hospital) with this same rattlesnake. A rabbit bitten in the shoulder became affected by the poison in a few minutes, and died at the end of three-quarters of an hour. Even in this short space of time the cellular membrane, to a great extent, was in a state of slough, although the skin and the muscles were not affected. There are several other animal poisons that seem to operate in the same manner.

I have only one practical observation to make on these cases, namely, that you may prevent the extension of the mischief produced by the animal poison, by the application of a ligature round the limb above the bitten part. It seems to stop the influence of the poison upon the cellular membrane, and at the same time to prevent the poison entering into the circulation and affecting the general system: for in these cases, besides its local operation, the poison has a powerful influence on the constitution. The constitutional symptoms,

however, are not to our present purpose, and therefore I shall not describe them.

MORTIFICATION FROM EXPOSURE TO COLD.

As parts may be killed by excessive heat, so they may be killed by excessive cold. You might suppose that cold would produce the death of a part in the following manner: that it would freeze it, and that the fluids being frozen, and to a certain extent expanded in the act of freezing, the organization of the capillary vessels would be destroyed, and death of the part ensue in the same manner as in plants and trees, which are killed by a severe frost. Two or three years ago, when there was some very mild weather, like that of spring, about Christmas, in many places the sap began to circulate in the evergreen trees. But this premature spring was followed by some days of most intense cold. The sap was suddenly frozen in the vessels of the alburnum, and as it froze it expanded, and burst the vessels, and killed the trees by destroying their organization. I said that you might suppose at first that death from cold is produced in a similar way in the animal body. I cannot say that such never is the case, but I do not find that that is the way in which it usually happens. When a part is frost-bitten it is not in general killed at once, but after being exposed to a warmer temperature, it inflames, and the inflammation immediately terminates in gangrene. I imagine that the influence of cold upon the animal body is scarcely ever so instantaneous as at once to freeze the fluid in the vessels; there is almost always time for these to contract and become emptied of their blood before the parts are frozen. You may see this in your own fingers, when they have been exposed on a cold day, they become quite shrunk and pale, as if there were no blood in them, and may remain in this state for a very long time. If in a case of frost-bite, you go to the fire to warm the affected part, there is a sudden reaction, inflammation is set up, and mortification follows. In this country we have very little experience in these cases. Every now and then, indeed, a patient is brought into the hospital who has lost a part of his foot, perhaps two or three toes, in this manner, but not until some time after the mischief was done, and we therefore do not see the process by which the death of the part has been produced. There are, however, abundant accounts of death from frost-bite, written by persons who have been in climates colder than ours. I may refer especially to a work by M. Beauprè, a French physician, who followed the Emperor Napoleon, in the Russian campaign. By his account, it would appear that parts may be under the influence of cold for a great length of time, so as to be completely deprived of sensibility, and yet, with prudent management, may recover perfectly. He states that he has frequently had his foot benumbed while riding on horseback, so that for a long time it has been devoid of sensation, and that he has got off his horse without knowing whether his feet touched the ground or not; but by rubbing them

with snow, and thus very gradually restoring them to a proper temperature, the evil consequences of frost-bite have been prevented.

MORTIFICATION FROM SUDDEN LOSS OF BLOOD.

As the circulation of arterial blood is necessary for the maintenance of life, so whatever for a considerable time prevents a part of the body from being supplied with blood, will produce mortification. A very copious blood-letting, for instance, will, under certain circumstances, give rise to it. I will mention a remarkable example which fell under my observation some years ago, in a case which I attended with the late Dr. Babington. The patient, a medical officer in the East India Company's service, had gone out to dinner, and drunk an immense quantity of wine, so that he got exceedingly tipsy. This was in the city. He staggered up Holborn as well as he could, and found his way into a chemist's shop. Here he was mad enough to ask the person who stood behind the counter to bleed him, and whether this person was tipsy or not also I do not know, but however that might have been, he certainly did bleed him: and not only that, but these two blockheads agreed that he could not be bled too freely; and so this drunken man lost, I believe, not less than three pints of blood. He then became exceedingly ill, was carried home in a coach, and the next day both his feet were mortified; the toes and feet up to the instep. We gave him wine and nourishment; he recovered, the sloughs separating, the dead bones coming away, and the stumps of the feet healing.

MORTIFICATION FROM INFLAMMATION OF ARTERIES.

Any thing which obstructs the passage of blood completely through the arteries of a limb, will, of course, produce mortification. A single ligature placed on an artery does not do it, because it stops only the main trunk at one point, and there are anastomosing vessels communicating with the artery above and below the ligature, which are sufficient to carry on the circulation. But supposing that, instead of one ligature, you were to put on half a dozen, at different distances from each other, in the space of six or seven inches of the artery you would not only render the arterial trunk, but the anastomosing branches also, incapable of carrying on the circulation, and this would produce gangrene. I imagine that such a thing never was done by a surgeon upon the human subject, but something corresponding to it may happen from disease. As long ago as when I was house-surgeon in this hospital, I went to see a poor man at Brompton, under the following circumstances. On a very hot summer's day in August, he was walking in the fields, when he felt a sense of pricking, numbness and weight, as he described it, in both lower extremities. It was with great difficulty that he crawled home. In one of the lower extremities these sensations subsided, but not so in the

other. On the following day the whole of one leg, and the thigh as high as the middle, were in a state of mortification. The mortification never extended afterwards, no vesications formed on the foot, it was not swollen, and no part became putrid except just a little in the middle of the thigh where there was a great mass of soft parts. The limb dried, the skin assuming a brownish colour, being at the same time hard and semi-transparent, so that the white tendons could be seen shining through it. It was, in fact, what has been called a case of dry gangrene. The poor fellow went on very well for four or five weeks, without any bad symptoms, during which time the separation of the dead parts in the thigh had made considerable progress. But it seemed to be more than nature could accomplish to complete the work. His powers at last began to fail, and he died at the end of six weeks from the commencement of the attack. I examined the body, and found marks of inflammation everywhere about the principal artery and vein of the limb. From the bifurcation of the iliac trunk down to the middle of the thigh, the artery was obliterated, being completely filled with coagulated lymph evidently effused from inflammation: closely adhering to the inner surface, but with some admixture of red coagulum. The vein was filled with lymph, and obliterated in the same manner as the artery. There had been inflammation of the sheath of the vessels, in consequence of which the artery and the vein adhered closely to each other and to the surrounding parts, so that the dissection was somewhat difficult. I suppose that the nature of the case is plain enough. There had been inflammation of the artery and the vein, and the obliteration of the artery was to so great an extent as to cut off the supply of blood, not only through the trunk but through the anastomosing branches. Some years ago, I was called with Sir Charles Clarke, and Mr. Bryant, of the Edgeware Road, to see a similar case, which terminated more fortunately. A lady, without any apparent reason, was seized all at once with pain in one groin, and down the anterior and inner part of the thigh, with great tenderness in the course of the femoral artery. When I saw her, which was not till some days afterwards, the whole leg below the middle was in a state of mortification. There was no œdematous swelling of the foot, and no vesication. She had still pain in the course of the femoral artery, which was aggravated by pressure; and the pulse could not be felt either in the groin or lower down. Considering the resemblance of this case to the one which I have just mentioned, I could entertain no doubt that the disease was similar, and that the mortification of the leg was the consequence of arterial inflammation. After some time the soft parts began to separate, until at last the lower part of the leg and the foot remained attached to the rest of the limb, merely by the tibia and fibula. I sawed through these bones, after which the parts gradually healed, forming a very fair stump. Perhaps you will ask why I proceeded in this manner, instead of amputating the limb at once. The fact is, that I remembered a case published in Saviard's Observations on Surgery (Saviard was a celebrated French surgeon in the early part of the eighteenth century),

which was very similar to this which I have just mentioned, and in which he amputated the thigh. In performing the operation he was surprised to find that no blood flowed from the stump, in consequence of the vessels being obliterated. The parts divided in the operation had not a sufficient supply of blood for the healing process. The stump mortified as the leg had done before, and the patient died. It appeared to me, after the evidence afforded by this case, that it was desirable to avoid an operation if possible. At the same time I ought to mention, that in the second volume of the Medical Observations and Inquiries, there is an account of a case, apparently of the same kind, in which amputation was successfully performed, the stump healing favourably.

One of the circumstances most deserving of notice in these cases is that the limb mortifies to a certain extent, and that then the mortification stops. This, however, is easily explained. We know that the obliteration of an artery must prevent the supply of blood to certain parts, but no further. Another peculiarity is, that the parts become dry, hard, horny, which condition of them has given rise to the name of dry gangrene. This is also easily explained. If mortification be the result of inflammation or of venous obstruction, there is always an effusion of serum before the parts completely die, in the form of vesication of the skin, and œdema of the cellular membrane; and then, when the parts die, being infiltrated with serum, they readily become putrid. But here the supply of blood is cut off; the blood is prevented from entering the limb, so that there can be neither vesication nor effusion of serum into the cellular membrane; and the dead parts dry readily from the absence of moisture. M. Dupuytren has described the gangrene that occurs in old age as the result of arterial inflammation, but I am quite satisfied that he is mistaken on this point. Gangrene from arterial inflammation is a comparatively rare disease, and may occur at any period of life; whereas, the gangrene of old age arises, as repeated dissections have enabled me to determine, entirely from other causes. I shall offer some observations on this kind of gangrene in the next lecture.

LECTURE VIII.

ON MORTIFICATION. (*Continued.*)

SENILE GANGRENE.

Persons advanced in life are liable to mortification of the toes and feet; generally beginning in the former, and extending to the latter. By persons advanced in life I mean those who bear upon them the marks of old age, which may, however, occur at various periods of human existence. One of the worst cases of mortification

of the toes which I ever witnessed, connected with what might truly be considered old age, occurred in a man of six-and-thirty, worn out by the operation of bad habits upon an originally bad constitution.

The question here arises, *in limine*, why is it that old persons are liable to this disease? Morbid anatomy enables us to answer this question. I have examined the bodies of a great many old persons who have died with mortification of the toes, and I have always found some morbid condition of the arteries of the affected limb. In the great majority of cases there is extensive ossification of the arteries of the thigh and leg. In many cases the arteries are not only ossified, but some of them are contracted and obliterated. Thus I have known the femoral artery to be obliterated from the origin of the *profunda* down to the ham. In other cases one or more of the arteries of the leg are obliterated, while the femoral artery is still pervious. In one case, of which I have preserved notes, the arteries were not ossified in any part of their course, but the femoral artery was converted into a gristly cord, and quite impervious from the origin of the profunda to the point at which it perforates the tendon of the great head of the triceps adductor muscle. In none of these cases, in which the arteries were contracted and impervious, were there any such appearances as would have indicated that the contraction had been the result of previous inflammation; and it appeared to me that the change which had taken place in their condition was best to be explained by supposing it to be the result of a process corresponding to that which produces stricture of the urethra or œsophagus.

It has been said that mortification of the toes in old persons is often the result of disease in the heart itself. This does not, however, exactly correspond with the results of my own experience. It is true, that I have known persons who had disease in the heart to die of mortification of the toes; but then there was always enough in the condition of the arteries of the limb to account for the mortification independently of the other disease. Thus in one case in which there was mortification of the right foot, the muscular structure of the heart was soft, thin, flaccid, and easily torn; one coronary artery was impervious; and the right iliac artery, for the extent of three inches, was impervious also, in consequence of it being completely filled by a mass of firmly coagulated blood. In another case, in which there had been mortification of the right foot, the muscular structure of the heart was pale and flaccid; one coronary artery was contracted and impervious; the cavities were dilated; a mass of dense coagulum, resembling that found in the sac of an aneurism, occupied the appendix of the left auricle, and there was a similar coagulum obstructing the popliteal artery and vein of the right side, and extending some way down the branches of those vessels in the leg.

You are not, however, to suppose that mortification of the toes is a necessary consequence of ossification or obliteration of the arteries, and that it occurs in all such cases. I have no doubt that many persons have the arteries thus altered in structure for many years, although mortification never supervenes. I have already explained

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which was very similar to this which I have just mentioned, and in which he amputated the thigh. In performing the operation he was surprised to find that no blood flowed from the stump, in consequence of the vessels being obliterated. The parts divided in the operation had not a sufficient supply of blood for the healing process. The stump mortified as the leg had done before, and the patient died. It appeared to me, after the evidence afforded by this case, that it was desirable to avoid an operation if possible. At the same time I ought to mention, that in the second volume of the Medical Observations and Inquiries, there is an account of a case, apparently of the same kind, in which amputation was successfully performed, the stump healing favourably.

One of the circumstances most deserving of notice in these cases is that the limb mortifies to a certain extent, and that then the mortification stops. This, however, is easily explained. We know that the obliteration of an artery must prevent the supply of blood to certain parts, but no further. Another peculiarity is, that the parts become dry, hard, horny, which condition of them has given rise to the name of dry gangrene. This is also easily explained. If mortification be the result of inflammation or of venous obstruction, there is always an effusion of serum before the parts completely die, in the form of vesication of the skin, and œdema of the cellular membrane; and then, when the parts die, being infiltrated with serum, they readily become putrid. But here the supply of blood is cut off; the blood is prevented from entering the limb, so that there can be neither vesication nor effusion of serum into the cellular membrane; and the dead parts dry readily from the absence of moisture. M. Dupuytren has described the gangrene that occurs in old age as the result of arterial inflammation, but I am quite satisfied that he is mistaken on this point. Gangrene from arterial inflammation is a comparatively rare disease, and may occur at any period of life; whereas, the gangrene of old age arises, as repeated dissections have enabled me to determine, entirely from other causes. I shall offer some observations on this kind of gangrene in the next lecture.

LECTURE VIII.

ON MORTIFICATION. (*Continued.*)

SENILE GANGRENE.

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to you that in some cases the arteries are ossified, and at the same time either contracted or obliterated; that in others they are obliterated without being ossified, or ossified without being obliterated, even retaining their natural diameter. It is evident that the quantity of blood admitted into the limb must be different in these different cases, and that the liability to mortification must vary accordingly. But further than this: even where the arteries are rendered narrower, or actually obliterated, it seems that in general something more must happen to bring on mortification; and you will almost invariably find that the immediate cause is an attack of inflammation. Perhaps the following is not an unreasonable explanation of the phenomena which occur. The arteries are ossified, or they are partially obliterated; but still a sufficient supply of blood for ordinary purposes goes to the limb. By and by, from some cause or another, the foot becomes inflamed. I observed to you, in a former lecture, that during inflammation, an increased supply of arterial blood seems to be required, and that the arterial trunks leading to the inflamed part become dilated, so as to allow this increased quantity of blood to enter, but if the arteries are ossified, they lose the power of dilatation; they cannot expand; the greater supply of blood required in consequence of the inflammation is withheld, and so the part perishes.

You might suppose, *à priori*, that persons in the lower condition of life, who live hard by their daily labour, would be more liable to mortification of the toes than other persons; but such is not the case; at least it has fallen to my lot to see comparatively few cases of this disease in the hospital; whereas, in private practice, I have met with a great number; so that for one case under my care in the former I have had three or four in the latter. It is one of the penalties paid by those who enjoy the advantages of ease and affluence, and who live luxuriously. It is persons who eat too much, and drink too much fermented liquor, and do not take sufficient exercise, that are especially liable to this disease, and not the labouring poor.

Ossification of the arteries is a change that can take place only gradually; and the obliteration of those vessels which I mentioned as occurring in some cases, probably takes place gradually also. You will easily believe that, under those circumstances, certain premonitory symptoms may arise in the lower limb before the disease is gone so far as to produce mortification. If you cross-examine a patient who has mortification of the toes, he will generally tell you, that for three or four years preceding he has had occasional pains in the lower limbs; a sense of numbness in them; that his feet were liable to be cold; that when they again became warm, after having been cold, they have been very painful; and that he has had a sense of weakness of the muscles. Such patients walk a short distance very well, but when they walk further, the muscles seem to be unequal to the task, so that they cannot get on. The muscles are not absolutely paralyzed, but in a state approaching to it. All this is easily explained. The lower limbs require sometimes a larger, and sometimes a smaller supply of blood. When more blood is wanted, the arteries cannot

open to let it in, and hence arise both pain and numbness. In walking, the muscles ought to receive an increased supply of blood, but the arteries being ossified or obliterated, they are incapable of transmitting it; and this explains the sense of weakness. This last circumstance may be illustrated by what you observe in a particular disease of the heart. Dr. Jenner first, and Dr. Parry, of Bath, afterwards, published observations which were supposed to prove that the disease which is usually called *angina pectoris* depends on ossification of the coronary arteries. I will not say that such symptoms as those of *angina pectoris* can arise from no other cause, but I know that they do arise from it in certain instances. In two cases in which I examined the bodies of persons who died from the disease in question, I found ossification of the coronary arteries to a great extent, so that they were converted into complete bony tubes, while there was no disease of any consequence besides. When the coronary arteries are in this condition, they may be capable of admitting a moderate supply of blood to the muscular structure of the heart, and so long as the patient makes no unusual exertion, the circulation goes on well enough. When, however, the heart is excited to increased action, whether it be during a fit of passion, or in running or walking up stairs, or lifting weights, then, the ossified arteries being incapable of expanding to let in the additional quantity of blood which, under these circumstances, is required, its action stops, and there is syncope; and I say, that something like this may be observed in persons who have ossified or obstructed arteries of the legs.

These premonitory symptoms, as I have said, may exist for three or four years, until at last some accidental attack of inflammation occurs which induces the mortification. A very frequent occurrence is this: the patient cuts a corn, the knife goes below it, makes the toe bleed, and a little inflammation follows: or it may be, that the foot gets chilled by exposure to cold, and the patient goes to the fire to warm it, and that this is followed by a degree of inflammation which, if the arteries were healthy, would be chilblain and nothing more, but which, in their present condition, lays the foundation of mortification. A slight degree of inflammation of the toes almost invariably precedes the mortification; vesications then take place, the vesicles burst, and at the bottom of them you find the cutis to be dead. This may take place in one toe, or in many toes at the same time. Most frequently, the disease having commenced in one toe, extends to the others, and then to the feet. Frequently, in the beginning of the complaint, there is a most intense pain, but sometimes the pain is very trifling. The mortification having once begun, a little inflammation is kept up on its margin, which slowly creeps up the foot, and the mortification follows it; the constitution being probably little or not at all disturbed, the pulse remaining at its natural standard, and the patient in all other respects thinking himself well. The disease, in fact, generally has, in the first instance, a chronic form; but sometimes it is otherwise, so that it exhibits all the characters of an acute disease. The man to whom I before alluded as old in constitution, though not in years, being only thirty-six, had been a soldier, and

had served in Canada and in the East Indies—that is, in cold climates and in hot. He had, by his own acknowledgment, been a drunken fellow, and dissipated in other ways. Having been dismissed from the army as superannuated, he gained his livelihood by working as a labourer on the Edgware Road. Many times on going to work, he suffered from cold and numbness of the feet, followed by violent pain. One morning in September (not a very cold time of the year) these sensations took place to a very great extent; severe pain and shivering followed, and his friends took him home in a coach. Two days afterwards he was brought to the hospital, and then all the toes of one foot were mortified, and one or two of the other. Under the treatment which was employed, and which I need not explain at this moment, he recovered. The dead toes came away, the sores healed, and he left the hospital as cured. Two years afterwards he was re-admitted with an abscess on one instep, and a sinus running under the skin. This occurred the year after I had been elected assistant-surgeon to the hospital; and not knowing any better at that time, I introduced a director under the skin, and along the sinus, and, according to what I had been taught to do in a case of this kind, I slit open the sinus with a lancet, making an incision two inches in length. With my present knowledge, I should have acted otherwise. Some inflammation followed the wound, which extended to the foot. The next day mortification had extended up the whole foot to the leg, the pulse was frequent and weak, the skin hot, and the patient lay in a state of stupor. Two days afterwards he died. You will observe that in each of these attacks the disease had the acute form, and that in the second attack it terminated life in about four days. I examined the body after death, and found extensive ossification of the arteries of both limbs.

The more common history of the disease, however, is this: in its origin it has the chronic form, but if it goes on it sooner or later assumes the acute form. The mortification may gradually spread up the toes and feet without any urgent symptoms, and this may be going on for weeks, and even for months; then, all at once, a fresh attack of inflammation takes place, the mortification extends rapidly, the constitution suffers, the pulse becomes feeble and rapid, the patient falls into a state of stupor, and dies in the course of a few days.

There is no form of mortification which is more dangerous than that of which I am now speaking. A large proportion, indeed, of the patients who are so affected, under any mode of treatment, die. You will not be surprised, then, that a great many different modes of treatment have been proposed. Where there is a disease that always gets well under a certain system, medical men have little inducement to make experiments; and the wisest make none at all. But in an intractable disease like this it is natural that practitioners should be always looking out for new remedies. I do not pretend to speak of all the variety of remedies that have been used or recommended; but I shall allude to the principal ones.

In the first place, those who have observed that the disease is preceded by inflammation, have said, "bleed the patient; treat it like

an inflammatory disease." I have no doubt that some have been led to recommend this from a mistake respecting the pathology of the disease, which I noticed in the last lecture; that is, from having supposed that this peculiar kind of mortification of the toes depends on inflammation of the arteries. I have, however, explained to you that the two cases are quite different. Bleeding has, however, been proposed, and in one instance I saw it tried. The mortification was to a very small extent; there was but very little inflammation round it, and the patient seemed to have a very fair chance of recovery. But immediately after the bleeding the mortification extended rapidly up the foot, and he died. Indeed, it appears to me, that we have no right to expect that we shall cure this disease by taking away blood. There is inflammation, it is true; but if the inflammation terminates in mortification, it is because the part, on the principle which I just now explained, cannot get that additional supply of blood which an inflamed part requires. Now, if you abstract blood, and thereby lessen the quantity in the system, and weaken the action of the heart, the supply of blood to the limb must be diminished, and the cause of the disease aggravated.

An opposite plan of treatment to this has been recommended by others. They have said, "this is a disease of weakness; give bark, quinine, serpentaria, and other tonics." Now there are certain kinds of debility which will be relieved by these remedies, but here there is only a local weakness, depending on disease of the blood-vessels. Will such remedies as these mend the condition of the arteries? Certainly they will not: but they will interfere with the digestion; they will prevent so much food from being converted into nourishment as would be converted into it otherwise; they will prevent the exhibition of stimulants which really are useful, as I shall explain presently. I own that I have very little, I may almost say, no faith, derived either from theory or from practice, in the good supposed to be produced by the exhibition of what are called tonics. If you give any thing of the kind, let it be ammonia, combined with the compound infusion of orange peel. Ammonia for a little time may be useful; but I think there are objections to its long-continued use in this and in every other case. It appears to me that patients who take it for a long time, are at last rendered weaker by it, instead of stronger. It is an alkali, and produces the same effect on the blood that is produced by other alkalies. If it be taken, however, for a short time, it may be useful.

In the management of these cases there can be no doubt that one principal object to be kept in view is the maintenance of a sufficient supply of blood in the system. As the abstraction of blood is mischievous, so the opposite treatment is likely to be beneficial. Let the patient, then, be put on a system of nutritious diet, not overloading his stomach, so as to produce a red or yellow sediment in the urine, but taking as much food as can be easily assimilated, and no more. Let him live chiefly, but not entirely, on animal food, which makes blood—if I may use the expression—of a better or stronger quality than that derived from vegetables alone. In addition to this, the

patient will require the use of some such stimulants as ale, wine, or brandy. You will generally find that persons who have mortification of the toes, are such as have been accustomed to take a good deal of fermented or spirituous liquor, and being accustomed to it, that they cannot do without it. Nor is this all. Those whose mode of life has been different will require the exhibition of stimulants under these new circumstances. The question, however, will arise in each individual case, what is the proper quantity to be exhibited? Some persons may want a bottle of wine daily; but very few, on this, or on other occasions, are benefited by so large an allowance as this. In the majority of cases from half a pint to a pint daily will be sufficient. You should ascertain what have been your patient's previous habits, and then give him wine or ale cautiously, observing the effect produced. There is one good rule of conduct in this respect, both in health and in disease: wine that does not occasion heat of skin, that does not raise the pulse, nor make the mouth clammy, nor render the patient nervous or irritable, any quantity that does not produce these effects, may be given with advantage: but otherwise it does mischief.

In all cases of mortification of the toes, I have observed it to be of great consequence to attend to the state of the digestive organs. If the bowels are not in a proper state, the food cannot be properly assimilated; and the patient being confined, as he must be, to his bed, the bowels will not act without assistance. I do not advise you to give purgatives every day, but rather an active dose may be required once in three or four days; such as two or three grains of calomel at bed-time, with an aperient draught on the following morning, or blue pill with compound extract of colocynth; and all my experience leads me to believe that this is a very essential part of the treatment.

Mr. Pott was either the first who recommended, or the first who brought into general use, the exhibition of opium in cases of senile gangrene. What is the *modus operandi* of opium here I will not pretend to say; but I can have no doubt, from all the experience that I have had, that there is really no internal remedy so useful as this. I can scarcely remember meeting with a single case of recovery in an old man, from mortification of the toes, in which opium had not been exhibited. But it is with opium as with wine; a good deal of discretion is necessary as to the exhibition of it. You must not begin with very large doses of opium; they are too powerful for the constitution, and opium is mischievous if it keeps the patient dozing all the day. You may at first exhibit half a grain, three times daily, and keep him slightly under its influence, but nothing more. If he continues to take it (and sometimes this may be necessary for months together), the dose will require to be increased; but you will never be able to persevere in the use of opium, except you employ in combination with it those remedies which I last mentioned. Not only purgatives, but mercurial purgatives, are required by all persons who take opium in this manner, otherwise it stops the secretion of bile, and does mischief. The result of the case will very much depend on this—whether opium does or does not agree with the patient. If opium induces a feverish state of system, if it disturbs the sensorium,

if it interferes in any way with the digestion of the food, and especially if it makes the tongue brown and dry, it can do no good; while the mere healthy action of it will be almost certainly beneficial.

With respect to the local treatment, the first thing is to keep the patient in bed. Not feeling very ill, he probably will wish merely to lie on the sofa; but this never answers; therefore send him to bed at once. If he strives against it for the first few days, he will be driven to bed at last, and will be worse than if he had gone there in the first instance. I think a great deal of the success of the treatment will depend on his being placed in the uniform warmth of bed at the very commencement of the attack. Rest in bed, in the recumbent posture is essential. Then, what local treatment is required besides? It is common to apply poultices made of grounds of stale beer, or of red wine and oatmeal, and some recommend a solution of chloride of soda. I was accustomed formerly to rub the legs and thighs with a stimulating liniment, but I soon left off this practice, finding that it did no good; and I believe now, that, if it does any thing, it does harm. Why do the toes mortify? Because when inflamed they do not get a sufficient supply of blood. Rub the thigh and leg with a stimulating liniment, and it is the same thing, only less in degree, as blistering them: and what would be the consequence of applying blisters? It would draw the blood to another part. You want it in the foot, and you draw it elsewhere. It is something like taking blood from the arm, not indeed so mischievous: less in degree, but the same in kind. Then, I must say, that I have never seen any good from it in practice. Neither have I any reason, from what I have seen, to believe that those other applications which I have mentioned used as poultices and lotions are of any use.

Some few years ago I was in consultation with the late Mr. Vance, of Sackville Street. He had been surgeon for many years to Greenwich Hospital. Being always anxious to obtain what information I can from others, I observed to him, "You must have seen among the old men at Greenwich, a great number of cases of mortification of the toes. What have you found, on the whole, to be the best local treatment?" He answered, that he had found nothing to answer so well as wrapping up the parts in carded wool. I did not understand from him whether he wrapped up merely the foot or leg, or the whole limb; but he added that he usually left it on for many days. It struck me that this was a very reasonable kind of practice. Wool is a very bad conductor of heat, and wrapped round a limb it must keep it of very uniform temperature, and at any rate save, in a great degree, expense and trouble of generating animal heat. Soon afterwards, I had an opportunity of adopting Mr. Vance's mode of treatment. I had been poulticing a foot as usual, and the disease was going on spreading from one toe to another, and up the foot. Carded wool is so prepared that it may be drawn out in long flakes several feet in length and in these I wrapped up the foot; and then, thinking that I had better proceed further, I wrapped up the leg and the thigh also, as high as the middle of the thigh. I applied it rather loosely, one flake over another, until the limb appeared to be three or four times

more bulky than it was in its natural state. The result was excellent. The mortification never spread from the time that the wool was applied, and the patient recovered. I have employed the same local treatment since in other cases, and although, of course, it would be absurd to represent it as always successful, yet I feel bound to say that I am satisfied that it produces much better results than any which I have ever employed.

In employing the wool, recollect that you should apply it loosely and uniformly, and plenty of it. You may afterwards sew it all up in a silk handkerchief, and leave it unopened for several days, sometimes a week. You may lay a simple dressing of calamine cerate on the mortified parts, replacing it whenever you change the wool. If the mortification stops, and the slough is coming away, you may, on account of the discharge which takes place, change the wool every other day. The carded wool possesses, as a little consideration will prove to you, many advantages over the poultices. In the first place, if you use poultices the limb is exposed alternately to cold air and hot poultices three times every twenty-four hours, that is, to repeated changes of temperature. In the intervals, it is at any rate left to generate heat as usual. But if you wrap it up in carded wool, both these things are avoided. In another respect, also, this mode of treatment is a great comfort to the surgeon, the patient, and the whole family. Two or three times daily, whenever the poultices are changed, the family inquire, "Is he better? is he worse? is the mortification stopped?" You are called upon to answer these unanswerable questions, and the patient's mind is kept in a constant state of excitement. But if you put on the carded wool, and leave it there, his mind in the interval is tolerably tranquil: he lives upon the hope that when the wool is next taken off the parts will be found better; and such a state of mind is much more favourable to his recovery than the nervous anxiety which he experiences when the limb is examined more frequently. I believe that there are very few cases to which you will not find this method of treatment applicable. If there be any, it is those in which there are great inflammation and heat of skin, and in these it may be prudent to defer the application of the wool until these symptoms are abated.

Whenever the mortification is arrested, you will be made aware of it by a line of separation on the margin. The process of separation proceeds, in favourable cases, until the bones of the toes come away. You may have to cut through some dead ligaments and tendons, in order to promote the separation of the offensive and putrid parts, but you must cut through nothing else. If you apply your knife to living parts, you will certainly bring on a fresh attack of mortification. Leave the separation altogether to nature, and the natural process will do all that is required.

But there is another question. A man has mortification of the toes, and, independently of experience, you might naturally say,—here is a most dangerous disease; why not at once amputate the limb? It is probably unnecessary for me to tell you that it would be contrary to all the old rules of surgery (for which I have great

respect) to amputate a limb under such circumstances. I have never seen it done; I have never done it myself, but I have heard of cases in which the surgeon was, shall I say fool enough or ignorant enough? to venture on this summary proceeding of cutting off the leg, because the toes were beginning to mortify. In every instance the stump mortified directly, and the patient died. The chance of recovery from mortification of the toes is not very considerable—that is to say, there is a great chance of the patient dying; but still, under proper treatment, there is also a fair chance of recovery, and you ought not to risk this chance by inflicting on this diseased limb so severe a local injury as belongs to amputation.

I have told you that disease of the arteries lays the foundation of mortification; but the disease may exist many years without mortification supervening, until some accidental circumstance brings on inflammation. I have known persons with disease of the arteries, and several toes mortified in consequence of it, in whom the mortification has stopped, the sloughs have separated, the sores have healed, and who have lived for years afterwards. I know a gentleman who is now alive, and in good bodily health, at least he was so not long since, whom I attended for mortification of the toes nearly five years ago. This patient was treated on the carded wool plan, and I cannot but suspect that it did something more than relieve the disease at the time. At all events, it may be admitted as a question, whether the keeping the limb wrapped up in the carded wool, which is like keeping it in a vapour bath, may not ultimately produce some beneficial change in the condition of the diseased arteries; not, indeed, removing the phosphate of lime, which is deposited in their structure, but leading to their becoming gradually and slowly expanded, so as to allow of a more liberal supply of blood to the limb. Whether this suspicion be or be not well founded, I suppose that no one will doubt that it will be prudent in all cases to advise the patient, after his recovery, always to wear a thick fleecy hosiery stocking, or to use some other kind of warm clothing, so as to preserve the limb from the influence of the external cold.

I must add a very few words respecting the treatment during the process of separation of the dead parts. Bark, quinine, and other tonics, may be useful now, though they were not so before. Wine, and a generous diet, are still required; and some stimulating dressings, such as the unguentum elemi compositum, may be useful applications to the sores.

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LECTURE IX.

ON MORTIFICATION. (*Continued.*)

MORTIFICATION OF THE INTEGUMENTS OF THE LEG.

THERE are cases of mortification of the integuments of the legs, which appear to correspond very nearly to those of mortification of the toes, of which I treated in the last lecture. There is, however, sufficient difference between these two classes of cases to justify me in noticing them separately. Mortification of the integuments of the legs is of more frequent occurrence than mortification of the toes. We meet with it earlier in life, and in those who have less distinct marks of old age upon them; at the same time that the chances of recovery are greater in the former than they are in the latter. Undoubtedly mortification of the leg (as well as mortification of the toes) frequently has its origin in organic disease of the vascular system. But then I find reason to believe that it takes place in many cases, independently of organic disease of any kind—as in persons who are merely lowered and exhausted by previous illness; whose heart does not act with sufficient power, because it partakes of the general debility. Such persons may and do recover perfectly, living for years afterwards, without any symptoms of organic disease showing themselves.

Let me not, however, run the risk of misleading you; as the more fortunate cases, of which I have just spoken, do not include the whole of those which you will meet with in practice. So when you are first called to a case of this kind, you must always look at it, in the first instance, with anxiety and suspicion.

A person comes to you with a vesication on the leg, and when the cuticle has given way, you find a little slough at the bottom. The slough may go on spreading, probably very slowly, perhaps with little or no suffering. By and by there is an attack of severe pain, with surrounding inflammation, and perhaps shivering. In a day or two after this, the mortification is found to be making greater progress. In bad cases the mortification spreads with frightful rapidity, with much constitutional disturbance. The pulse becomes irregular, feeble, intermittent; the tongue is dry and brown; the patient wanders in his mind, then becomes comatose, sinks, and dies. Such is the history of one of the worst cases of mortification of the skin of the leg; corresponding, you will perceive, a good deal, in the symptoms, to those of senile mortification of the toes. There is a chronic attack of the disease at first, with little constitutional disturbance; the mortification spreading slowly; the disease afterwards assuming an acute form, and in a short time terminating life. But in other more fortunate cases the mortification goes on spreading slowly, with little or

no suffering, with no great constitutional disturbance, and at last, under proper treatment stops; the slough coming away, the sore granulating and healing. As I told you before, a patient who has suffered in this manner may live for many years afterwards, and have no return of the disease.

Sometimes the disease appears in a somewhat different shape. There is a simple varicose or other ulcer of the leg: by and by the surface of the ulcer assumes a dark colour, the granulations die, the mortification extends to the skin at the margin, and spreads slowly or rapidly, according to circumstances. Perhaps the slough may come away, the sore begin to heal, and actually heal to a certain point; then mortification may begin again, and go on to a certain extent, and then stop a second time. In this way I have known the disease to linger on for a year or more, sometimes terminating well at last, and at other times terminating unfavourably.

The treatment of these cases is very similar to that of the cases which I noticed in the last lecture, and, therefore, I need not occupy your time long with this part of the subject. The patient ought to be kept in the recumbent posture in the uniform warmth of bed. This I conceive to be a most essential part of the treatment, though it may sometimes require a considerable effort of your persuasive powers to carry it into execution. Not feeling himself ill, and suffering little or no pain, he may wish to lie on a sofa, or even to walk about. I have known patients thus afflicted walk to my house to see me, and have had great difficulty in persuading them that they must go home and go to bed.

With respect to the local treatment: in the greater number of cases, I find none to answer so well as this—applying some simple dressing (calamine cerate, for example), to protect the part, and then wrap up the limb in carded wool, in the way which I explained in the last lecture. This should be left undisturbed, in the first instance, for several days; the period varying afterwards according to the quantity of discharge. There are few cases to which this treatment is not at first applicable: I allude to those in which there is a good deal of surrounding inflammation, and great heat of the limb. Under these circumstances the sufferings of the patient may be aggravated by keeping the limb wrapped up in wool. The part requires to be kept cool, and you may apply a piece of lint dipped in water, and kept constantly moist, or a simple poultice. Water dressing, however, is the simplest application, causing the least trouble to the patient, and is, at any rate, as effectual as the poultice. But when the heat and pain have in some degree subsided, then you may have recourse to the other treatment. When the slough has separated, a broad ulcer is left, seldom very deep, and often quite superficial, and for the treatment of this no specific rule can be laid down. Usually the sore does not require any very stimulating application. I have found, on the whole, the Barbadoes naphtha (if it be genuine) a better remedy for the ulcers, left after the slough has separated, than any thing else. It is a mild and soothing application, yet it has a great tendency to clean what we commonly call a foul ulcerated surface. It is applied thus:—

You dip lint in it, lay it upon the surface of the sore, place a piece of oiled silk over it, and then apply a bandage not very tight. This may be changed once, and, under certain circumstances, twice daily. If the limb be cold, and the circulation in it feeble, you may continue to apply the carded wool, or a thick fleecy hosiery stocking after the slough has separated, and in general it will be prudent for the patient to wear a warm stocking ever afterwards.

With regard to the constitutional treatment, your first attention must be directed to the state of the digestive organs. Generally in these cases the patient requires an occasional mercurial purgative, once in four or five days, or once in a week, according to circumstances. I have given bark and other tonics, ammonia, and so on; but I cannot say, that my experience leads me to place much faith in any of these remedies. I may refer you here to the observations on this subject, which I offered, when speaking of mortification of the toes. It is most essential that the patient's stomach should be able to digest food, and you should take care not to overload it with medicine if it interferes with his food; for food is much better than medicine. Wine is generally required, except just at the period when there is much inflammation and pain in the leg: but the quantity of wine administered must depend on circumstances. Here also I may recall to your minds what I said on the use of wine in the last lecture. Opium, in these cases, is, according to my experience, very serviceable, just as it is in cases of mortification of the toes, but subject to the same restrictions as in the last-mentioned cases. If it makes the tongue dry, if it interferes with digestion, it does harm; but if it does not make the tongue dry, nor interfere with digestion, it does great good. You may exhibit it at first in moderate doses, increasing them according to circumstances; but always bear in mind, that when you have occasion to exhibit opium, mercurial purgatives will be especially required, as opium always has a tendency to stop the secretion of the liver, and nothing counteracts this ill effect of it to the same extent as mercury. When the sore has become quite clean and healthy, you may apply diachylon or soap plaster in stripes, in a circular manner round the limb, with a bandage from the toes to the knee, treating it as you would treat other sores of the leg.

PECULIAR SPECIES OF DRY GANGRENE OF THE SKIN.

The wax model that you see on the table, exhibits the appearances of a very peculiar sort of mortification, which is not well described, so far as I know, by surgical writers. If I recollect right, however, there is a brief notice of a case of this kind in M. Quesnay's book on gangrene—a very excellent work, published by an eminent French surgeon, about the middle of the last century.

I have extracted from one of my old note-books, the history of the first case of the kind that I met with; and I shall read it as it stands here, believing that I can adopt no better method than this for conveying to you a knowledge of this disease.

"Susan Orange, a girl fourteen years of age, was an out-patient of the hospital, under my care, so long ago as October, 1812, on account of some kind of eruption of the skin of the left arm. She appeared full grown, but had never menstruated .She had a pale, sallow complexion, with a very feeble pulse; altogether exhibiting marks of a very languid state of the system. About the end of February, 1813, the eruptions became very much relieved. (Now of this early part of her case I have only some short notes; and it is not even stated what was the exact character of the eruption. Whatever they were they did not exist to any very great extent.) Almost immediately after the eruptions in the arm had disappeared, in the beginning of March, 1813, she was seized with pain, confined to a single spot on the left forearm. The pain lasted three hours, and then subsided; but that part of the skin of the forearm, to which the pain had been referred, and which was of about the extent of a shilling, was left with a white and shriveled appearance; it was, in fact, dead, and in a short time the dried skin became hard and horny, of a straw colour, somewhat resembling a piece of parchment in appearance. As it dried, the small vessels in the skin became apparent, injected with red blood in a coagulated state. In a few days the slough separated, leaving a superficial sore, which granulated and healed under some very simple treatment. But before this sore was well closed, the patient had a second attack of pain, referred to the margin of the cicatrix, and this was followed by a second slough very similar in appearance to the first. There was, however, this peculiarity in it—that while it formed a complete zone or circle round the cicatrix, it was at some little distance from it, there being a narrow band of sound skin left between them. This second slough gradually separated, and the sore which it left healed; but before this process was completed there was a third attack of pain at the margin of the second cicatrix. A third slough formed, nearly similar to the last—that is, presenting the appearance of a zone, with an intermediate zone of sound skin between it and the last formed cicatrix. The sore left by the third slough healed like all the others. On the 9th of May, there was another attack of pain, referred to another spot on the inside of the left forearm. It lasted a day and a night, was more severe than on the former occasions, and was followed by the destruction of a piece of the skin, two inches in diameter. The slough presented the same appearances as the former ones, and came away at the end of a fortnight, being of the thickness of a crown piece. It left a sore, which healed, but slowly. About the middle of May, she began to experience a slight pain upon one instep, which continued, and on the fourth of June this pain became very intense, entirely preventing sleep on the following night. On the morning of the 5th of June the pain had subsided, but a slough was formed as large as the palm of a man's hand, covering the greater part of the instep, which presented the same appearances, and ran the same course as those on the forearm, except that the separation of the slough, and the healing of the sore, were more tedious than had been the case in the upper extremity. After this, no fresh sloughs formed for a considerable time, though

the patient continued in the same feeble state of health. She left the hospital, and I lost sight of her until October, in the same year, when she was admitted into the physicians' ward, under Dr. Warren. She remained there for a considerable time in very weak health, with occasional formations of the same white cutaneous sloughs in different parts of the body. At last she quitted the hospital, and I lost sight of her altogether. But Mr. Hammerton, of Piccadilly, who was apothecary of the hospital at the time, informed me that she went to stay with some friends, who lived near Windsor. He has since heard that she died there, and that there was no post-mortem examination.

The model that you see on the table, was taken from a patient of Mr. Keate's, and it very accurately represents the peculiar appearance which the sloughs assumed, in the case of which I have given you the history. You see the disease in its various stages: some of the sloughs are recently formed, and in other places, they have separated, and there is a clean granulating ulcer. The only circumstance that I remember different in the case of Susan Orange, is, that there the vessels injected with red blood in a coagulated state, and ramifying through the white slough, were much more distinct than they are in this model. Mr. Keate's patient became a great deal better, and it is supposed that she ultimately recovered under the continued use of tonics. Tonics, and especially steel, were administered to the first patient, whose case I have mentioned, without any advantage.

I had a patient in the hospital who laboured under a disease very similar. This also was a woman, with irregular menstruation, who was liable to attacks of pain in the leg, which ended in the formation of thin sloughs. The only difference between this and the other cases was, that each slough was preceded by vesication. The slough itself had the appearance which I have just described. This patient improved very much under the long-continued use of small doses of sulphate of copper; but at last she left the hospital, and I lost sight of her; and, indeed, you know that it must be very difficult to get the whole history of one of these cases, or of other cases, in which the disease is protracted for a great length of time.

MORTIFICATION FROM THE ERGOT OF RYE.

Cases of mortification of the limbs are described as arising from the use of certain deleterious articles of food, especially from the eating of bread made with blighted rye, or rye containing ergot. It is said that people who eat bread of this unwholesome kind are liable to mortification of the extremities; and that whole families become affected with mortification under these circumstances. I have never seen any of these cases myself, and I cannot obtain from books any satisfactory information as to their pathology. I am not aware that there is any account extant of the appearances which they exhibit on dissection. I think it right to notice the subject, but as I can tell you nothing more of it than you can find in books, I shall not dwell upon it.

MORTIFICATION OF THE EXTREMITIES FROM UNKNOWN CAUSES.

In one of the earlier volumes of the Annual Register, you will find a very curious account of a whole family becoming affected with mortification of the extremities, though it is not stated that they had been living on any deleterious articles of food. The account is given by a physician in Suffolk, of a family in that county, and nothing is stated which throws light upon the cause of the mysterious disease. The father, mother, and five children, if I remember rightly, were all affected. The lower extremities mortified in all, except the father, in whom the fingers only mortified. Mr. Solly, in the two last volumes of the Medico-Chirurgical Transactions, has given the history of a child, in whom one extremity after another, without any evident reason, mortified. The disease went on for twelve months before it terminated fatally. The limbs had all mortified, and the sloughs had separated, a sort of natural amputation having taken place. The child died, and the body was examined after death, but the examination threw little light on the pathology; and the cause of the disease is quite mysterious.

In practice, you will every now and then find other forms of mortification, which it is impossible to notice in lectures.

ANTHRAX OR CARBUNCLE.

There is, however, one other form of this disease which I think deserves your especial consideration, and with an account of which I shall finish this division of my course of lectures. The disease to which I allude is what is commonly called anthrax or carbuncle. There is something more to be said on this subject than upon ordinary cases of inflammation terminating in gangrene, and it is for this reason that, although I have referred to it already in one of my former lectures, I shall again call your attention to it.

Persons who become affected with carbuncle, are most frequently those belonging to the affluent classes of society; and those especially who have eaten and drunk a good deal, and lived freely, and who have apparently enjoyed robust health, are liable to this disease, after they have passed the middle period of life. Dr. Prout has observed a very peculiar circumstance connected with this carbuncle, namely, that it frequently exists in combination with that form of diabetes in which there is sugar in the urine. The patient is generally in a state of ill health before the carbuncle appears; often he feels ill, though he hardly knows how to explain in what respect he is so, and then the carbuncle shows itself.

Carbuncle, in its commencement, does not always present itself just in the same manner. Sometimes there is a red cutaneous tubercle, or a pimple, which becomes exceedingly painful, resembling a boil, but which, instead of soon terminating like a boil, goes on increasing in size, becoming more and more painful, with much induration at

the base. Supposing the disease to be left to run its course, it will proceed thus:—the induration goes on increasing in degree as well as in extent, the skin becoming hard and brawny, and of a dark crimson colour, especially at the centre of the induration. I have known the induration at last to occupy a space not less in size than that of a soup-plate. The patient all this time suffers exceedingly from a burning pain, with a sense of weight, constriction, and stiffness. His health is otherwise deranged; his pulse is frequent; his tongue furred; sometimes he is sick, and perhaps he nauseates his food. In cases that terminate ill, you will find, after a certain time, when the induration is very extensive, the pulse becoming weak, irregular, and intermittent; there are great prostration of strength, hurried manner, delirium, coma, and this last symptom precedes death. But the disease may terminate more favourably, even without the aid of surgery. The central part of the hardness becomes softer; you can feel an imperfect fluctuation under the fingers; the skin ulcerates in one small point, then in another, till you find it perforated in a great number of points, and a white slough is seen through the perforations. By and by the intermediate portions of the skin between these points perish, and a slough of the skin comes away. There is a discharge of a small quantity of thin matter, and a large slough of the cellular membrane is seen underneath. Some time afterwards the slough comes away, consisting partly of dead cellular membrane, partly of lymph, and partly of pus, which is infiltrated into it. Then the exposed surface granulates and heals.

But in other cases the disease, in its origin, is somewhat different, showing itself not in the skin, but in the subcutaneous texture. There is a hard lump in the cellular membrane under the skin, which is excessively painful; this goes on increasing till it adheres to the skin, then the skin becomes discoloured, and the disease runs the same course as in other cases, in which it begun with a red pimple.

The disease occurs in men more frequently than in women, perhaps because they live on the whole more intemperately. It occurs more frequently on the back, between the shoulders, than anywhere else; sometimes on the back of the neck, and sometimes on the occiput. I have observed that when it is on the back of the neck, and especially when it is on the occiput, the disease is very dangerous; but by far the greater number of patients recover in whom the disease is situated elsewhere, and in whom a proper treatment is adopted. The disease is not very common on other parts of the body; I have, however, known it to occur on the nates and thighs, and once upon the face. I was sent for to see a gentleman who I was told was very ill, and when I visited him, I could not at first conceive what complaint he had. I never saw such a man's face before. It took me some time to understand what it was. There was a carbuncle on the nose, and you may conceive, better than I can describe, the strange appearance of the human face under such circumstances.

This disease, I have said, occurs in those who have lived very freely, and, like most diseases to which such persons are liable, requires to be treated not by lowering the patient, but by giving him

nourishment and wine—nourishment, as far as his stomach can digest it; wine, as far as he can take it without being heated, and rendered feverish and irritable. When there is excessive pain, you must administer opium. It is better, generally, when the patient is suffering a great deal of pain, to give a good dose of opium at night; but, if possible, to avoid giving it in the day time. There is always a great objection to the exhibition of opium, as it will interfere with digestion and confine the bowels; but there is a still greater objection to the want of sleep, and you must give it as the least of two evils. If you administer medicines besides, bark, quinine, and other tonics, may be given. But I do not think that in general, during the active state of the disease at least, you will find much good from any thing but nourishment, wine and opium, with an occasional purgative. The purging, however, should not be carried to an excess. Moderate purgatives, administered at intervals, may be useful, and indeed necessary; but a repetition of drastic purgatives will be injurious.

But the principal remedy in these cases belongs to the local treatment. I described to you the disease, supposing it to be left to run its course, and it is always desirable to know what a disease will be if you let it alone; but I do not advise you to let this alone, nevertheless. Until there is an opening in the skin, until the pus begins to escape, and the slough is exposed, the brawny hardness of the skin continues to spread. The slough and matter require an exit, and you must give them an exit by making a free crucial incision through the carbuncle. Make, not a small partial incision in the middle, but one which extends completely through the whole brawny tumour, from one side to the other, and then another at right angles to the first, also completely through the tumour and to the bottom of it. If this be done effectually, and not too early, you will generally find that the progress of the induration is stopped. If it should, however, continue to extend, you must follow it with an incision on another day. Where this incision is made at the proper period, it is generally effectual; and with good medical treatment the patient recovers. In making the incision, you will find that you divide a thick slough of the cellular membrane, and it has a peculiar appearance, as I have already explained, in consequence of its being infiltrated with lymph and pus, so that when it comes away, it is more than the mere destruction of the living parts will account for. After you have made the incisions, you may apply a poultice to the part, and change it three or four times a day. It is not uncommon to apply some digestive ointment, such as used to be called *basilicon*, or the *unguentum elemi compositum;* it being supposed that this favours the separation of the slough. I do not know whether such applications have this effect or not; perhaps they may: at any rate they can do no harm. When the sloughs are separated, the patient's system will be relieved; but he will require support both from food and medicine. If they were not useful before, he will now derive benefit from tonics, especially from bark. Although I much doubt the efficacy of tonic medicines in the early stage of the disease, I have no doubt they are very

efficient and very useful at this period, when the sloughs have separated.

M. Dupuytren says, that there are elongations of the subcutaneous cellular membrane which extend into the skin, and that when one of these becomes inflamed, it forms a boil, but if several be inflamed, they form a carbuncle. It may be so: the disease may begin in these elongations of the cellular membrane of which he speaks, as far as I know; I cannot contradict this opinion. But there is something more than this: I do not believe a carbuncle to be a mere local affection; it is a constitutional disease, and is always preceded by something wrong in the general health. It seems to me as if there were something like a poison in the circulation, which is thrown out of it into the cellular membrane in cases of carbuncle; so that we might be justified in classing this disease with small-pox and other exanthemata. In a case of small-pox, there is first an attack of fever, which is relieved as soon as the pustules appear; and as these contain the variolous poison, there is little reason to doubt that it is the expulsion of the poison from the circulation that relieves the fever. The case which I am about to relate seems to indicate that something like this happens in cases of carbuncle. A gentleman, and old acquaintance of mine, formerly a surgeon of eminence in a provincial town, but who has retired from his profession, about sixty-three or sixty-four years of age, called upon me some years ago, at my own house, in the morning, and said there was some complaint in his back, and that he suffered a great deal of pain. On examination I found that there was a carbuncle. I sent him home, and told him to poultice it. Two or three days afterwards, it being, as I supposed, in a proper state for the operation, I made a crucial incision through it. He was very much relieved, and was going on very well, indeed, when there appeared another carbuncle, but on a smaller scale than the first. It was not a pimple in the skin, but the subcutaneous form of the disease which I have already mentioned. I told him what I believed to be the case. He said that it did not give him a great deal of pain, and I therefore thought it would be better to let it advance a little further before I opened it. It went on increasing, the skin over it became purple, and the whole assuming the ordinary form of carbuncle. In the mean time he continued well, and appeared to have hardly any thing the matter with him except the local complaint. But two or three days afterwards on calling upon him, I found him in bed. On inquiring the cause, he said in a faint voice, "O! my dear friend, I am dying." I expressed a hope that that was not the case. "O! yes," said he, "I am dying." I found that indeed his words were true. His skin was cold and clammy, and the pulse scarcely perceptible. I asked him how long he had been in that state? His answer was, "During the night all the pain subsided, and at the same time I became ill. I believe that the carbuncle itself has disappeared." And so it was: when I examined the back, I could find scarcely a vestige of it. He died in less than twenty-four hours after this change had taken place.

Another circumstance is worthy of notice, as confirming the view

which I have taken of the pathology of this disease. It frequently happens, when a patient has recovered from a large carbuncle, that other smaller ones, like boils, appear on different parts of his body; and a succession of these, gradually becoming smaller and smaller, may continue for many months, or even for one or two years.

LECTURE X.

INFLAMMATION OF THE VEINS.

Inflammation of the veins is a very common disease, and was not much noticed till within the last forty or fifty years; but of late it has been the subject of very general investigation. One description will not apply to all cases, as it occurs under various circumstances, arises from various causes, is attended by different symptoms, leads to different results, requires, of course, different treatment, and has the additional characteristic of sometimes being not at all dangerous, and at other times extremely so. Let us, then, take the disease in its simplest form, for all diseases should be thus studied. I address this observation more particularly to those gentlemen who are just commencing their studies; I recommend them to study the simpler forms of disease first, namely: those cases which more advanced students look upon as of trifling importance, for, by thoroughly understanding these, you will be enabled more readily to comprehend those more difficult cases which you will meet with afterwards. Suppose, then, a man has varicose veins of the leg; he takes too much exercise; you therefore rest him; you also purge him, and bathe the parts with cold lotions. The pain probably soon ceases, and very slight constitutional disturbance results. Now, if from any cause this man should die, and an opportunity occurs for examining the body, you will find the veins which, during life, felt hard and like cords beneath the finger, filled with lymph, so as entirely to have obliterated their cavities. This form of the disease is not dangerous; it seldom leads to any bad result. Then there are cases where inflammation of a larger vein takes place, independently of wounds or mechanical injury, and these also are not generally dangerous. Let us suppose an ordinary case. A man takes too much exercise, or is exposed to cold; he gets a sense of weight and pain in the groin, extending down throughout the whole of the limb; there is tenderness along the course of the veins during the day; no constitutional disturbance; pulse a little quickened, but the symptoms not urgent; then, after a time, the calf of the leg swells, soon the whole of the leg swells—it is an elastic swelling, and is sometimes sufficient to make the leg double its natural size. These symptoms continue for a length of time, and then, either with or without treatment, begin to subside; and first, perhaps, the pain ceases, the swelling remaining; then, perhaps, the size diminishes,

efficient and very useful at this period, when the sloughs have separated.

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LECTURE X.

INFLAMMATION OF THE VEINS.

Inflammation of the veins is a very common disease, and was not much noticed till within the last forty or fifty years; but of late it has been the subject of very general investigation. One description will not apply to all cases, as it occurs under various circumstances, arises from various causes, is attended by different symptoms, leads to different results, requires, of course, different treatment, and has the additional characteristic of sometimes being not at all dangerous, and at other times extremely so. Let us, then, take the disease in its simplest form, for all diseases should be thus studied. I address this observation more particularly to those gentlemen who are just commencing their studies; I recommend them to study the simpler forms of disease first, namely: those cases which more advanced students look upon as of trifling importance, for, by thoroughly understanding these, you will be enabled more readily to comprehend those more difficult cases which you will meet with afterwards. Suppose, then, a man has varicose veins of the leg; he takes too much exercise; you therefore rest him; you also purge him, and bathe the parts with cold lotions. The pain probably soon ceases, and very slight constitutional disturbance results. Now, if from any cause this man should die, and an opportunity occurs for examining the body, you will find the veins which, during life, felt hard and like cords beneath the finger, filled with lymph, so as entirely to have obliterated their cavities. This form of the disease is not dangerous; it seldom leads to any bad result. Then there are cases where inflammation of a larger vein takes place, independently of wounds or mechanical injury, and these also are not generally dangerous. Let us suppose an ordinary case. A man takes too much exercise, or is exposed to cold; he gets a sense of weight and pain in the groin, extending down throughout the whole of the limb; there is tenderness along the course of the veins during the day; no constitutional disturbance; pulse a little quickened, but the symptoms not urgent; then, after a time, the calf of the leg swells, soon the whole of the leg swells—it is an elastic swelling, and is sometimes sufficient to make the leg double its natural size. These symptoms continue for a length of time, and then, either with or without treatment, begin to subside; and first, perhaps, the pain ceases, the swelling remaining; then, perhaps, the size diminishes,

but not to the natural proportions, and sometimes the leg and ankle remain subject to swelling the remainder of the patient's life. Sometimes the swelling subsides every morning, but returns in the afternoon; here, again, there will be pain in the limb and tenderness in the course of the veins. In this case you will feel the vena saphena and the femoral vein like a cord in the groin, and you will be sure that this is the result of inflammation; but it will not be acute, and generally not attended with danger; but if it becomes more acute, and goes on to suppuration, then it is dangerous; and a particular feature of these last cases is the swelling of the thigh, leg, and foot. You may perhaps ask, why does venous inflammation produce this swelling? The reason is plain. The cavity of the vein becomes filled with lymph the blood cannot pass back to the heart, and then, having to find its way by some circuitous route, it becomes collected in the veins below, and the serous portion escapes, I suppose, by lateral apertures in the capillary vessels, and in this way produces the œdematous swelling. It is in this way effusion takes place in dropsy; it may be the consequence of disease of the heart, that the blood cannot make its way through the vena cava, and so you get the effusion in the same way. Another man, we will suppose, has disease of the liver; the blood gets confined in the vena portæ, and the serum escapes into the abdomen, thus laying the foundation of dropsy of the belly; if effused into the chest, it constitutes the disease called hydrothorax. Now to return; if you examine a case after death, resulting from acute inflammation of the veins, you will find the veins filled with coagulated blood mixed with lymph, and I am disposed to believe that, when the coats of the veins become inflamed, they give the blood contained in them a tendency to coagulate. It is not the disposition of blood when effused to coagulate; for we know that it may be effused into the tunica vaginalis, and remain there a long time without its being coagulated. You have another familiar example of this in the leech, in which the blood does not coagulate; but when it is out of the body, stir it as you will, it will coagulate. When inflammation of the veins runs very high, it becomes a dangerous complaint. It was the practice of Sir Everard Home to put a ligature on the vena saphena in these cases, but its effect was the production of increased inflammation. Mr. Abernethy recommended cutting the vein in two, and I being at that time much less experienced than I may claim to be now, tried his plan, but to my dismay, in a few days the man was dead, with violent inflammation of the veins. The example, therefore, is not one to be followed.

I shall now describe to you some of the MORBID APPEARANCES. These are different according to the period at which the patient dies; sometimes you find a red blush on the inner surface of the vein, and nothing more, this perhaps extending upwards towards the heart, and also downwards towards the capillaries, sometimes even to a greater extent in the latter direction than towards the heart; I do not by this mean that it runs a greater distance, but that it runs along a greater number of branches, because when it ascends, it confines itself to the trunk, and does not enter the branches. In these cases it looks like a

red stain, with a very little lymph effused on its surface; and with nothing more than this I have known the patient to die in a few days. But if he does not die, other changes take place. You find the blood coagulating in the veins (I say coagulating, for there is fibrin mixed with colouring matter), but this coagulum is evidently mixed with blood which has been effused, and sometimes you find a portion broken down, dissolved, and looking like pus, although I have not satisfied myself that this is pure pus. I have seen coagulum in the two ventricles mixed with this liquid-like pus, but it will not stand the test of a close examination, although it resembles the pus found in an aneurismal sac. If, however, the disease is allowed to go on, pure pus is formed, but then the vein becomes totally obliterated below, and the "vis a tergo" is wanting. In the greater number of cases where lymph is effused into the cavity of a vein, you will find pus secreted on the side nearest the heart; and although the pus at first puts on a doubtful appearance, if it goes on, there will be actual, pure, genuine pus, unmixed with any thing else; and then another portion of coagulable lymph will be effused between the pus and the heart, thus forming a complete barrier to its further progress. This second layer of lymph, however, is not unfrequently wanting; but even then, it does not follow that the pus shall mount up to the heart; for you will remember there is an obstruction also formed by the effusion of lymph previous to the formation of pus; so that the "vis a tergo" to force it forwards is wanting, and in this case it will form a regular abscess in the vein. The vein may be filled with pus for two or three inches of its length, or pus and lymph, pus and coagulum, or all three mixed together. If this remain, you have suppuration taking place, and then you get, secondly, abscess round the vein, which is entirely destroyed; so that, if the patient dies, you find merely very indistinct remains of it on examination. This abscess will soon make its way under the skin, and present itself externally. These, then, are the principal morbid appearances which present themselves after the inflammation of a vein. There are some others of minor importance, but these I shall dismiss for the present.

I come now to speak of the SYMPTOMS OF VENOUS INFLAMMATION. Now, let us suppose there has been a wound in the vena saphena, or in the groin; the patient has violent headache; shivering, the pulse very quick; tongue dry; next day the pulse so rapid that you cannot count it; another attack of shivering and intense headache; great agitation of manner, and an expression of anxiety in the countenance; the tongue will get black, as if he were in the last stage of typhus, and probably the next day the patient will die. This is not an overdrawn picture, for I have known several cases run this rapid course. But you will also find tenderness above and below the wound, the skin being so tender that the patient cannot bear it to be touched, and yet the pain will be relieved by putting on a flannel bandage, because it prevents the inflamed veins becoming distended. If the symptoms are less urgent, there will be shivering; an anxious countenance; brown tongue; sallow appearance of the skin; disturbance of the mind, but to a less degree than in the former; and in

these cases, where the symptoms are not so urgent, although the disease may go on for a long time, nevertheless the patient will ultimately recover. In these cases, where the disease persists for a long period, the local changes which I mentioned become manifest, viz., redness in the course of the vein; discharge of pus from the part were the ligature was applied; hardness of the vein, and swelling over the part which has been injured; and the abscess forms and breaks, and you will be able to press out the fluid from it even for several inches. If the disease has occurred after bleeding from the arm, several abscesses may form a few inches distant from each other, reaching up as high as the shoulder. But even cases which have gone on to the formation of these secondary abscesses may recover. The abscesses may be laid open; they will then go on secreting purulent matter for a long time, but ultimately granulations will form on the surface, and the patient will be restored. If this were all, there would be no reason why the majority of cases should not recover; but I have not yet described the principal thing which prevents this fortunate consummation. The patient goes on suffering the train of symptoms I mentioned before, viz., shivering, headache, &c., which appears to be connected with venous inflammation in the first instance; but as the abscesses come forward, or as the inflammation subsides, the constitution does not recover, but appears to suffer more. As the local symptoms subside, you might expect the constitution to recover itself; but instead, you find the febrile excitement continuing, with an anxious countenance, sallow tinge of the skin, fresh attacks of shivering, and pains in other parts of the body. One will complain of pain in the opposite shoulder, another in the knee, whilst a third will have a short cough or pain in the liver. In fact, there will be a variety of symptoms present in various parts of the body; and if the patient dies, you will find that actual disease has taken place in them. In one patient you will find both knee-joints filled with a reddish fluid; another will have a deposition of cheesy matter in the liver, which goes on to abscess; a third will have it occurring in the lungs, whether beginning in the air-cells or not, I know not; and these go on to abscess. You will also find effusion of fluid into the ventricles of the brain; effusion of lymph sometimes into the pericardium; inflammation of the pleura, and effusion here also. It is said the inflammation has been traced to the vena cava, but I do not think this observation correct. Mr. Hunter threw out the hint as if it were a possibility, and later writers have mentioned it as a matter of fact. Then you have fluids deposited in various parts of the body, and you may have fluid, and even lymph without pus. Venous inflammation may be the consequence not merely of a ligature or wound affecting a venous trunk, but it may arise in this way. A man has erysipelas, which is a disease of the integuments. This may extend into the cellular membrane, producing sloughs there, and abscesses under the skin, and so you have abscesses and sloughs mixed together. Now, in this case, when the patient dies, you will find the veins have participated in the erysipelatous disease. A man comes into the hospital (a gin drinker) with a wound in the leg, and

he has inflammation of the cellular membranes. The man dies, and when you examine him, you find pus deposited in the cellular membrane. Here again you have the disease of the veins. Inflammation of the veins also not unfrequently takes place after child-birth. Inflammation of the veins of the uterus, extending into the hypogastric, internal iliac, and cava veins, sometimes occurs in these cases. Here, also, if the patient dies, you find the veins filled with pus, and there is swelling of the lower limbs. In this way we account for "phlegmasia dolens," the white swollen leg. It is supposed that this swelling, which takes place after child-birth, is the result of venous inflammation; but if it is, it must be said that venous inflammation does not usually assume the violent character we have just described, but generally that milder form which I mentioned first; but very few of these cases occur where death follows. Indeed, Sir Charles Clark told me he never saw a case which terminated fatally.

LECTURE XI.

INFLAMMATION OF THE VEINS. (*Continued.*)

At our last meeting I began the subject of venous inflammation, and if I recollect rightly I explained some of the more remarkable circumstances which occur towards the termination of the disease—I allude to the inflammation showing itself in different parts of the body. Now by this I mean not merely those parts which are in the line of the inflamed vein, but in parts quite distinct from, and having no connection with the original seat of the disease. Thus, a man may have inflammation of the arm, and presently he will be attacked with inflammation of both knees, and the cartilages will be entirely absorbed; or again, abscesses may form in any other part of the body. An interesting pathological question is, "where there is venous inflammation, why should there be these deposits of pus in differents parts of the body?" It is the opinion of some persons that pus deposited in an inflamed vein is carried into the general circulation. M. Cruveilhier has made some experiments on this subject which seem to prove that pus may be formed in an inflamed vein without being absorbed. Mr. Arnott says that although pus may not be produced in the vein, still there is a diseased action going on, by which a secretion analogous to pus is formed which becomes mixed up with the blood. But neither of these declarations can be considered as established, and I do not think it is at all necessary that there should be a morbid secretion of pus to produce these symptoms. A man has an attack of fever without your supposing that there is an affection of any particular organ or region of the body, yet what is the result? In one man you will find ulceration taking place in the jejunum or ileum; in another there will be a determination of blood to the head,

or he will have an attack of inflammation of the brain or lungs, and these results would lead us to suppose that where the system has been subjected to febrile action for a length of time, it acquires a disposition to produce local inflammation. A gentleman had a stricture many years, and several ineffectual attempts had been made to pass a catheter into his bladder; I however at last succeeded, but having drawn off his water he was immediately seized with a violent shivering, and after this had an attack of inflammation of the neck, and since that time the head has been permanently fixed and immobile. Now this you see arose merely from passing a catheter, and of course no part of it could have been absorbed. Again, a lady of nervous temperament had spasmodic contraction of the sphincter muscle, attended with great pain whenever she went to the closet; well, I divided the muscle on both sides, and she immediately fell into a state of complete syncope, from which, after a time, she recovered, but only to relapse into the same state a second time, and this entirely from the influence produced upon the nervous system. These attacks continued for some time till ultimately she was seized with inflammation of the chest, from which she died. On then examining the body I first looked to the part where the operation had been performed; in the hemorrhoidal veins nothing was to be seen; but I found inflammation of the peritoneum, and also effusion of lymph in the cavity of the chest; now in this case there was inflammation set up in a distant part of the body which could not be from the absorption of any diseased matter; in short it was produced entirely from the effect upon the nervous system. After injuries of the head we find these deposits in various parts of the body, and they occur more especially when there is suppuration going on between the dura mater and bone. One person will die of abscesses in the lungs, or of inflammation of the pleura, accompanied with effusion into the cavity of the chest. Then I have known cases where there has been fracture of the humerus or clavicle, and when the patient has died, the end of the bone has been found bathed in pus, and in these cases matter has been found between the dura mater and the bones. Some persons would have said, perhaps, there was in this case inflammation of the veins, which you have overlooked, and purulent matter has got into the circulation, but this is not at all probable; because it is not pus always which is effused, sometimes it is merely serum, and sometimes again you will have this secondary deposition of matter set up where there is no suppurative inflammation at all. A man had an injury of the head, and the surgeon applied a caustic issue which produced a large slough, so that the bone was exposed; in a short time the man died: previous to his death, however, he had a set of curious symptoms, for which we could not account: such as swelling of the abdomen, and a puffiness about the body; and when examined after death, we found there had been considerable peritoneal inflammation. The head was also examined, and it was found that where the caustic had been applied, the bone was dead, and of course, the dura mater separated from it, and a little pus was found between them. 2dly. A girl suffering from pain in the head, had a

caustic issue applied; she died of inflammation of the lungs, and it was found that where the caustic had been applied, the bone was dead; there was slight sloughing of the part and effusion into the brain. 3dly. A man was admitted into this hospital, who had been beaten about the head with sticks; he remained here till he died, and on examination, it was found that small particles of pus were deposited between the bone and dura mater; there was also a gelatinous matter mixed with these particles. Now, to say there was inflammation of the veins in all these cases, would be absurd. The view I am inclined to take of these cases is, that there is a certain disturbed state of the constitution induced, which has a tendency to end in the formation of pus; for you see that in persons who die from symptoms analogous to those we have just enumerated, there are always to be found in the extremities, what are called critical abscesses, depositions of pus in the cellular membrane. A gentleman had a violent cold, and was attacked with inflammation of the vena saphena, and died. The result here was rapid, and shows the importance of careful attention to the local disease, though still, as I said before, as a general rule, and in the majority of cases, this disease is not dangerous. The treatment must depend upon circumstances. But suppose you were called to a patient with symptoms, such as we mentioned in our last lecture, (shivering, sallowness of complexion, brown tongue, and slight derangement of the mental functions,) you would apply leeches in the course of the vein; retain the limb in the recumbent posture; keep the bowels open, and give moderate diet. But the principal remedy is mercury, in moderate doses, continued at stated intervals till the gums are slightly affected. Calomel gr. ij, or hydrargyri bichloridi gr. $\frac{1}{8}$, bis in die, is, I think, the best mode of administering the remedy. Where there is much inflammation of the leg, and considerable swelling, you may relieve the patient considerably by puncturing the part with a common needle; the fluid will escape rapidly from the cellular membrane. Mind, I do not say this will cure the disease, but it will relieve it considerably. I am seeing a gentleman now who had, some years ago, an attack of venous inflammation, and the leg was so much swollen as to threaten the bursting of the skin. In this case I punctured it in the manner just described, and afterwards he did it himself, and always found considerable relief from it. This mode, of course, gives greatest relief when the serum is very thin; sometimes it will be a comfort to the patient to wear a bandage as a support to the parts, but it should be *flannel*, and never applied *tightly* with the view of preventing the swelling. Once I saw a lady who had that form of swelled leg called phlegmasia dolens, the swelling being very large, and the skin tense; a bandage was applied, but she was soon attacked with pain in the hypogastrium, and a variety of symptoms which I cannot describe; the bandage was taken off; immediately the swelling returned, but the pain in the abdomen, and all the other symptoms just alluded to, disappeared; and this occurred twice successively. In acute venous inflammation, it is generally a good practice to take blood, but this cannot be done in all cases. Sir E. Home tied the

vena saphena in three cases, but they all died except one, who being a very strong man, was bled very freely, and here the practice succeeded beautifully, and the venous inflammation almost entirely subsided. But sometimes this disease is attended with low symptoms, the pulse being weak and feeble, and there is great prostration of strength. In such a case as this, it is evident you could not take blood largely; you must, therefore, be content to apply leeches to the part. Warm fomentations seem to answer better than cold applications; but this may be regulated by the feelings of the patient. Occasional purging and low diet will, of course, be most proper. Very frequently this is a consecutive disease, as it may follow an attack of erysipelas. Of course, in this case, and when it comes after cellular inflammation, the patient will not bear depletion. It is a question with some whether or not mercury is beneficial in these cases. In those which I mentioned of Sir E. Home's, which occurred when I was house surgeon to this hospital, it would doubtless have been extremely beneficial, but the administration of the remedy at that time was not thought of. In those cases where there is great prostration of strength, I doubt the propriety of its use; but where this symptom is absent, it may be employed with advantage. It, however, requires a good deal of discrimination on the part of the surgeon to determine when it is, and when it is not right to put the patient under the influence of mercury.

You will find, gentlemen, after venous inflammation, the limb is generally left swollen, and the veins are what is termed "varicose." Can any thing be done here? will a bandage do good in these cases? To a certain extent it will; but let your patient walk about, and you will find that the collateral vessels will thus become dilated so as to make up for those which have been obliterated. In some cases the swelling will entirely disappear, whilst in others, it will remain, to a certain extent, the remainder of the patient's life. I spoke of the disease in connection with varicose veins as though it only occurred in the lower extremities, but I saw it in the forearm of a patient a very short time ago, produced, as I think, by bleeding. In cases where a secondary deposition of pus takes place, very few, I think, recover, as the deposition is scarcely ever confined to one part of the body; and if you let it out in one part, there is no method of preventing its recurrence in another.

When venous inflammation has gone on some time, it is quite beyond the reach of art. But you should always bear in mind the original cause of the disease, and also the patient's previous mode of life. Many of you will recollect the case of the man last year, in whom I tied the external iliac artery; after the operation, there was a quick, irritable pulse, with pain in the opposite shoulder; and these I attributed to the man being debarred his usual quantity of stimulus. After bleeding him once, and finding he was no better, I allowed him a quantity of gin daily, and if I had not done so, I think there would have been the secondary formation of matter, as in some other cases I have described. Those persons who drink large quantities of spirits, are most liable to this deposition of matter, and, I think, it is owing,

in a great measure, to their being deprived of their usual stimulus; and in these cases you will sometimes succeed in arresting the disease by allowing the patient a certain portion of that kind of stimulus to which he has been accustomed. The general rule for treating inflammations, is by depleting remedies;—but there is another plan. Suppose a man gets a piece of glass in his arm, you would of course, in the first instance, remove it if you could, just as in chancre you give mercury to remove the cause which produced it. On the very same principle, in those cases where you have low symptoms coming on in cases of venous inflammation, produced by the withdrawal of the usual quantity of stimulus, your first plan should be to restore to the patient at least a portion of that stimulus. Let me take this opportunity of observing, that mischief is not unfrequently produced by violent changes in the patient's diet. If a man who has been accustomed to drink gin, or other stimulus in large quantities, meets with an accident, and you take him off that stimulus, you will have the injury going to a much greater extent than it would if you had not done so. And I am certain that I have been more successful in the treatment of persons who have been accustomed to drinking or high-living, by merely diminishing their quantity, than when I have had recourse to antiphlogistic treatment.

LECTURE XII.

VARICOSE VEINS AND ULCERS OF THE LEGS.

By a varicose vein, I mean a vein which is unnaturally dilated. When there is increased growth of any part, the arteries increase in size to take the blood to it, and the veins increase in size to take the blood from it. This is a healthy increase of the veins, and we do not call these veins varicose. But by a varicose vein, I mean a vein unnaturally enlarged, without the dilatation being instituted to answer any good purpose in the animal economy.

Varicose veins occur principally in three situations: in the legs; in the spermatic cord, where the disease is called *varicocele*, or *cirsocele;* in the rectum, and about the anus, where the disease takes the name of *piles*, or *hæmorrhoids*. I will explain to you, by-and-by, why they occur in some situations more than in others. But varicose veins occasionally occur in other parts of the body. I have seen varicose veins of the forearm to a considerable extent. In the case to which I allude, there had been inflammation of the medium cephalic and cephalic vein. These veins had become obliterated, and, in consequence of their obliteration, the blood did not easily return from the forearm; so that the veins became varicose.

A man was admitted into the hospital who had varicose veins all down the right arm, and to a considerable extent down the right side

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A man was admitted into the hospital who had varicose veins all down the right arm, and to a considerable extent down the right side

of the chest. He had difficulty of breathing, and cough. One day he felt as if he had received a blow on one side of the chest, and immediately a large abscess presented itself, as big as an orange externally, which had evidently made its way from the inside of the chest through one of the intercostal spaces. Immediately upon the appearance of this swelling, the varicose veins in a great measure subsided. The man died, and on examining the body after death, it was found that there was disease in the bronchial glands; suppuration had taken place in them, and a large abscess had been confined in the inside of the chest, which pressed on the right subclavian vein, and this caused the blood to stagnate in the veins in which it had its origin, and which had in consequence become varicose. So under corresponding circumstances, you may find the veins become varicose in any part of the body.

In the first of the cases which I have mentioned, the varicose disease was the consequence of disease and obliteration of the venous trunks; and such is sometimes the cause of varicose veins in the legs. There was a man in the hospital with very bad varicose veins of the legs, one of the worst cases of the kind that I ever met with. The man, however, was admitted into the hospital on account of another disease, of which he died. I examined the body after death, and found an obliteration of the external iliac vein. This vein had been inflamed at some former period, and had become converted into a thick hard cord. The blood could not flow to the heart through this great venous trunk, and so the branches below became varicose. In the other case which I have mentioned, pressure on the venous trunk was the cause of the varicose disease. And so pressure on a venous trunk in the abdomen may produce varicose disease in the legs. You have a very frequent example of this in child-bearing women. The pressure of the gravid uterus will produce varicose veins of the leg. The woman is brought to bed, the pressure is taken off, and the varicose veins in a great measure disappear. Then she becomes pregnant again; the varicose veins recur; she brings forth another child, and the veins in a great measure subside, but not so completely as before. Every time she is pregnant the varicose disease of the veins becomes aggravated, till at last it exists to a great extent in both legs.

There are few cases in which we may trace varicose veins of the lower extremity to pressure or obliteration of the venous trunks; but in the majority of cases it must be acknowledged that we cannot trace the disease to these sources. It appears, in these cases, to be a mere weakness in the coats of the veins, rendering them incapable of supporting the weight of the body. There is, of course, always a column of blood pressing downwards when the patient stands erect; and if the coats of the veins are weak, this is sufficient to render them varicose. You will understand, then, why, when the coats of the veins are weak, persons of particular habits, or of a particular physical construction, are more liable to varicose veins of the legs than others. A person who is always upon his legs, always standing or walking, is much more liable to have varicose veins of

the legs than one who leads a more sedentary life, because there is here a column of blood almost always pressing on the veins below.

Sir Everard Home has observed, that in the army the grenadier companies are especially subject to varicose veins, they being taller men than the other soldiers. Cooks are very subject to varicose veins. Why? If you put one hand into warm water, and the other into cold, you know that the veins of the former will become dilated, and that those of the latter will contract.

But where the disposition to the disease exists, do all the veins become dilated? By no means. The deep-seated veins never become varicose, because there is the pressure of the muscles upon them on every side, which prevents their dilatation. It is only the superficial veins that become varicose. The branches of the vena saphena major, and sometimes of the vena saphena posterior, become dilated. But the valves do not increase with the dilatation of the vein; they remain of their original size; and what must be the consequence? Why, the valves do not protect the venous branches below from the pressure of the column of blood above; they do not answer the purpose of valves any longer; and the want of action in the valves tends, of course, to aggravate the disease. By and by the valves seem to become changed in structure; they shrivel up, and become at last good for nothing, not even looking like valves. This is in conformity with a general law of the animal economy: a part not used wastes. If you were to tie up one eye, and cover it from the light for many years, you would find at last that you could not see with it. Muscles not used will waste. So it is with the testicles and other organs. When valves become useless, nature does not seem to think them worth keeping, and they waste or shrivel.

In a few instances varicose dilatation of the veins comes on rather suddenly: I have known cases in which the veins in both legs became varicose immediately after very hard walking. But, in general, the disease comes on slowly, and increases gradually. At first one or two veins are a little dilated, and you see the dark blood looking of a blue colour through the skin. Then other veins assume the same appearance, and by and by you find clusters of varicose veins in different parts of the leg. The skin is elevated by the clusters underneath; and it is when the skin is strained and rendered thin that you see the dark colour of the blood through it. These clusters are more frequently situated about the inner ankle, and the inner side of the leg, than anywhere else; but they may occur anywhere else, at the back or outside of the limb. Then, as the disease proceeds, it extends to the trunk of the vena saphena major, and this becomes dilated all the way up to the groin. Sometimes the saphena major looks as large as your finger, assuming a knotted appearance. What is the explanation of this? It would seem that the vein is tortuous. Varicose veins are not only increased in diameter, but in length, and of course must then be made tortuous; and where the saphena vein is twisted, as it were, upon itself, it assumes the appearance which I have mentioned. The dilatation of the vein is perceptible when the patient stands erect; but when he lies down, the

varicose appearance vanishes, because then the veins become emptied of their blood.

While these changes take place in the condition of the veins, the patient experiences more or less inconvenience. Sometimes he suffers from a sense of itching and weight about the inner ankle. The sense of weight and fullness becomes more troublesome when he takes a long walk, so as to be very distressing. When there is a varicose cluster, the patient in a few instances experiences extraordinary pain, and this, as I imagine, arises from there being some nervous filament pressed on by the tumour. Sometimes the patient complains of being subject to cramp in the muscles of the leg, especially after a long walk. Varicose clusters occasionally burst and bleed. I said, in the commencement of the lecture, that the disease is not dangerous, but that is not absolutely and universally correct. There are a few cases in which a patient may be in danger from hemorrhage. A varicose cluster becomes larger and larger; the skin over it becomes more attenuated, at last it gives way, and there is a great discharge of blood. I have heard of patients actually dying from this hemorrhage, where assistance could not be procured. I have known a great many cases in which patients have lost a very large quantity of blood from such an occurrence; and I have heard of others in which death was the consequence.

Varicose clusters of veins sometimes become inflamed. They are then tender to the touch. Frequently the inflammation is preceded by a rigor, or by an attack of fever. In some instances the inflammation extends to the skin over the cluster, the skin becomes red, and if the patient stands up, he suffers great pain in the inflamed varix, but if he lies down, the pain is in some measure relieved, though not entirely. The great pain in the erect posture is explained by the weight of the column of blood pressing on the tender parts.

In some cases inflammation of an inflamed varicose cluster will end in suppuration, and in an ulcer, but that is not the way in which ulcers connected with varicose veins generally begin. For the most part, the effect of inflammation of a varicose cluster is not to produce either abscess or ulcer. It is very remarkable that the blood in inflamed varicose veins coagulates, and the vein becomes choked up with the coagulum. There seems to be something in an inflamed vein that is unfavourable to the fluidity of the blood which it contains. You observe this not only when varicose veins are inflamed, but when veins are inflamed under other circumstances. You find this frequently in cases of piles. A patient comes to you with an external pile, which is large, and very tender—it is inflamed. At first it contains fluid blood, but in a day or two it becomes filled with solid matter; and if you slit open such an inflamed pile, you find a solid lump of dark-coloured fibrin. If you slit open an inflamed varicose cluster in the leg, under these circumstances, you will find that the cavity is filled up in like manner, with coagulated blood. I mention this, that you may recollect what takes place in these inflamed veins, not recommending the practice, which is quite wrong, as I shall explain by and by. The effect of such inflammation is to give the patient a

good deal of pain at the time, but he is benefited by it afterwards. The coagulum fills up the vein, the vein becomes obliterated, and the varicose cluster is cured: others may form, but this one is cured. So in an inflamed pile, other piles may form, but the first is cured, and never troubles the patient afterwards. By degrees the inflammation subsides, the coagulum becomes gradually absorbed; as the absorption proceeds, the sides of the vein approximate, and the cavity is obliterated.

In old cases of varicose veins, you will frequently find the skin become inflamed—that is, it will look red, and be very irritable and tender. Sometimes you find the cuticle as it were abraded, and an ichorous discharge takes place from the red cutis. In some cases the whole of the skin of the leg is in this condition. In others there is a chronic inflammation of the cellular membrane. There is effusion of serum into it, and the limb becomes œdematous. When there is disease of the heart, preventing the due passage of the blood through its cavities, the fluid part of the blood is liable to escape from the capillary vessels, and thus you have anasarca of the legs. But the swelling which takes place in varicose veins does not exactly correspond to anasarca connected with disease of the heart. It is the result of an inflammatory action in the cellular membrane; the fluid has a more distinctly serous character. If you puncture the parts with a needle, the fluid being of greater consistence, does not flow out so rapidly as the thinner fluid escapes after puncture in the case of anasarca.

The inflammation of the skin, and the inflammation of the cellular membrane, in these cases correspond with each other. There is an exudation of serum in one case from the surface of the skin, and in the other from that of the inflamed cellular membrane. These inflammations seem to correspond with those which we meet with in other cases of venous congestion.

But in some instances you find inflammation taking place of a different kind, in the cellular membrane, immediately surrounding the varicose cluster. The cellular membrane becomes infiltrated with coagulated lymph, and then the varicose cluster is, as it were, imbedded in a considerable mass of indurated substance. At first you would suppose that the veins there are obliterated, but they are not. You have a deposit of lymph on the outside, and the blood remains quite fluid. If you put your finger on the hard lump, the course of the vein is readily distinguished by the fluidity of the blood. You feel the fluid blood passing in an open channel, as it were, through a hard or gristly mass. Where there is this deposit of lymph in the cellular membrane round the vein, the skin becomes inflamed, and it may give rise to a troublesome ulcer.

But still, a varicose ulcer does not generally begin in this manner. Usually, the skin being distended at some point, a scab forms upon it. Then the scab comes off, there is an ulcer, and the ulcer spreads. The varicose ulcer, in most instances, begins about the inner ankle; but it may occur, as in the patient whose case is now before us, in other parts of the leg.

Varicose ulcers, in most cases, have a well-marked character, for which, however, you are not at this time to look in this patient, who has been confined to her bed for nearly a week. For the true character of varicose ulcers, you must look at a patient's legs who has been walking about up to the time of your seeing her. Varicose ulcers are inclined to assume an oval form, the long diameter of the oval extending in the course of the vein upwards and downwards. These ulcers are generally nearly on a level with the surface of the surrounding skin. The surface of them is dark-coloured when the patient is erect, and when the small veins are filled with blood; but when the patient lies down, the surface becomes florid. The change takes place very speedily from dark to florid, and from florid to dark. The skin, and the margin of the ulcer, are generally of a dingy-red colour, and partly deprived of the cuticle, so that it is difficult to say where the latter terminates and the ulcer begins. These ulcers are generally very irritable and painful, and sometimes are disposed to bleed.

These are the principal circumstances that I have to notice respecting the history of varicose veins of the legs; and now I shall offer to you some observations respecting the treatment to be employed.

Why is it that the superficial veins enlarge, and not the others? Because, as I have already explained, the deep-seated veins have pressure made upon them on every side, but the superficial veins have not. The first thing for you to consider in the treatment is, whether you cannot put the superficial veins, which are dilated and varicose, under the same circumstances with the deep-seated veins which are uniformly supported. This may be accomplished by applying a bandage to the leg. And what kind of bandage? In many cases you may apply merely a partial bandage of adhesive plaster, which will answer the purpose perfectly, giving the patient scarcely any inconvenience. Where the disease is of limited extent—where, for instance, there are only two or three varicose clusters, of small size—you need not trouble the patient with a complete bandage for the whole leg. Have some stripes of adhesive plaster, three or four inches long, according to circumstances, and one inch or an inch and a half wide. First of all, let the patient stand erect, that you may ascertain exactly where the varicose clusters are situated. Having marked the place, let the patient recline and let the foot be raised, so that the blood may run down, and the varix become completely empty. Observe, that the heel ought to be the highest part of the whole person. Then you put on one of the pieces of adhesive plaster across the varicose vessels, and afterwards apply the others in the same manner, drawing up the skin under them, and taking care that the plaster is not thrown into rucks or folds. These plasters being applied when the veins are empty, and being strained on the skin beneath, when the patient stands, the veins are prevented swelling. In a great many cases you will find that this is sufficient to give all the support required, and perhaps this is all that the patient needs for the whole of his life. A lady consulted me, some years ago, with two or three varicose clusters on the inner ankle and on the back of the leg, but with no varicose veins of any consequence elsewhere. I put on some pieces of plaster in the manner which I have described. I mention this case only for this reason—that I recommended the treatment seven or eight years ago, and that lately, when she came to London to consult me on another disease, she told me that she had worn the plaster up to this time, and that it had given her complete relief: she had never had occasion for any thing else. But when the veins of the legs are extensively varicose, this compression will not be sufficient, and then you must apply a bandage for the whole leg. There are different kinds of bandages, and sometimes one sort will answer best, and sometimes another. You may use a common roller of coarse unbleached calico, such as we use in the hospital. In some persons you will find a flannel roller more convenient; at any rate, the patient can apply it better for himself. In private practice I frequently recommend a bandage which is made of stocking web. This is a very nice bandage, and very convenient, as the patient can more easily apply it for himself: there is not the dexterity necessary which is required in the application of a common roller. But it will not do for hospital practice, because the bandage is good for nothing after it has been three or four times washed, and because it is too expensive for the lower class of persons.

I must here make a few observations respecting the application of a roller. A bandage should be applied in the morning before a patient goes about, but it need not be worn in the night when the patient lies down. The bandage should begin at the toe, and go up the leg; and you should take care so to apply it as to support the heel. It should be so adapted to the limb as to make uniform and moderate pressure. The pressure should be as nearly as possible equal throughout. Especially it ought not to be tighter above than it is below, for in that case the veins below, where the pressure is least, must necessarily swell. A tight garter increases varicose veins; and the patient ought to be told not to wear a garter at all, but to loop up his stocking. A bandage which is tighter above than below corresponds to a tight garter. But some persons cannot well apply a bandage for themselves, and for them you may prescribe a laced stocking, which is in many respects very convenient. Patients who are awkward in applying a bandage may manage the laced stocking very well for themselves. Laced stockings are made of various materials. The Chinese manufacture a calico called *nanquin*, which is a very good material for the purpose. Some laced stockings are now made partly of Indian rubber cloth, so that they are elastic. An ingenious artist in Jermyn street makes a laced stocking of spiral wire, like the springs of braces, but of very fine texture, included within folds of leather or something else. Whether you use spiral wire, or Indian rubber, it is not necessary that the whole of the stocking should be made of the elastic substance; you only want elasticity in a part of the circumference. In most cases I find the Indian rubber cloth to be the best of these elastic materials. Patients complain of the elastic wire cloth being very hot, and besides, if any thing, it makes rather too much pressure. Indian rubber cloth, however, is not very well adapted for

hot weather, as the cloth gives way so, that there is not a sufficient support, and hence it does not answer so well as common calico or nanquin in hot climates. However, you will find that each kind of laced stocking has its advantages in particular cases.

So much as to the general treatment of varicose veins; but now we are to consider their treatment under peculiar circumstances. Let us suppose, then, that you are called to a patient in whom there is a varicose cluster of veins in a state of inflammation. There is a great deal of tenderness in the part, and perhaps some fever. The first thing you have to do is to keep the patient in bed, in the horizontal posture, so as to keep the veins emptied of their blood. Then, if there be much inflammation, and the patient suffers a good deal of pain, you may apply leeches; but do not apply them immediately over the veins: they should be applied higher up on the leg, on the sound skin. The biting of a leech over an inflamed vein will give the patient a good deal of pain, and the bite will be difficult to heal. If you apply it on the sound skin in the thigh, or the upper part of the leg, you will relieve the varicose veins just as much as if you had applied it upon them, without giving the patient pain at the time or any trouble afterwards. You may then apply to the inflamed varix a compress wet with spirituous lotion, unless the pain be very great, and then you may use poultices and fomentations instead.

When inflamed varicose veins are distended with coagulum, it used to be the practice formerly to slit open the vein, and turn out the coagulum, but it is not the practice that I should recommend. It is, in fact, very bad practice, and in order to impress this observation the more upon your minds, I will mention a particular case, which I found this morning in looking over one of my old case books. It occurred upwards of twenty years ago. A patient was admitted into the hospital with two or three large clusters of varicose veins. They were all in a state of inflammation; the upper one was the most inflamed. The patient said that she had had the disease for some years, but that about a week before her admission she had stood for a long time upon a cold stone floor, on a cold damp day. She went to bed, and had a shivering, which was followed by fever, and then this attack of inflammation of the veins took place. I could feel that the blood had become coagulated. I opened the upper varix and let out the coagulum; but the varices below were treated with cold lotion, or in some other simple way. Under this treatment the inflammation very soon subsided in the varicose clusters below, the absorption of coagulated blood began to take place, and the clusters were cured. But observe what happened in the cluster that I had punctured. The puncture became an ulcer, which would not heal, but became very troublesome. At the end of six weeks when the other clusters were well, there was a nasty sore here. I was obliged to make a slough with caustic potash, which I suppose destroyed the remains of the vein which had been opened. The slough came away, the sore assumed a healthy character, and got well, but certainly the patient would have been well some six or eight weeks sooner, if I had pursued the same practice with the upper varicose cluster which I adopted with the lower ones.

The treatment of these clusters of inflamed varicose veins should be just this:—lay the patient in bed; put a cold lotion on the part, or fomentation and poultices if you find these to be more comfortable to the patient; administer purgatives according to circumstances; and if there be much inflammation, but not otherwise, apply leeches to the sound parts above. The result will be, that the veins of the inflamed varix will become obliterated, and the varix will be cured.

LECTURE XIII.

ON VARICOSE VEINS AND ULCERS OF THE LEGS. (*Continued.*)

I had not an opportunity of completing, in the last lecture, my observations on varicose veins of the leg. I explained to you the pathology, the symptoms, and the consequences of the disease; and I began to speak of the treatment which it requires: I shall continue the latter subject in the present lecture.

In those cases in which, from long neglect of varicose veins, the skin of the leg becomes red and irritable, you will be able to render the patient no service so long as he is going about, standing and walking as usual. The first thing to be done is, to confine him to his bed, or at all events to a sofa; but the safest method is to confine him to his bed, and the horizontal posture, so that the blood may not have to rise up in the leg against its own gravity. In many cases nothing more is necessary than this; but, in some instances, this will afford but very slow relief, and in all cases you may hasten the patient's recovery by adopting other methods in addition: I have frequently, in these cases, bled the patient in the vena saphena major, in the lower part of the thigh, near the inner condyle; and it is astonishing what relief that gives. It is not worth while to adopt this practice in all cases, but where you find the patient suffering more than usual from the inflamed state of the skin, you may very properly have recourse to it.

Bleeding in the vena saphena major is performed very easily in persons who are not very fat; place the bandage round the lower part of the thigh, let the patient put his leg into a pail of warm water, and what with the warm water below and the bandage above, the vena saphena swells; you then open it with a lancet, and take away any quantity of blood you please. But, in a very fat person, bleeding from the vena saphena is not very easy to be accomplished, and as a substitute for it you may apply leeches to the inside of the thigh, or you may apply them in this situation in other cases where you do not think that actual bleeding in the vena saphena is required. And here I must call to your recollection what I said respecting the ap-

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plication of leeches, under these circumstances, in my last lecture. Never apply leeches to the inflamed part, but always at some distance above it. If the whole skin of the leg be inflamed, then apply them on the inside of the thigh; if the leg be inflamed in the lower part, and not in the upper, then apply them on the leg, but above the inflammation. Besides the application of leeches, you may, in the first instance, apply a rag, wetted with cold spirituous or saturnine lotion. When the inflammation of the skin has subsided, you may begin the use of bandages in the way which I described in the last lecture.

In some cases, as I formerly told you, the skin is not only inflamed, but more or less excoriated, the cuticle being abraded to a greater or less extent, while the surface of the cutis secretes an ichorous fluid. Here, also, you may take away blood from the vena saphena major, or from the inside of the thigh by leeches, and the patient will also derive benefit in these cases from the application of a saturnine lotion, though, for the most part, some mild cerate answers the purpose better. The zinc ointment or calamine cerate answers very well; but we use, in the hospital, a preparation known with us by the name of compound chalk ointment, which is much preferable. It is, if I am not mistaken, now introduced into the Pharmacopœia under the name of Ung. plumbi compositum. It is an excellent application in these and other cases where the surface of the cutis is deprived of the cuticle. This ointment was invented by Dr. Kirkland, a celebrated practitioner many years ago in Leicestershire, and I believe it was commonly known under the name of Kirkland's neutral cerate. It is composed of diachylon plaster, olive oil, chalk, and distilled vinegar. How it should have ever entered into any man's head to make such a composition as this, I do not know, but the composition having been invented, I must say it is a very useful one. The ointment should be spread on linen rag, and applied in stripes round the leg, each stripe overlapping the one below. In some cases, in addition to the use of chalk ointment, you will find advantage from washing the surface with a weak solution of nitrate of silver, in the proportion of two or three grains to an ounce of rose water. A strong solution would here be improper, but a weak solution is very useful.

I told you that in some cases there was œdema, a swelling of the leg and foot, in consequence of the inflammation of the cellular membrane, causing it to be infiltrated with coagulated lymph and serum. The treatment that is required under these circumstances is very nearly the same as that which is necessary where there is inflammation of which I have just spoken. The patient should be kept in the horizontal posture; blood may be taken either from the vena saphena major, or by leeches from the thigh, and generally you will find the latter quite sufficient. You may apply a cold lotion in the first instance, but very soon, in these cases, you should begin to apply a bandage, such as will give an uniform support to the leg from the toes to the knee.

In cases of varicose ulcers of the leg, if you find that the patient has neglected himself, that the ulcer is in a state of inflammation, foul

and painful, as it often is, and the surrounding skin being in a state of inflammation also, you must keep the patient in bed, and treat him as if the leg were inflamed without the existence of the ulcer. But as soon as the inflammation of the ulcer and the surrounding parts has been relieved, you may begin the application of pressure. The pressure of a common roller will do a great deal of good, and formerly nothing else was recommended. But we find, now, that in cases of varicose ulcer, as in cases of indolent ulcer of the leg, you may very much assist the common roller by the addition of other means. One very good way of making pressure on a varicose ulcer is to interpose between it and the bandage a piece of sheet lead, such as is used in anatomical museums for covering preparations. The lead should be made quite smooth, and larger than the ulcer, extending some way beyond its margin. This makes a very uniform pressure, and really does very well. But for the most part we are in the habit of using pressure by means of plaster applied in a circular manner round the limb. It is common to employ stripes of linen spread with soap or adhesive plaster, but I own that I very much prefer diachylon plaster, for both soap plaster and adhesive plaster will frequently irritate the skin, and bring on inflammation and pustules, but diachylon plaster scarcely ever produces this effect.

You have an opportunity of seeing stripes of diachylon plaster applied every day, and over and over again every day, in the wards of the hospital; and, therefore, it might seem almost superfluous for me to make any observations on the mode of applying them. But I find that new dressers very seldom apply them in the manner that I believe to be proper, and therefore I shall offer to you some observations on that subject.

In the first place the stripes should be applied round the limb, the two ends crossing each other in front, the application beginning below the ulcer, and extending some way above it. Each of the stripes ought to overlap the one below by one-half of its diameter. Thus every part has a double piece of plaster over it, and you secure more equal pressure than you could otherwise obtain. It is of great consequence that the plaster should be tight enough to give comfortable support to the limb, and at the same time not so tight as to make the limb swell below; for if it does produce this effect, it is very likely that it will bring on a sloughing of the sore. The plasters ought to make uniform pressure—that is, the pressure should be equal throughout; or if there be any difference in the degree of pressure, it ought to be greater below than above. If you do not attend to this point, the plaster above operates as a tight garter, and makes the parts below swell.

When you apply the plaster, it should always be with the heel raised, the patient lying flat on his back, so that the vessels of the leg may be emptied of their blood. The same plan should be adopted when the plaster is taken off. If the leg be hanging down at the time the plaster is applied, the veins are full of blood, and the plaster becomes too loose as soon as the patient puts his leg up.

The plaster, if there be much discharge, should be changed daily;

but as the discharge becomes less in quantity, it may be changed every other day, or once in three days, and in some cases it may be left on even longer than that.

Frequently, in cases of varicose ulcer, you find the veins on each side of the leg just above the heel, and behind the ankles, formed into a varicose cluster. A bandage applied in the common manner does not sufficiently support these veins. The ulcer may be above, and you may cover it with a bandage; but if there be such veins as I have mentioned below, you must not, for obvious reasons, leave them uncovered.

In order to support these veins, some stripes of plaster should be applied round the lower part of the heel, extending upwards in a longitudinal direction on each side of the leg. Let these be held firmly on while you apply the circular stripes over them, in order to keep them in their place. In this case also, in the application of the bandage, you ought to pursue the same course: a longitudinal bandage, extending under the heel and up each side of the leg, should be applied first, and this covered by a circular bandage afterwards. These may appear matters of little importance, but a great deal of your success in practice will depend on your attention to such minutiæ. It is not enough to understand the case, to make a good diagnosis, and to know what remedies are to be employed; you should also take pains to apply these remedies in the best possible manner, otherwise they may fail in producing their effect. In some cases of varicose ulcer you will promote the healing of the ulcer by touching it every other day with a strong solution of nitrate of silver in water, beginning with five or six grains to an ounce, and increasing the strength gradually. But I do not advise you as a general rule to put any application in the way of dressing under the plaster. I find a new dresser frequently interposing a piece of lint, with or without simple ointment, between the plaster and the sore. It is a very injurious practice; it keeps the sore slopped with its own discharge; it prevents the plaster from making that uniform and regular pressure which is required. When the sore has been healed, the patient should continue to wear the plaster for *some time* afterwards, otherwise the cicatrix will give way, and for the same reason he should *ever* afterwards wear the bandage.

Other methods of treating patients labouring under varicose veins have been proposed by surgeons in former times, and also of late years. They have proposed to relieve or cure the disease by performing operations upon the affected veins. I need not carry you back to the propositions of Celsus on this subject, nor even to those of Heister. I shall only speak to you of methods that have been suggested within the last 30 or 40 years.

Sir Everard Home recommended the application of a ligature, where the veins of the leg were varicose, to the vena saphena major. He performed this operation in a great number of cases, and in a few cases he applied it to the vena saphena minor. When I was a student, nothing was more common than to see a patient with varicose veins standing on a table, and leaning over the back of a chair, to

have this operation performed. The skin was divided; a silver needle, armed with a ligature, was passed under the vein, and the vein was tied. In many instances, at first, no ill consequences ensued; but by and by a private patient of Sir Everard Home became affected with venous inflammation, and died. The same thing then occurred in another patient. When I was house-surgeon here, there were two women on whom the operation was performed, in each of whom venous inflammation, attended by typhoid symptoms, supervened. Fortunately they did not die, but they had a very narrow escape. The operation was performed by other surgeons, and in their hands also it was found that every now and then venous inflammation was brought on, which ended fatally. The operation was then generally abandoned. Mr. Abernethy remarked,—"I dare say it is only the ligature that brings on the inflammation. You divide veins when you amputate, and they do not become inflamed; why should you not merely cut across the vena saphena, and put on pressure?" He was mistaken in his view of the matter, which was not indeed much understood by surgeons at that time. We now know that the veins after amputation not unfrequently inflame, and that this is one of the most common causes of death after amputation. When I was first assistant-surgeon there was a man with very bad varicose veins; such a case as those in which the vena saphena would formerly have been tied. I did not tie the vein, however, but I followed Mr. Abernethy's advice, cutting it across, and applying a compress and bandage. The patient had venous inflammation, attended with very severe typhoid symptoms, and died within four days after the operation. Since then, as you may suppose, no operation has been performed on the vena saphena, either by ligature or in any other way. There are no circumstances here to justify the performance of a dangerous operation. You may perform dangerous operations to get rid of a disease still more dangerous, but you have no right to perform an operation attended with such a degree of danger as can be appreciated, in order to get rid of a disease which is not dangerous; and no one can say that varicose veins belong to the class of dangerous diseases. But still there is another reason against having recourse to this operation. I do not believe, from any thing that I have formerly seen, that the operation permanently benefited the patients. It is true that they appeared to go away a great deal better, but I now and then saw one of them a year or two afterwards, and I always found them as bad as ever. Indeed, I am by no means certain that the benefit which the patient appeared to derive, in the first instance, was the result of the operation; and I am more inclined to believe that it arose from his having been necessarily kept for some time in bed in the horizontal posture. Patients always appear to get better under these circumstances. But I may observe further, that there appears to be no reason why in ordinary cases of varicose veins the obliteration of the saphena major should do any good, and that there are better grounds for believing that it will do harm. If you stop the vena saphena major you prevent the due return of blood to the heart, so that it is likely that the veins will become worse than

they were before. Have I not shown to you that pressure on large venous trunks causes an obstruction of the blood in passing through them? that this is one common cause of varicose veins? In *very bad cases*, however, of this disease, I can understand why the patient should derive benefit from tying the vena saphena major; and in order that you should understand what I now state, I must explain to you the different condition of the parts where the veins are very much dilated, and where the disease has only proceeded to a limited extent.

If the veins are but little dilated, or dilated only in particular places, the valves can still continue to answer the purpose for which they are designed. If the vena saphena major be not at all dilated, while the smaller veins of the leg are dilated, the valves of the vena saphena major act perfectly, and take off the weight of the column of blood pressing on the veins below; but if the vena saphena major be itself considerably dilated, its valves then are of no use. I have sometimes seen a very curious result from this. I had a patient, for example, in whom there was an unsually large cluster of varicose veins on the inside of the leg, while the vena saphena major was of enormous diameter, so that the valves could evidently be of no use. If I put on a bandage and squeezed the blood out of the veins below, and then put my thumb on the vena saphena major above, so as to stop the circulation through it, I found, on taking off the bandage, the patient being in the erect posture, that the cluster of veins below filled very slowly from the capillary vessels. But if, the patient being in the erect posture, I took off my thumb from the vena saphena major, the valves being of no use, the blood seemed to flow down from the trunk of the vena saphena major, contrary to the circulation, and filled the varicose cluster below almost instantaneously. I can understand that a ligature upon the vena saphena major, under these circumstances, would in a great degree lessen the inconvenience arising from the distension of varicose veins below. It would answer the same purpose as the pressure of my thumb, but still it is not to be supposed that the good thus obtained would counterbalance the chance of mischief resulting from the operation.

I was occupied, many years ago, in making experiments on the obliteration, not of the vena saphena, but of the veins themselves. I applied caustic so as to penetrate through the skin to the veins, and in this way I cured many varicose ulcers. Mr. Mayo has, as I have been informed, employed the same practice lately, with this difference: he has not gone far enough to make a slough of the vein, but brought on some inflammation which has caused the vein to become obliterated. I tried this method in many cases, but I cannot say that I have found it answer sufficiently to make it worth the patient's while to submit to it. The application of the caustic was very painful, the slough took a long time to separate, the sore took a considerable time to heal, and though one cluster was cured, other clusters appeared. Altogether it was a very tedious process, and my own experience does not lead me to recommend it.

Then I contrived another method. Though there is danger in

cutting across large veins, or in tying them, there does not appear to be any danger which can be appreciated from the ligature of smaller veins. Piles are nothing originally but varicose veins; now I have performed operations for internal piles, I cannot tell you how often, for there is nothing in the practice of surgery more common; but I have never yet seen a patient have venous inflammation arising in consequence.

We frequently cut across small veins in operations, and they are divided by accident, but we never find venous inflammation supervening. Although there may be danger from operations on the vena saphena major, we have no right to expect danger from operations on the smaller veins. I contrived, then, the following method. Supposing that I intend to cure a particular cluster of veins, I use a sharp-pointed bistoury, which cuts, not like a common bistoury, on the concave, but on the convex edge. I puncture the skin with this instrument on one side of the varicose cluster; I carry the blade under the skin, between it and the varicose veins, over to the other side of the cluster; and having carefully performed this part of the operation, the skin over it remaining entire, except where the first puncture was made, I turn the edge of the instrument backwards, and drawing it out, cut across the cluster. A good deal of hemorrhage follows, but the pressure of a compress commands it, and a bandage is applied afterwards. The wound, in most instances, heals by the first intention. The varicose veins are obliterated, and usually in a few days the patient suffers no inconvenience from the operation. However, in some cases, the wound suppurates, instead of healing by the first intention, which protracts the cure. Then, in other cases, a remarkable occurrence took place. Although I was satisfied that the cluster was divided, the disease was not cured. It seemed as if the veins healed without being closed. As the ductus choledochus, or the intestinal canal, will heal after the application of a ligature, without the continuity of the canal being destroyed, so it appeared that the continuity of the canal of the veins was not in every instance obliterated.

This was a very easy and a very safe method of curing varicose veins, yet we hardly ever perform this operation now; for, with my present stock of experience, it really seems to me that there are very few cases in which it is worth the patient's while to submit to it. I have always observed that if I have cured one cluster, two smaller ones have appeared, one on each side, so that ultimately I left the patient no better than I found him.

The operation, however, is proper where there is a varicose cluster much distended, and liable to burst and bleed. Here you may actually save the patient's life by having recourse to it; and you may do so without considering whether fresh clusters are or are not likely to form afterwards. Sometimes when there is a varicose cluster above and below on which a varicose ulcer depends, you get the ulcer to heal sooner than it otherwise would by dividing the cluster. I do not recommend this generally in cases of varicose ulcer, but only every now and then where there is unusual difficulty in getting it to

heal. I generally observe that it heals sooner if you divide the cluster below than the cluster above. Then there are some cases where a varicose cluster is productive of an unusual quantity of pain, apparently in consequence of there being some nervous filament lying over it which is kept on the stretch. There you may relieve the patient from the pain of the particular cluster by the division of it. But these occasions are of rare occurrence; and under other circumstances I really do not think that it is worth the while of any patient to submit to the operation.

I ought not to take leave of the subject which is before us, without referring to a very ingenious method of obliterating varicose veins, which has been lately adopted by M. Velpeau, of Paris. He introduces a pin or needle through the skin, which is passed underneath the vein, and at right angles to it. A twisted suture is then applied round the two ends of the pin, so as to compress the vein sufficiently to produce its obliteration. I cannot, from my own experience of this practice, say any thing of its advantages or disadvantages; but must acknowledge that it seems not improbable that it may be preferable to the other methods of which I have given you a description. Still, the observations which I have made as to these other methods, apply equally to this. It may be useful in certain cases, and under peculiar circumstances; but I can see no reason to believe that you would be justified in having recourse to it on ordinary occasions.

LECTURE XIV.

ON CORNS AND BUNIONS.

It cannot be doubted that the physical condition of man is, on the whole, much improved by civilization; but it is not so in all respects, and the usages of society are productive of some evil, combined with much good. The evil affects the weaker more than it does the stronger sex; and among the former, those who belong to what are called the higher classes, suffer more than those who belong to the lower. Young ladies, living much in heated rooms, taking little exercise in the fresh air, over-educated as to the acquirement of accomplishments, and using their muscles too little, lose the beautiful figure with which they were endowed by nature, and become afflicted with curvatures of the spine, and weakness and distortion of the ankles. The same mode of life renders them liable to the innumerable varieties of hysterical disease, which in so many instances destroy the whole comfort, and I may say the dignity, of existence, enervating both the body and the mind, and making their condition altogether much less desirable than that of the poor peasant girl.

There is another order of diseases which we meet with more frequently among females of the higher classes than among other persons—namely, corns and bunions; and it is to this last humble, but not unimportant subject, that I propose to call your attention in the present lecture.

A corn is in the first instance a thickening of the cuticle. Whenever the cutis is habitually subjected to the influence of pressure, it secretes a thick and horny cuticle. We find examples of this in the hands of many mechanics, and in the soles of the feet in those who walk much. But every thickening of the cuticle is not a corn, and this name is applicable only to those cases in which the cuticle is thickened over a projecting portion of bone, on which the pressure is, as it were, concentrated. Corns may occur in any part of the body in which this combination of circumstances exists; but, for obvious reasons, they are met with in the feet much more commonly than anywhere else.

If shoes were constructed of the shape of the human foot, neither too large nor too small, and making an equal pressure everywhere, corns and bunions of the feet would never exist. But, unfortunately, shoes are seldom made after this fashion, and in ladies' shoes especially there are generally two signal defects: first, the extremity of the shoe is much too narrow for that part of the foot (namely, the toes) which it is to contain; and, secondly, for the purpose of displaying as much of the foot as possible, the whole of the tarsus and metatarsus is left uncovered, and the pressure of the shoe in front is thrown entirely upon the toes. The toes are thus first squeezed against each other, and then pushed out of their natural position; and all the projecting points, chiefly where the joints are situated, are pinched and tormented either by the neighbouring toes or by the leather of the shoe, and thus it is that corns of the feet are generated.

In order that you should understand the precise situations in which corns are most likely to take place, you must consider more particularly the effects which the pressure of the shoe produces on the toes. The little toe is pushed from its parallel position, so that it is in fact underneath the fourth or adjoining toe, and corns are generated on its outer surface over the prominences of its joints. A corn is also frequently met with in the angle between the little toe and the next toe, where the first phalanx of the former is pressed against the head of the metatarsal bone supporting the latter. Sometimes the consequence of wearing a very narrow shoe is, that one of the toes (and it is generally the second or fore-toe) is pushed upwards, so that it lies over the two adjoining toes, that is, over the great toe and the third toe, the extremities of which come in contact underneath; then the leather of the shoe is drawn tight over the upper surface of the second or displaced toe, and corns are produced over one or more of its articulations. At other times one of the toes (and in this case also it is generally the second toe), is displaced in another way. The extremity of it is pushed downwards, so that it lies beneath the extremities of the two adjoining toes, which come in contact over it. But this change cannot take place while the three phalanges of the displaced toe remain in a line with each other. The first and second phalanx make an angle, projecting upwards. The second joint of

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the toe becomes prominent above, and a corn is formed over it. If the shoe, instead of being too narrow, be too short, for the foot which it contains, the last phalanges of all the smaller toes are kept constantly in a half-bent state, and a row of corns is generated, one being situated on the upper part of the last joint of each of these toes. I have endeavoured to enumerate what may be regarded as the most ordinary localities of corns; but of course they may be produced anywhere else, according to the shape of the shoe, the mode of walking, and other circumstances.

I have said that a corn is, in the first instance, a thickening of the cuticle secreted by the cutis, when it is kept in a state of constant irritation by the operation of external pressure squeezing it against a prominent surface of a bone. But a complete corn is more than this. A bursa, or bag of synovial membrane, similar to those bursæ which are of original formation, but of a very small size, is formed between the thickened cuticle and the cutis; and it is this combination of thickened cuticle, with a subjacent bursa, which constitutes a perfect corn. This is a fact which you may easily verify for yourselves, as the opportunities of dissecting corns are abundant in the dead-house of the hospital.

The thickened cuticle of those corns, which are situated externally, becomes dry, and hard, and horny; while that of the corns which are situated between the toes remains soft, and to a certain degree moist; and this gives rise to the distinction between hard and soft corns. I shall speak to you of hard corns first,—of soft corns afterwards.

A hard corn, when it begins to be formed, is productive of no other inconvenience than of a slight degree of pain and tenderness after much exercise. The pain and tenderness increase, so that the patient in the evening is glad to take off the leathern shoe, and put on a large slipper. Then the whole foot, after exercise, is hot and uneasy. These symptoms subside with rest, and the absence of pressure, during the night, but return with the wearing of the shoe and exercise during the day. By and by the bursa under the horny cuticle becomes inflamed, and distended with fluid, and the pain is much aggravated. But the sufferings are greatest in those cases in which the bursa suppurates. An abscess forms in parts which are incapable of distension, and you know how much mischief even a very small collection of pus, under such circumstances, may occasion. I was sent for to an old gentleman who was suffering excruciating pain in the whole foot, which was red, and much swollen, the swelling extending up the leg considerably above the ankle. In one toe, and in the neighbouring part of the foot, the tenderness and other marks of inflammation were greatest, and here I discovered an old neglected corn. He could scarcely bear the corn to be touched; however, I carefully removed the hard cuticle with a scalpel, and made an opening into the bursa under it. Not more than a drop of matter escaped, but this was sufficient to give immediate relief. On the following day he was well. I was desired to see another patient, a young lady, under the same circumstances, except that the symptoms

were more severe. The inflammation involved nearly the whole leg, and there was a frequent pulse, and much general excitement. I removed the thickened cuticle of a corn on one of the toes, and allowed a very small quantity of pus to escape which was collected beneath it. This gave immediate relief, and on the following day she was all but well. Several similar cases have fallen under my observation.

I have already mentioned that the most common seat of a soft corn is in the angle between the little toe and the fourth toe, over the head of the metatarsal bone which supports the latter. Occasionally, however, a soft corn occurs elsewhere—as, for example, on the inside of the little toe, opposite to the last joint of the fourth toe. Such corns are even more painful than hard corns, except when suppuration takes place in the bursa, and then the suffering is less in proportion, as the thickened cuticle of a soft corn admits of distension more easily than that of a hard corn.

Under ordinary circumstances, it is easy to give temporary relief to a patient who suffers inconvenience from a hard corn. The thickened cuticle should be removed, so as to lessen the pressure on the parts below; and this may be accomplished in various ways. *First:* If the corn be of long standing, and a piece of linen or thin leather, spread with some mild plaster (diachylon, for example), be applied, and worn over it, it will sometimes exfoliate or separate without further trouble. *Secondly:* The corn may be rubbed with the nitrate of silver, or (which is indeed preferable) the concentrated nitric acid may be applied by means of a probe armed with lint. The texture of the cuticle being thus destroyed, exfoliation will take place, so that in the course of a few days the corn may be readily peeled off. *Thirdly:* The corn may be reduced in thickness by scraping its surface with a very fine steel or fish-skin rasp. And, *fourthly:* The corn may be removed by means of a fine cutting instrument. This last is the shortest and simplest method; and the patient may keep himself in a state of comfort by procuring the assistance of a dexterous chiropodist at stated periods, who will perform this operation for him better than he can perform it for himself.

With a view to a permanent cure, however, it is necessary to have recourse to other methods of treatment. In some way or other all undue pressure must be removed from the part on which the corn is situated. *First*, the shoe must be made as nearly as possible to the shape of the foot, and it must cover the metatarsus and a portion of the tarsus, so that the whole pressure may not be thrown on the toes; or a boot made to be laced or buttoned may be worn instead of a shoe. In some cases it is advisable that the shoe or boot should be made, not of ordinary leather, but of very soft and flexible buckskin, or of cloth. A material for shoes and boots is sold under the grandiloquent name of *pannus corium*, which answers the purpose intended in these cases very well. It is really a kind of cloth, but it has the appearance of leather, and is very soft and pliable. *Secondly*, if any of the toes are displayed in any of the ways which I have before described, we must endeavour to restore them to their

natural position. In young persons this may be generally accomplished. A contrivance made use of by the bandage makers is very useful on these occasions. It consists of a thin plate of metal covered with thin leather, or a piece of strong leather, fitted to the lower surface of the foot,—not to the whole of the surface, but extending from the extremities of the toes nearly to the tarsus. Slits are formed in this plate of metal or leather, and tapes are passed through these slits, forming loops above, by means of which the toes are bound down and restrained in their proper places. In many cases the same object may be attained by simpler means. A stripe of linen, spread with adhesive plaster, about two-thirds of an inch in breadth, may be passed over the toes which are too elevated, and under the others, the extremities of the plaster being made to cross each other over the metatarsus. If this be neatly applied, it will keep the toes parallel to, and on the same level with, each other. Whichever of these methods be employed, it is necessary that it should be persevered in for a considerable time. In older persons, in whom the toes have been long displaced, they have sometimes become so adapted to their unnatural position, that it is almost needless to attempt to alter it. Under such circumstances we are sometimes compelled, in hospital practice, even to amputate one of the toes, in order that the patient may not be disabled from gaining his livelihood; and this may be occasionally necessary even in private practice. A young lady of rank suffered from a displacement and a distortion of the second toe, such as I have already described. The extremity of it lay under the extremities of the two adjoining toes; the second and third phalanges were nearly anchylosed at a right angle to each other, and a corn was formed on the second joint, where it made a considerable projection above. She applied to me to amputate this offending toe. I answered, "that I would do no such thing; that I might do it for a labouring person, but that her case was entirely different, as she had not to earn her livelihood by her bodily labour." She replied, "You seem to treat the matter very lightly, but this toe and corn make my life miserable: I can take no exercise, I am unfitted for society, and I have tried all other methods of relief without success." On inquiry, I was satisfied that she in no degree exaggerated her sufferings, and I therefore complied with her wishes, and amputated the toe at its first joint.

A very simple, but scientific, method of relieving, and indeed of curing corns, is practised by the chiropodists. A piece of buckskin leather, spread with some adhesive plaster, is applied on the toe on which the corn is situated, there being a hole in the leather corresponding to the corn. Thus the pressure of the shoe is taken off the corn, and thrown on the surrounding parts. If this be kept constantly applied, and proper shoes be worn at the same time, the corn will gradually disappear.

In some cases a hard corn is formed on the lower surface of the foot, over the head of one of the metatarsal bones. A corn in this situation is especially troublesome, rendering the patient absolutely lame; but it may be relieved or cured by the method which I have

just explained, only one slight modification of it being required. The hard cuticle being removed, a broad piece of buckskin leather is to be applied, having a hole in it where the corn is situated. But a thin piece of calico spread with adhesive plaster, and having no hole in it, is to be applied first; that is, between the leather and the foot. Without this last contrivance the flesh of the foot, when the patient walks, bulges or projects into the hole of the leather, so as completely to fill it up, and the patient's condition is rendered rather worse than better. The calico with adhesive plaster prevents this inconvenience, at the same time that it does not prevent the leather answering the intended purpose of taking the pressure off the corn, and throwing it on the surrounding parts. I may observe, by the way, that the same method is applicable to some other affections of the lower surface of the foot, as well as to corns.

When abscess is formed in the bursa under a hard corn, the treatment to be employed is very simple, although the relief it affords is immediate and great. You are to pare off the hard and thick cuticle, and open into the bursa, so as to allow the small quantity of pus which it contains to escape. Thus the corn is effectually destroyed, both the cuticle and the bursa; and it is very easy, by means of the expedients which I have just recommended, to prevent it being regenerated.

The treatment of soft corns is to be conducted on the same principle with that of hard corns; some modification of it only being required, on account of their peculiar texture and situation. The thickened cuticle may be removed by means of the concentrated nitric acid, applied so as to penetrate into its substance, but not to the parts beneath. This destroys its texture, causing it to become dry and shriveled; and in the course of a few days it begins to exfoliate, and is then readily peeled off. If an abscess forms in the bursa of a soft corn, it should be treated in the same manner as that in the bursa of a hard corn.

In some cases, even though there be no abscess underneath, a soft corn becomes exquisitely sensitive, so that the patient cannot bear it to be even touched; and he is made as lame as if he suffered from the gout or any other painful malady. Such a case fell lately under my observation, which I mention, not because it was peculiar, but because the sufferings of the patient were unusually severe. There was a broad soft corn on the side of one toe, where it came in contact with the side of the adjoining toe, and not in the angle between them. The patient could scarcely walk, even with a loose slipper, and the corn itself was so exquisitely sensitive, that the slightest touch could not be borne. This state of things had existed for many weeks, the corn itself being of a much earlier date. I applied the strong nitric acid until I had reason to believe that it must have penetrated through the thickened cuticle. An increase of pain followed the application, and continued for some hours. On the following day there was a manifest improvement. I was now enabled, without any difficulty, to remove the corn with a fine scalpel. The recovery of the patient was immediate and complete, so that, having been previously quite

lame, he was enabled in less than twenty hours to walk as well as ever.

The first thing to be done for the permanent cure of a soft corn is, that the patient should be provided with a shoe of a proper shape, and that the toes which are in any way displaced should be brought back into their proper position. Now I have already observed that the most common situation of a soft corn is between the fourth toe and the little toe, over the head of the fourth metatarsal bone, and that in this case the little toe, towards its extremity, is always pushed more or less underneath the second phalanx of its neighbour. You will sometimes succeed in bringing the little toe to its proper place by means of a stripe of adhesive plaster, applied round it in the manner of a loop, and then encircling the foot.

In other cases you will find the following method more convenient than that which I have just described:—A piece of *very thick* buckskin leather, spread with adhesive plaster, is to be applied on the inside of the little toe, so as to occupy the whole of the inner surface, from the apex to the second joint. The leather should be cut so as to be thin at its margin; and it should be sufficiently broad to admit of being doubled over a good part of the upper and under surface of the toe, as well as its extremity. This contrivance will keep the little toe at some distance from the next toe, and prevent it from sliding again under it. If both of these expedients fail, the patient must be content to wear for a time the metallic or leathern plate, with loops of tape for inclosing the toes, which I have already described.

The bunion, which is frequently formed on the inside of the ball (as it is called) of the great toe, differs in some respects from the disease of which I have hitherto spoken.

The great toe ought to be in a line with the metatarsal bone, by which it is supported. But a shoe which is too narrow at its extremity, causes it to incline towards the outside, displacing, in a greater or less degree, the toe next to it, as I have explained already. In some cases, the effect of pressure on the great toe is actually to alter the position of the joint between it and the metatarsal bone; a portion of the articulating surface on the extremity of the latter being absorbed, and a new articulating surface being made to supply its place more externally than the old one. The existence of these changes I have ascertained by dissection. Now, the consequence of all this is, that the head of the metatarsal bone makes an unnatural prominence, and is more acted on by the pressure of the shoe than it would be otherwise. The cuticle becomes thickened, not at one particular point, but over a considerable surface, and underneath the skin a large and very distinct bursa is generated between it and the bone. The difference between what I have now described and a common corn, may reasonably be attributed to the large size of the head of the first metatarsal bone, and to the consequent diffusion of the pressure over a broad surface.

When a bunion is once formed, the bursa belonging to it is liable to become inflamed after any unusual degree of exercise, or on it being subjected to the pressure of a more than commonly tight shoe.

Serum is then effused into the cavity of the bursa; the swelling is much increased, and it becomes at the same time exquisitely painful and tender. If the patient remains at rest, the inflammation subsides, the serum effused into the bursa becomes absorbed, and the additional swelling disappears without any further ill consequences. If, however, he continues to walk about, wearing at the same time a tight shoe, the inflammation proceeds further; suppuration takes place, and an abscess is formed. Such an abscess is slow in reaching the surface, and the patient generally suffers severely before it bursts externally; and when it has burst, as the synovial membrane of the bursa granulates with difficulty, the healing of the abscess is very tedious, the parts remaining all the time in a very irritable and painful state.

For the relief of this bunion, when it is free from inflammation, or inflamed only in a slight degree, the following plan of treatment should be adopted:—The patient should be provided with a shoe of sufficient dimensions, of a proper shape, and made of cloth or a soft and pliant leather. A piece of thin calico, spread with diachylon plaster, should be applied over the bunion, covering also some of the surrounding parts; and over this he should wear a piece of thick buckskin leather, spread with adhesive plaster, and having a hole in it, corresponding in size and figure to the bunion from which it is intended to remove the pressure. If the bursa be much inflamed, the patient should be confined to the couch, without a shoe; leeches may be applied in the neighbourhood, and warm fomentations may be employed also. If an abscess be formed, it should be freely opened with a lancet. For some time after the abscess has been opened, no other treatment is required than the application of a poultice, which may be changed afterwards for calamine cerate, or some other simple dressing. Perhaps the abscess may now gradually heal, and no other treatment may be required; otherwise it will be necessary to destroy the inner secreting surface of the bursa by means of some kind of caustic. The concentrated nitric acid answers this purpose very well. The end of a dressing-probe may be armed with lint, then dipped in the acid, and applied for a few seconds to the internal surface of the bursa. A thin slough will, of course, be formed, on the separation of which it may reasonably be expected that the remains of the bursa will contract and granulate: otherwise the application of the caustic must be repeated.

After what I have already said, it is needless for me to trouble you with any observations as to the means which should be adopted for the purpose of preventing the bunion being regenerated.

A case came lately under my observation, in which what appeared like a bunion on the inside of the ball of the great toe contained an albuminous substance, of the consistence of the vitreous humour of the eye, similar to that which is found in the ganglions, which occur in the neighbourhood of the wrist and in some other situations. Whether this was an ordinary bunion, in which the vessels of the bursa secreted this peculiar substance, or whether it was really a ganglion, I was unable to determine. The treatment which I adopted

was that of opening the cyst freely, and applying the concentrated nitric acid to its inner surface. It was necessary to do this with some caution, lest I should injure the joint or bone underneath; and therefore several applications of the acid were required. My object was to destroy the secreting surface, and obtain a granulating surface in its place; and when I last saw the patient, previously to her returning to the country, I had reason to believe that I had succeeded: but I have not heard of her since.

A tumour is occasionally formed on the instep, which, though not exactly a corn, bears a near relation to it. It is met with in young men who wear tight boots, and the usual situation of it is over the articulation, between the internal cuneiform bone and the metatarsal bone of the great toe. The tumour is under the skin, hard and immovable, so that it seems to a superficial observer to be an enlargement of the bone itself. The skin over it is in a natural state, except in cases of long standing, in which the cuticle becomes somewhat thickened. I have had no opportunity of dissecting the parts affected with this disease, and am uncertain, therefore, whether it be formed in the ligaments of the joint or periosteum, or in the ultimate fibres of the tendon of the tibialis anticus muscle, or in what other texture.

Such a tumour is productive to the patient of as much inconvenience as a corn, and it requires the same kind of treatment. He should, for a time, leave off boots altogether; or if he cannot do this, the boot-maker should be directed to provide a last with a projection in that part of it which corresponds to the situation of the tumour, so that the boot may not exercise any pressure on it. A piece of thick buckskin leather, with a hole in it to receive the tumour, will also give the patient immediate relief, and ultimately effect a cure: but the cure, of course, will not be permanent, if he continues to wear tight boots afterwards.

I have seen a tumour apparently similar to that I have now described, in school-boys, situated over the head of the tibia, at the insertion of the tendon of the extensor muscles, commonly called the ligament of the patella, and apparently the result of kneeling, or clambering on the knees: and a tumour of the same kind is sometimes met with on the inner condyle of the femur in those who ride much on horse-back. In either case the avoiding pressure is sufficient to relieve the patient of all the inconvenience which the disease produces. I have known cases, however, in which there have been some remains of a tumour over the head of a boy's tibia ever afterwards.

LECTURE XV.

ON POLYPI OF THE NOSE.

Under the name of polypus of the nose, although many affections have been confounded, I mean to include simply a peculiar excrescence of the Schneiderian membrane, which is not malignant. This simple polypus is much the more frequent among the higher classes of society, and is most common in *men*. It seldom occurs before puberty. I am not able to connect it with any particular habit. It is common among the Portuguese, and attributed by them to their snuff being adulterated with ground glass. It may be so, but I have not observed that snuff-takers in this country are particularly liable to it, though I believe that snuff is much adulterated here, as much, indeed, as medicine.

The tumour is generally attached by a thin neck to the Schneiderian membrane, or by a narrow pedicle, or a long, thin membrane, continuous with the Schneiderian, but less vascular. The polypus is very smooth, and but little vascular, though sometimes vessels burrow into it. It is gelatinous in density, and appears to consist of coagulated albumen. In a few instances there is but one polypus; but commonly there are two or three, and frequently clusters, so that you can scarcely count them. The colour, which it is essential to notice, is pearl-like, or white, mixed with brown, of an opal appearance. Soft polypi of this kind I have never seen attached to the septum nasi, the inferior turbinated bone, or any part of the nostril, but almost always to the cells of the ethmoid bone, though occasionally to the superior turbinated bone. A woman in this hospital some years ago, having symptoms indicating polypus in its early stage, died of another complaint, and after death, the cells of the ethmoid bone were found distended by a substance similar to polypus. The indications in the early stage that polypus exists, or is occurring, are merely an unnatural secretion of mucus; a great desire to blow the nose, such as may arise from common catarrh; but in catarrh the secretion lasts for a shorter period, whilst the discharge from polypus does not subside, on which account you may suspect incipient polypus. When bone, for instance, is affected, you have pain in the forehead, but there is none in polypus. The smell is affected, the patient fancying, perhaps, that he smells odours which do not exist; or the sense of smell may disappear, which is more common; the taste at the same time is injured, if not destroyed. These symptoms increase as the polypus gets larger, with obstruction of the middle meatus of the nose, and then of the inferior meatus. Respiration through the nose is imperfect, and at last the patient breathes only through the mouth; this is troublesome, especially at night, because the using the jaw in the day acts on the salivary glands; but at night

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the open mouth is always dry, and the tongue becomes hard, like a board. At first there is no difficulty of blowing the nose, though afterwards there is, and the mucus is blown down the pharynx. These symptoms may, in their progress, occupy a year, or many years. If neglected, the polypus grows larger, in becoming more solid, and the base almost cartilaginous; sometimes it is large enough to hang down outside. It varies with the weather, swelling in a moist atmosphere; it is, in fact, an hygrometer to the patient, having a smooth surface and an opal, semi-transparent appearance. It may project, backwards, into the pharynx behind the soft palate, and then it may occasion giddiness, from pressure on the internal jugular vein, though persons generally procure surgical assistance before the case is so far advanced. But sometimes the disease is neglected, and I remember a man in this hospital who had had a polypus removed, but which renewed, and when he came was enormous, projecting from the nostril under the skin of the face. The patient died of cerebral symptoms, and after death there was found effusion in the ventricles of the brain, from the pressure of the polypus. I have seen, also, a boy, sixteen years of age, having a polypus of an enormous size, not less than my fist, hanging down at the back of the pharynx, which could be felt in the mouth, and which pushed out the ossa nasi, giving him a nose broad enough to cover half his face. I lately saw polypus cause absorption of the os unguis; it extended into the orbit. It was removed, and, I believe, successfully.

In the early stage, the existence of polypus is doubtful, if you cannot see it; but, by and by, you can discern it by dilating the nostrils with the forceps, near the window, and the more easily if the sun shines. If large, you can tell how far it extends; if it extend into the pharynx, by putting your finger into the mouth; if it extend to the brain you may tell that by the cerebral symptoms. Then, how are you to get rid of it since it is not under the influence of medicines, being quite local? After it has been removed, I have used local remedies to prevent its return, but medicines are only useful after removal; therefore straightway remove it. In common polypus, ligature is impracticable; and those who propose it can never have had any thing to do with the disease. It is impossible also to remove it by the knife, as you cannot see it, and when touched with a sharp instrument the blood directly flows so as to prevent your continuing the operation. Neither with the scissors can you see your way sufficiently. The best way of operating is with a proper pair of forceps, if you know how to use them. The proper forceps will pull away its neck. The *whole* of the opposite surface ought to be quite rough; convex above, concave below, opening laterally, so that it may hold the polypus tight. They should be pretty strong, and not slender, unless for small nostrils. If made with a screw in the handle, having a double worm, when the polypus is grasped, by proper manœuvering and screwing it tight, there is no danger of its slipping off. The procedure may be longer, but it is more certain. In a few cases you will want such forceps as these, which open from above downwards, but they are not often required. Any forceps should be oiled

and warmed, the patient in a chair with his chin elevated: get hold of the polypus near the base, by introducing the forceps upwards to the back of the nostril; place one blade on each side, tighten the forceps with the screw, and then—not merely pull it out at once, or the polypus will break off—but twist a little to each side, gently draw forwards, push backwards, twist it again and again, a few times, and then draw out the forceps with some force, and the polypus will come away entire. There may be several others, and if so, repeat the operation. The patient should blow his nose, so as to bring them all into view; if he cannot do so, you must endeavour to remove them without seeing them. There may be, also, a small one jamned in by the larger, which is to be seen on removing the latter. Having done all this, the relief to the patient is immediate.

In some cases one operation is sufficient; in others, two, or even three, are necessary. Be gentle in using the forceps; rough usage might impair the ethmoid bone, or even the cribriform plate. I never saw any inflammation result from the operation, or cerebral symptoms, or erysipelas. In one case hemorrhage followed, which I easily stopped by plugging the nostril with lint. Mucous membranes bear injury more readily than the skin, as in the case of internal piles.

In very old, firm, and cartilaginous polypi, there is great adhesion to the bone; but it is of no consequence if you remove a small plate of the bone with it, for at least that shows that the whole polypus has come away. In these cases I use a peculiar forceps, resembling those employed by ladies for cutting flowers, so constructed as to cut at the upper part, having a rough surface below, to hold the polypus. These shave off the polypus as near the bone as possible.

I will conclude my remarks on the extermination of common polypi from the nose by adding that in some cases you may know from what occurs at the operation, that there is a tolerable chance of the tumour not returning. In making this observation I allude to an occurrence that I met with to-day (Wednesday, Nov. 14th). A gentleman came to me with a polypus. There was only one that I could discover. In removing it, a portion of the cells of the ethmoid bone was taken away. There is no harm whatever in a part of the ethmoid bone being thus extracted; I never saw any ill consequences arising from it, and you may suppose, from the polypus being thus completely removed, that there is less chance of its return than there otherwise would be. Another polypus may arise from other parts of the mucous membrane, but certainly not from this.

Now, the polypus being removed, the patient will immediately experience very great comfort—great relief will follow the operation. But he will naturally inquire whether it will return, and you must answer that most likely it will, and that if it do he must again have it removed. But then he will probably put another question. Can you do any thing to prevent its recurrence, or to make its growth slow? I believe that you may retard its return in many cases, or even prevent it. About eighteen years since, a gentleman came to me with polypus of the nose. He had many times had polypi removed by a surgeon in the country; but he now came to London

and applied to me. I removed the polypus, and recommended him to employ what I had before found useful, namely, white precipitate ointment. It should be softened by holding it before the fire, and then, with a camel's-hair brush, you must paint the upper part of the nostril from whence the polypus seems to have originated. This must be done every day. It is a very mild application, and does not irritate. This gentleman very steadily persevered with the plan; he often came to me for other little complaints, thus I had an opportunity of watching the case, and the polypus did not return for fifteen or sixteen years, when I again removed it. I have seen other cases in which very great good appeared to arise from this local application, after the removal of polypi. Sometimes I have employed the ung. hydrarg. nitratis diluted, but I have more frequently used the white precipitate, and I prefer the latter. On the whole I think it is quite as effectual, and does not inflame the nostril, or cause sneezing, or plague the patient so much as the former. Its use, however, must be persevered in steadily,—not for a few days, a few weeks, or a few months, but even for years. The patient must learn to apply it carefully for himself, or get some one to apply it well for him. If the brush be merely introduced a little way into the nostril it can do no good. You must explain to him the direction which the passage of the nostril takes, and show him how to pass it up to the middle meatus, directing the instrument first a little upwards and backwards, and then directly backwards into the throat; and, indeed, the brush ought to be carried back as far as the pharynx, so that you may sweep, as it were, the whole roof of the nostril. You may use astringent lotions, which I have no doubt are sometimes attended with advantage, such as a solution of sulphate of zinc, or a solution of alum. Dissolve half a drachm of sulphate of zinc in eight ounces of rose-water, with a drachm of tincture of galls, and let the patient inject this with a syringe into the nostrils every day. This may more especially be employed where the nostril is narrow, and a camel's-hair brush of sufficient size cannot be made to enter it.

I have sometimes applied the nitrate of silver to the roof of the nostril from which the polypus grows. This must be used carefully, not because of any real harm that it will do, but if it be applied too extensively it will produce inflammation of the nostril. The upper lip, from the margin of the nostril, must be protected by smearing the parts with olive oil, otherwise the nitrate of silver will flow down upon them, and then, some time afterwards, when the patient has been exposed to the light, he will find a great black stain on his face.

A polypus occurs in the nostril of a different structure from that which I described in the last lecture—a fleshy polypus, apparently composed of firm, solid fibrin, with a very thin membrane over it. It is apparently of the same structure as the polypus that grows from the uterus, and sometimes from the rectum. I am inclined to believe that sometimes the common polypus alters its structure, and becomes a fleshy polypus; but certainly that is not generally the case. I think, however, it does occur in some instances; I know that in other cases a polypus is fleshy from the beginning.

These fleshy polypi have generally a narrow neck, as is the case with polypus of the uterus, and that which grows from the inner surface of the rectum. The polypus does not appear to me to be restricted to any part of the nostril, to the cells of the ethmoid bone, or the superior turbinated bone. I saw one of these polypi on the septum nasi, quite within sight. It was an inch in length and three inches in diameter, and attached to the surface of the septum nasi by a narrow neck. I introduced, not a pair of forceps, but probe-pointed scissors, slightly curved, and snipped off the polypus close to the septum. I applied nitrate of silver to its root, and when I saw the patient a considerable time afterwards, there was no reproduction of the polypus. In like manner the fleshy polypus of the uterus does not grow again after it has been removed by ligature. I had also a case under my care in which a fleshy polypus was attached by a narrow neck to the Schneiderian membrane in the lower part of the nostril, and quite within sight. I removed it in the same manner, but I cannot say whether it returned or not. Here (presenting it) is a fleshy polypus, which I removed by ligature; it hung down the posterior nares into the pharynx. In like manner to this the polypus of the uterus separates with the ligature attached to it. It is a remarkable circumstance that though, when you tie a polypus of the uterus, the ligature be placed below the origin, yet, when it comes away, the neck situated above the part to which the ligature was applied, has exfoliated along with the rest. Here is a polypus of the uterus (exhibiting it) in the act of separation under the application of a ligature. When I was assistant-surgeon here, a young man, a soldier, came to this hospital. There was considerable difficulty in both his respiration and deglutition, but there was nothing to be seen in the nose. On looking, however, into the throat, I saw, on the back part, an enormous tumour projecting the velum pendulum palati forward to the mouth. The tumour hung down further than the eye could follow it, but with the finger I could just reach its lower margin. On a careful examination it was found to be a great fleshy polypus attached to and descending from the posterior part of the nostril. It had been growing for many years. I removed this by ligature. I never saw or heard any thing of the patient afterwards; but as the operation was perfectly successful, and he was very soon well, I think that in the common course of things he would have come back if the disease had returned.

I have said that this polypus was removed by ligature. Now, it is much easier to *talk* of removing polypi in this way than to *do* it; for when they hang from the nostrils into the pharynx it is difficult to accomplish it. There have been many very ingenious contrivances for removing polypi in this situation by ligature, but according to my experience they are more ingenious than useful. You may apply a ligature to a polypus of the nostrils by a very simple apparatus much better than by any thing complicated. It is rather difficult to explain the method of applying a ligature when the tumour hangs into the pharynx, and yet those are the cases in which it is necessary to have recourse to this means for the removal of the polypus. When the

tumour is situated in the nostrils, it may be snipped off with a pair of scissors, or extracted by means of forceps. There is no difficulty in tying a ligature when you know how to do it, but, as I have said, it is difficult to describe the mode. I will, however, endeavour to make myself intelligible.

One method of tying a fleshy polypus that projects from the nostrils into the pharynx is this:—Pass a bougie into that nostril from which, judging by the exploration of the finger, you suppose the polypus to arise. It may have its origin from the septum between the two nostrils, and in that case you may pass it into either nostril, but generally by introducing the finger into the pharynx and turning it upwards, you will discover that the tumour arises from one or the other nostril. The bougie is to be passed through that nostril into the pharynx; the other finger must then be introduced into the pharynx, the bougie bent, and one end brought out at the mouth. Thus, one end of the bougie projects from the nose, and the other from the mouth. You fasten a double ligature to the end of the bougie that projects from the mouth, and the loop hangs down. You draw the bougie out at the nose; the ligature, of course, follows it; you cut it off from the bougie, and then the two cut ends hang out of the anterior nostril over the upper lip, the loop at the opposite end hanging out of the mouth. The ligature should be strong and well waxed, so as to make it stiff. It should also be very long, or you will find the operation difficult: it is easy to cut it shorter. The next step of the operation is to get the ligature over the tumour. For this purpose you cut through the loop hanging from the mouth, so that there are now two single ligatures. One end of the single ligature is to be passed through a silver tube, and putting the tube into the mouth and pharynx, you carry one end of the ligature under the base of the tumour on one side of it. You leave that out of the mouth, and your assistant holds both ends of the ligature to prevent it from slipping; then with the same silver tube, you are to take hold of the other loose ligature at the mouth, and carry that on the other side of the polypus, and there your assistant is to hold it. A knot that will not slip must then be made of the two ends of the ligature that hang from the mouth. You have a ligature now on each side of the polypus, and then, by carefully drawing the ligatures out at the end of the nose, you have got hold of the polypus at its base. A silver tube is then to be introduced into the nostril, and you tighten the ligature upon the shoulders of the tube in the same manner that you are taught in the lectures on midwifery to tighten a ligature on polypus of the uterus. It must be tightened every day till you have completely cut through the polypus. But if this were all, when the polypus was loose it would drop into the pharynx; that would be of no consequence if it were a small one, but if it were large it might choke the patient. To obviate this, after the ligature has been applied, pass a needle, with a strong ligature, through the polypus, and let the ligature hang out of the mouth, so that when the polypus is loose the patient may draw it out at the mouth. It was in this manner that I tied the very large polypus that I mentioned a few minutes since.

But there is another method that is still more convenient than this, and which I have employed on other occasions. It was the method adopted by Dessault. You require a silver tube by which the ligature is to be directed into the mouth, a shorter silver tube to be introduced into the nostril for tightening the ligature, and two pretty long ligatures. You introduce a bougie into the nostril and bring out one end at the mouth. To this you fasten a single and a double ligature; the single one must be very long. That being done, the bougie is to be drawn out at the nose, and, of course, the ligatures follow it. You then cut off the bougie, and you have the two ends of the double ligature hanging out of the nose, and the loop hanging out of the mouth; one end of the single ligature also hangs out of the nose, and one end out of the mouth. The single and the double ligature always pass on one side of the polypus; but by means of a silver canula you draw the single ligature to the other side of the polypus. The ligature being held in its place by an assistant, the end of the single ligature, projecting from the mouth, is passed through the loop of the double ligature, and the ends of the double ligature being drawn out of the nose, the single end follows, and you make a ligature which you fasten by means of a canula introduced into the nose. This method is easier in practice than the one I mentioned before, though it is more difficult to describe. (The lecturer illustrated the foregoing modes of tying the ligatures on a paper model held by an assistant.)

MALIGNANT TUMOURS IN THE NOSE.

There are tumours which grow in the nostrils, and are sometimes confounded with polypi, but which are of a malignant character. There is an example of one on the table. A boy was admitted into the hospital with this tumour, I think, in the left nostril, which caused considerable bulging of the ala nasi. On looking into the nostril I saw a tumour of a brownish-red colour, elastic to the touch. It had not the appearance of a common polypus. It seemed to have a narrow attachment outside of the superior maxillary bone, but no attachment to the nostril elsewhere, for a probe could be passed around it. It was doubtful whether it proceeded from the antrum or not; for at that time there was no apparent enlargement of the antrum. It was evidently too firm to be removed by ligature or forceps in the usual manner. I divided the ala nasi, and carried the incision through the upper lip. This exposed the cavity of the nostril, and then, having discovered the base of the tumour, I cut it through, removing it as close to the bone as I could. To that part from which the tumour was removed, when the bleeding had ceased, I applied lint spread with chloride of zinc and flour, in order to make a slough of the part from which the tumour had arisen. The wound made in the upper lip soon healed, as these wounds do, by the first intention. For some time there was no appearance of the recurrence of the disease, and about three months after the operation the boy left the hospital. He returned, however, about a month afterwards, there being then a great

deal of discharge from the nose, evident disease going on in the nostril, and a swollen belly. I did not then see him, for he was admitted, for the second time, just after I had resigned my office here. Paralysis of the lower limbs came on, and the boy died. On a post-mortem examination it was found that the disease had returned in the nostril, the tumour had destroyed, in a great measure, the ethmoid and sphenoid bones, and was seen lifting up the dura mater near a part of the ethmoid bone. It had also destroyed some of the bones of the face, and filled the cavity of the maxillary antrum. The same disease existed in other parts of the body. There was a tumour of the same kind attached to the xiphoid cartilage; others were connected with the vertebræ and ribs, and the bodies of the vertebræ were altered. There was a deposit of substance, similar to that removed from the face, between the vertebræ and dura mater of the spinal canal, pressing on the spinal cord, and accounting for the paralysis of the lower limbs. There was likewise some effusion into the ventricles of the brain. This was evidently a malignant tumour, which might have been mistaken for a polypus, although the appearance was so different from the common polypus that on removal of the growth the disease was readily distinguishable.

I have seen several cases of malignant tumour growing from the Schneiderian membrane. In some cases there is reason to believe that the disease begins between the periosteum and the bone; but I have no doubt that malignant tumours do sometimes grow from that membrane. A young gentleman was brought to me bleeding profusely from the nose. He was of strumous complexion, and one of that class of persons who are liable to a vascular condition of the mucous membrane of the nose. It was of a much more than usually bright scarlet colour, and, indeed, looked like scarlet velvet. The least injury to it would make it bleed, not merely a little, but to many ounces; and there was quite an alarming hemorrhage from a mere scratch with the sharp end of a probe. By and by he came to me with a sort of fungus growing from the diseased membrane over the inferior turbinated bone. This fungus was quite distinct, it was not larger than the end of the little finger, and was attached by a narrow neck. I snipped it off with a pair of scissors, but there was such a rush of blood that I could not tell whether I had removed the whole or not. The fungus returned; I suppose it was not entirely removed, and it grew rapidly. In a short space of time it filled up the entire nostril, and extended back to the pharynx, where it could be felt with the finger projecting the soft parts into the mouth. Mr. Keate saw the patient with me; we examined the tumour very carefully, and hoped that we might be able to remove it by ligature, or, at least, to remove a part. It was tied, but it proved to have so broad a base that the little piece removed did no good whatever. The fungus grew in spite of every thing that could be done; it caused caries of the bones of the nose, destroyed the orbit of the eye, projected through the cheek, and ultimately the poor fellow died.

I saw another case of the same kind. The fungous tumour having originated in the Schneiderian membrane, occupied a great part of

the nostril, and then projected through the back of the pharynx. Sir Astley Cooper and myself attended the patient, and we agreed that it was better to remove that portion which protruded through the pharynx by ligature. I applied it in the way I have endeavoured to explain, with perfect ease. I took hold of the tumour with the ligature upon it, and in the course of a few days the ligature came away. Though a very large part of the fungus had been included in the ligature, it became so small and shriveled that it was hardly observable, just as is the case with what Dr. Clark calls cauliflower excrescence of the uterus. When that has been tied for some time, and the ligature comes away, the tumour being composed almost entirely of vessels, it vanishes; so it was here. The pharynx was cleared by the operation, but the tumour grew in spite of all that could be done, and we recommended the father, as we could do him no more service, to take his son away. I did not hear the result of the case, but I have no doubt that the patient died shortly afterwards.

From my experience of these malignant tumours, I should say—Let them alone. I never saw any ultimate good arise from any measures that were adopted for their removal; and, indeed, for the most part, malignant tumours in the nostril have so broad a base that any operation for their removal is out of the question.

LECTURE XVI.

ON DISEASES WHICH ARE SOMETIMES MISTAKEN FOR POLYPI OF THE NOSE.

I HAVE a few words to say concerning these diseases. The case that I shall first mention is a very common one. A young person, frequently a child, is brought having dilated pupils, a fair complexion and thin skin, with some difficulty of breathing through the nostrils, and perhaps rather more secretion from them than usual. On looking into the nostrils the Schneiderian membrane appears very turgid, more vascular than ordinary, and on the outside there is a tumour, an excrescence, sometimes small, at other times pretty large. This may be mistaken for a polypus, and, indeed, the disease puzzled me when I first saw it. This appearance, however, is produced merely by the thickening of the mucous membrane of the nostril at the anterior extremity of the inferior turbinated bone. I do not believe that the mucous membrane there is really more thickened than it is anywhere else; but it is more apparent in that situation on account of the projection of the bone.

In some cases in which the mucous membrane has been sufficiently thickened to obstruct the respiration through the nostril, I have introduced a pair of probe-pointed scissors, slightly curved, and snipped off a portion of the projecting mucous membrane. There is no harm

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In some cases in which the mucous membrane has been sufficiently thickened to obstruct the respiration through the nostril, I have introduced a pair of probe-pointed scissors, slightly curved, and snipped off a portion of the projecting mucous membrane. There is no harm

whatever in its excision; and where the nostril is much obstructed, the operation affords great relief. You may suppose this to be a very simple operation; and so it is, for it can be done in an instant, but yet it requires some care in order that it may be done properly. In the dead body you might snip off a bit, and if you had not completed it by one incision you could make another. But in the living subject the mucous membrane is full of vessels, and the part must be snipped off at once; for the moment one division is made with the scissors, the hemorrhage is so great that you cannot see a bit of the remaining part which requires to be divided. It is only every now and then that you find it necessary to have recourse to this operation. In other cases give the child small doses of steel for three weeks, then suspend its exhibition for a fortnight, and again resume it,—and proceed in this manner for three or four years. Delicate children who are liable to this disease of the Schneiderian membrane are always benefited by the exhibition of steel; it should, however, be given not in large doses for a short time, but in small ones long continued. Where the constitution is weak, you may sometimes cure the disease in three weeks, but the rectifying of the constitution is a work of years. Some good may be done by local treatment. Dissolve two grains of sulphate of zinc in an ounce of rose-water, and inject a portion into the nostrils two or three times a day; or paint the inside of the nostril with diluted ung. hydrarg. nitratis by means of a camel-hair brush.

I have seen some cases in which a small abscess has formed in the tumour that I have just described. Suppuration has taken place in the substance of the Schneiderian membrane just where it projects in front of the inferior turbinated bone, and the best plan to adopt is to cut off, with a pair of scissors, membrane and abscess altogether. When an abscess forms in a pile, that is best relieved, not by laying open the abscess, but by snipping off the pile.

Another disease, sometimes mistaken for polypus of the nose, is connected with a morbid condition of the ethmoid bone. A patient has difficulty of breathing through the nose, with pain in the forehead, and blows his nose oftener than natural; by and by he blows away hard dry scabs of mucus, like bits of glue, and then there is an offensive putrid smell perceptible to others, and probably to himself also. This indicates disease in the bones of the nose, generally of the ethmoid cells, but sometimes more extensive. Occasionally it is supposed to supervene on syphilis, sometimes it arises from the long-continued use of mercury; sometimes from a scrofulous state of the system; or it may be the result of general bad habit, such as is called *cachexia*. I am not about to enter into the history of this disease at present, but merely to point out that it may be mistaken for polypus. The symptoms always show that it is not a polypus, and if you turn the patient to the light you will see a tumour at the upper part of the nostril. This consists merely of unhealthy granulations, organized lymph covering the Schneiderian membrane over the bone; and if you take hold of it with the forceps you do not pull away a polypus, but a bit of the Schneiderian membrane with the tumour over it. Take care

not to mistake this case for polypus, because the treatment that is applicable to the one is quite inapplicable to the other.

Having finished this subject, I propose to call your attention to

DISEASES OF THE TONGUE.

I am inclined to direct your attention to this subject, first, because you will find, especially in private practice, that you are frequently consulted about diseases of this organ; and, secondly, there is nothing worthy of notice about it in books. I have at different times looked over various books on surgery, and over the journals and surgical reviews, but I have not been able to gain any information about diseases of the tongue, except those of a malignant character; and I must add that the history given, even of these, odd as it may seem, is very different from what I have met with in practice.

In dyspeptic persons the tongue is frequently rather swollen; it becomes cracked on the surface, and may remain so without harm for years. It may bear the appearance of fissures on the surface, and the papillæ may be enlarged. This dyspeptic tongue, existing in a slight degree, is very common. A similar appearance of this organ occurs in persons who have been much under the influence of mercury. When a patient is salivated, the gums become inflamed, and the tongue also becomes inflamed and swollen. In bad cases of salivation, such as you scarcely ever see in the present day, because mercury is more prudently exhibited than formerly, the tongue becomes so swollen that the mouth will not contain it, and this inflammatory state of the organ, arising from the use of mercury, is very apt more or less to persist afterwards. The tongue is swollen; there are fissures on the surface, and this appearance is retained to the last. Sometimes you will see a longitudinal fissure in the median line of the tongue which does not seem to swell up like the rest of the organ. I remember a patient who had thus suffered from the use of mercury, and for a long time afterwards his tongue was much enlarged. The longitudinal fissure was so deep that it looked as if the tongue were divided into two parts, and the patient consulted a medical practitioner who, not being acquainted with the disease, thought the tongue was going to drop into two pieces, and proposed to fasten it together by a ligature.

This morbid condition of the tongue requires no special treatment. If the patient be dyspeptic, try to put his digestion in as good a state as possible. When he suffers from the use of mercury give him sarsaparilla, nitric acid, or whatever else may get rid of the effects of the mercury.

There are ulcers of the tongue which are different from those I have just mentioned; sometimes they accompany an enlarged and fissured tongue, but they may exist independently of those circumstances. The ulcers to which I now allude more especially occur as one of the sequelæ of syphilis. They are sometimes accompanied by the eruptions, little spots of syphilitic psoriasis on the body, and little

spots on the scalp, but frequently they occur without symptoms elsewhere. A gentleman whom I saw not long since had a chancre in the spring of the year, some few years ago. Two or three months after that, if I remember aright, he had secondary symptoms. He took mercury, but inadequately; and many months afterwards the secondary symptoms returned; they were, however, but slight, and yielded to some simple treatment. But a year and a half after the first attack of syphilis, there were ulcers of the tongue, so that he could hardly speak or swallow his food; and at the same time spots appeared on his head and elsewhere. He took a little mercury, his tongue got well, and the eruption disappeared. From that time, however, he was subject continually to little ulcers of the tongue, coming but not going of themselves, never disappearing till he had taken blue pill. The ulcers, of which there were several, were very troublesome, interfering with deglutition, nay, even making him speak thick, and occasioning him great distress. Of his own accord he took a little mercury when they appeared, and they went away; but in two or three months they were sure to return. At last I made him take a course of gray powder (hyd. c. creta) for nearly two months; the ulcers healed, and never troubled him again. These cases are very common as a sequel of syphilis, and the ulcers are seldom cured, except by mercury; but, according to my experience, large doses of it do harm rather than good. Calomel and opium is the great medicine to be brought into play in these cases. The mercury with chalk, five grains, with one or two grains of Dover's powder (to prevent it from griping and purging), is preferable to any larger doses of the remedy. The length of time during which a person may be plagued with ulcers of the tongue is astonishing. I have seen them last for years, until a patient has been put through a pretty long course of small doses of mercury. I saw one gentleman in whom these ulcers followed syphilis, and had been going on for two or three years when he came to me. They yielded to the gray powder, but not very rapidly, and the tongue always continued disfigured and covered with cicatrices. In some cases the patient is relieved by taking sarsaparilla, especially an infusion in lime-water. Where mercury has failed, I have found that the best remedy is iodide of potassium, two or three grains, given twice daily, dissolved in plenty of water; but, in three cases out of four, the gray powder is much more efficacious.

Ulcers of the tongue, such as I have described, sometimes occur merely as accompaniments of dyspepsia, and they generally heal of themselves; but if they do not, one application of the nitrate of silver is generally sufficient to remove them. Those, however, that follow syphilis, do not yield to this remedy; nor does any local application, so far as I have seen, do much service.

Some persons who have ulcers on the tongue, have them also on the inside of the cheek. I suspect that they are originally littleeruptions, but as they occur in a mucous membrane they ulcerate more rapidly than they would if they occurred on the skin.

There is a disease of the tongue which I have seen every now and

then, and which I am sure is very often mistaken for cancer, though it is of a different nature. It is a curable disease, although it looks like a malignant one in many respects. The first thing of which the patient complains is enlargement of the tongue, with some pain. On examination you find a tumour in one part of it, not very well defined, not with any distinct margin. It is a softish tumour, and increases in size; and perhaps another tumour appears in a different part of the tongue, and that increases also. There may be three or four of these soft elastic tumours, with no very defined margins, in various parts of the tongue. This is the first stage of the disease.

In the second stage there is a small formation of matter in one of these tumours,—a little abscess, which breaks externally, discharging two or three drops of pus. When the abscess has burst, it does not heal, but another forms in one of the other tumours. These abscesses may assume the form of ulcers, and the ulcer has a particular appearance. In the first instance it is a very narrow streak of ulceration, but on introducing a probe you find that the ulcer is the external orifice to a sort of fissure in the tongue. The probe passes in obliquely; the tongue is, as it were, undermined by the ulcer, a flap of the substance of the tongue being over it.

The disease now becomes more painful, and at last these ulcers may spread externally. In some instances they occupy a very considerable portion of the surface of the tongue, but generally they burrow internally, and do not spread much towards the surface. This is a very distressing state of things, and a man may remain in this state for a long time. The glands of the neck do not become affected, nor does the general health suffer, except from the difficulty of swallowing food. This is one inconvenience experienced by the patient, and he also labours under a difficulty of articulation. The tongue, from its enlarged state, may become stiff, not sufficiently pliable for the purposes of speech, and the patient either speaks thick or lisps.

In some instances the disease may be relieved by a course of sarsaparilla, with small doses of bichloride of mercury. A strong decoction of sarsaparilla, with from a quarter to half a grain of bichloride of mercury, may be taken in the course of the day. Of course, if there be any thing wrong in the general health, you should endeavour to get that corrected, and attend especially to the state of the bowels and the secretion of the liver. If the secretions of the digestive organs be unhealthy, a dose of senna and salts may be given every other morning, and blue pill every other night. When the patient is brought into this state, one remedy, as I have said, is sarsaparilla with bichloride of mercury, but, according to my experience, this is not the best remedy. The remedy best adapted for these cases is a solution of arsenic. Give the patient five minims three times daily, in a draught, gradually increasing the dose to ten minims. It should be taken in full doses, so that it may begin to produce some of its poisonous effects on the system. When it begins to act as a poison it will show itself in various ways. Sometimes there is a sense of heat, a burning pain in the rectum; sometimes griping, purging and sickness, and nervous tremblings. A patient who is taking arsenic, especially in pretty

large doses, ought to be very carefully watched. At first you may see him every two or three days, and then every day; and as soon as the arsenic begins to operate as a poison, leave it off. When this effect is produced, the disease of the tongue generally gets well, but at any rate leave off the arsenic, and the poisoning will not go too far; it will do no harm. If, after a time, you find that the disease is relieved, but not entirely cured, you may try another course of arsenic. Perhaps it may take a considerable time to get the tongue quite well. Sarsaparilla, with the bichloride of mercury, may be given at one time; and at another, arsenic. You cannot give either of these remedies for ever, and indeed the arsenic can only be given for a very limited period; but it is astonishing what bad tongues of this description I have seen get well under these modes of treatment, especially under the use of arsenic.

Malignant diseases of the tongue generally are of the nature of carcinoma, but sometimes of fungus hæmatodes.

Carcinoma generally begins with scirrhous tubercles in the tongue, which may be felt externally; but, from the dissections I have made, I suspect that the disease never begins in one part only—that while there is one tubercle that can be felt, there are others that cannot in various parts of the organ. The scirrhous tubercle increases, becomes attached to the skin, and ulcerates. It may commence in any part of the tongue; sometimes the upper part, sometimes the end, and sometimes the lower surface.

Such is the history of the disease as it is commonly given in books, and as it frequently occurs in practice; but I must say that it does not always begin in this manner; and that in many cases a disease which you do not think of any consequence turns out to be malignant. For example; a gentleman came to me with a little round ulcer, not so large as a silver penny, and it gave him no pain. I touched it with the nitrate of silver, and used some other remedies, which I now forget, for it was many years ago. I proposed to remove a part of the tongue by ligature, but he did not like to undergo the operation, and went into the country. I saw nothing of him for three-quarters of a year, and he then came back with an immense ulcer of the tongue. The tongue was much enlarged, and also the glands of the neck. He died, and I made a post-mortem examination. I found an enormous tumour, fungus hæmatodes of the tongue, extending to the epiglottis and the glands of the neck. The only external manifestation of this, in the first instance, was a little ulcer, without surrounding hardness, and which yielded to the touch. I have seen fungus hæmatodes of the glans penis begin in the same manner; it would not heal, and by and by the tumour burst out. A gentleman consulted me about two years ago with some little excrescences on one side of the tongue, which looked so very like warts, that I thought they were so; and I apprehended the disease was malignant, especially as it appeared to be confined to the surface. I am always suspicious of diseases of the tongue. I applied some caustic potassa to the warts, which destroyed them very effectually, and made a deep ulcer there. The part healed, and the patient

seemed to be very well. He came to me some time afterwards with ulcers where the warts had been; there was a great deal of hardness at the base, and they had all the characteristics of carcinomatous ulcers. So they proved to be; the disease continued to spread, there was repeated hemorrhage, and the patient died. In other cases I have seen disease of the tongue, which did not present a suspicious character at first, prove to be malignant in the end.

There are on the table specimens of malignant disease of the tongue, illustrating the progress which I am now going to describe. The ulcer extends, eats away a good bit of the tongue, generally on one side; the organ becomes stiff, gets fixed to the neighbouring parts; deglutition and articulation become difficult; the patient complains of pain, and you cannot help him. The ulceration goes on; the constitution suffers from the influence of malignant disease, and also from the want of nourishment; the glands in the neck become affected; and I do not know any thing more miserable than a patient dying of malignant ulcer of the tongue. Having described the progress of the disease so far, you can easily conceive the rest. The patient is gradually rendered weaker and weaker, thinner and thinner; then there is great bleeding; the lingual arteries are ulcerated, and it may be that the patient dies of hemorrhage, for you can do nothing to stop it except by the actual cautery, and that you are often not in time to apply. The repeated hemorrhages in these cases generally go a great way towards the destruction of the patient.

In the advanced stage of the disease nothing can be done. Can any thing be done in the early stage? Can you remove the scirrhous disease in any way? If it be situated at the anterior part of the tongue you may excise it. An assistant could hold the tongue with a rough towel on one side while you excise the other, and he could also hold it while you secured the bleeding vessels by ligature. But a much simpler way would be to remove the part by ligature. A strong ligature, with a double needle, may be passed through the tongue, and it may include as much as you please. If there be a large portion to be removed, make a notch with a pair of scissors behind and before; into which the ligature can drop so as to enable you to effect the strangulation more completely. It gives a great deal of pain at the time you apply the ligature, but you must have a very strong ligature, and tie it as tight as possible. The part introduced between the ligature is immediately killed; it assumes a purple and then an ash colour, and in the course of a few hours the pain is over; but profuse salivation follows, and in some cases lasts two or three days.

There is no great difficulty in removing, either by the knife or by ligature, any tumour from the tongue, except it be situated just at the back; but then I must tell you that I never saw any permanent good arise from it in any one instance. In the examinations I have made where there was carcinoma of the tongue, the scirrhous disease was beginning in other parts. A woman has a scirrhous tumour of the breast,—do you think that you would succeed in curing the disease by cutting away a portion of the breast and leaving the rest?

You have no chance of the operation succeeding except you remove the whole, unless the scirrhous tumour be distinct with a cyst around it, and have no connection with the breast. If there be fungus hæmatodes of the tibia, no surgeon of sense would think of performing amputation, except above the knee, even if he did it there. In order that an operation for malignant disease may be successful, you must remove the whole of the organ in which it is situated, otherwise there is no chance of permanent good. In the case of malignant disease of the tongue, you cannot remove the whole, but only that little bit in which it has shown itself, while there is an under-current of disease going on every where else. I therefore cannot recommend you to perform the operation, and I think it is better to let a disease like this take its course than to subject the patient to the pain of an operation, and, what is worse, to the disappointment. The patient goes through the operation, and then in a little while he is disappointed to find that he is just as bad as ever.

I cannot say that those small ulcers of the tongue which I described before, never run into malignant disease. I suspect that any ulcer there that has existed for an indefinite time may assume the character of malignant disease. A patient had ulcers of the tongue and cheek; he was apparently dyspeptic, and, so far as I know, they were not connected with syphilis. He had been subject to them for years, and they generally yielded to some remedies; but at last I was called in to see one of the ulcers, unusually intractable, in the cheek. It had become malignant, and the patient died of carcinoma of the cheek. Where there are ulcers of the tongue, take care that there are no external causes of irritation acting upon them to keep them up; for this will sometimes convert a simple into a malignant ulcer. Teeth, scarifying ulcers in the tongue, should be extracted. In many cases rough, ragged teeth produce disease of the tongue. In malignant disease I have over and over again had the teeth taken out, while the event has proved that they might as well have remained; but still, when there is a sharp tooth cutting against the edge of the tongue, you are always to look at it with great suspicion.

There is one other disease of the tongue, or rather a disease under it, which remains to be mentioned. A patient comes with a sore mouth, and you see the tongue pushed up to the soft palate. It looks as if the tongue were enlarged, but that is not the case, it is lifted up. You tell the patient to put his tongue against the incisor teeth, and on looking beneath you see a tumour. By feeling it you find fluctuation; you puncture it, and let out a quantity of transparent fluid, sometimes a teaspoonful or more. The fluid is a little glutinous, and consists of saliva. There has been an obstruction to the orifice of the submaxillary gland; the saliva has been secreted by the gland, but could not get out by the duct, and hence it has remained till it has formed a large tumour. This is what is called ranula.

You puncture the tumour with a lancet; the fluid comes out, and immediately the patient is well. You see him a week afterwards; he is quite well, and there is the saliva flowing out of the orifice you have made with the lancet. But you see him a month afterwards,

and the tumour has re-appeared, the orifice has healed, and the tumour becomes as large as ever. All you want is, to get a permanent orifice from the bag into which the duct has been converted; but that is a very difficult matter. I have tried to effect it in various ways. I have punctured the bag, and then touched the edge with caustic potassa to prevent its healing. The patient has gone on very well so long as it did not heal, but as soon as I have left off applying the caustic the orifice has closed. I have introduced a tenaculum into the bag of the ranula, and cut away a piece sufficiently large to admit the finger; the patient has then continued well for a longer time, because the part takes longer to heal, but contraction takes place, and the patient is bad again. I have run a seton through, and the patient has then gone on well for a considerable time. I have introduced a gold or silver ring, and kept that in as a seton. If the seton be kept in a considerable time it seems to effect a permanent cure, but even that fails, and you have to perform the operation two or three times. I know of nothing better than the use of a seton, and I believe that it is better made of metallic substance than of silk. It does not so soon ulcerate its way out, and if it remain in for a long time the edges of the orifice through which the seton is introduced may become covered with mucous membrane. If you introduce a silk or India-rubber seton in the back of the neck, after a great length of time a sort of skin forms on the inner surface of the canal; there is a discharge of matter; and when you take away the seton, the part in which it lay remains pervious. So if you keep a seton in a ranula for a very long time, the opening may remain pervious. The advantage of a metallic over a silk seton is, that it does not ulcerate its way out so soon, does not get putrid in the mouth, and therefore may be kept in for a longer time.

LECTURE XVII.

NON-MALIGNANT TUMOURS OF THE TONGUE.—PARALYSIS, ITS CAUSES, AND THE DIFFERENT FORMS OF IT.

In my last lecture I spoke of diseases of the tongue. I should have mentioned that other kinds of tumours than those I there described occur in that organ, just as they do in other parts of the body. Their formation in the tongue is not a frequent occurrence; nevertheless, you meet with them sometimes. A gentleman came to me with a tumour of the tongue, which was distinguished from common scirrhus by its being further from the surface, and very distinctly circumscribed: still, from the hardness of the tumour, I was led to suspect that it might be of a malignant nature. Had I found the same kind of tumour in the female breast I should have said that it was scirrhus; but as it had not the character of common scirrhus of

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the tongue I entertained doubts upon the subject. As an experiment I gave the patient tincture of iodine, eight or ten drops three times a day, gradually increasing the dose to twenty drops. After taking this for a short time the tumour appeared reduced in size; and on continuing the medicine for some time longer it was still more reduced, and it ultimately disappeared entirely. What the nature of the tumour was I do not pretend to say. I may mention one circumstance connected with this case, by way of putting you on your guard as to the use of tincture of iodine. The patient wished to go into the country, to which I gave permission, provided he would have a medical attendant to look after him while taking this remedy, adding that I could not sanction any patient of mine taking this medicine except under medical observation. He took the iodine without placing himself under medical care; and its action not being properly watched, he one day had a paralytic stroke. He instantly left off the medicine, and he ultimately recovered. This is only one case of many which I might mention, to show that iodine often produces powerful effects on the nervous system, and that it is not to be taken —at least in large doses—without considerable caution. I remember seeing a patient who had a large elastic tumour, or some fluctuation in the tongue, of considerable size, apparently as big as a nutmeg. It was perceptible chiefly on the lower surface of the organ. The surgeon, under whose care the patient was, divided the tongue over the tumour to see what it was, and out came a cyst containing fluid—I suppose an hydatid. The patient got well. These observations are intended to finish the subject to which I before called your attention.

PARALYSIS.

I now enter upon another topic. When such a change takes place in the nervous system that the mandates of the will are not conveyed to the muscles, we say that there is paralysis. Paralysis may be, and generally is, attended with a loss of sensation also to a greater or less extent; but this is not a matter of course. The nerves of sensation may be affected without involving the nerves of motion, and *vice versâ*.

Paralytic affections may depend, as you may suppose, on various causes. Mere general deficiency of nervous agency; the accidental division of a nerve of the spinal cord; pressure upon any part of the nervous system; tumours or other morbid alterations of structure in the brain and spinal marrow, will produce paralysis.

Where there is a tumour or morbid alteration of structure, in some instances, the paralysis will come on gradually; but it is a remarkable circumstance that in many instances that is not the case. Disease is going on, perhaps, for months, or even years, and all at once there is a sudden stroke of paralysis. For example, the late Dr. Wollaston, the eminent philosopher, had a disease of the brain, which proved to be a tumour situated in one optic thalamus, and it produced in him a remarkable effect. He saw one half of an object, and not the other

half. He used frequently during life to talk to me on the subject of this peculiarity of vision. He had it when a boy at school, but when sixty years of age he was all at once seized with paralysis in one arm, that extended, and he died. On the post-mortem examination we found a tumour as large as a walnut connected with one optic thalamus. A gentleman consulted me last year who had, all at once, become paralytic in the lower limbs. I need not detail the case; he ultimately died, and on examining the body, I found a tumour in the middle of the spinal cord, at the back, which evidently must have been growing for years. This was proved by other symptoms, but there had been no paralysis. I attended a gentleman for diseased prostate gland; he was in a very miserable hypochondriacal condition, and used to cry without any evident reason for it. One day on going to the close-stool he all at once became paralytic on one side of the body, and he died. On examination we found *ramollissement* of one complete hemisphere of the cerebrum.

The sudden occurrence of paralysis in these cases is to be accounted for in the following manner:—The tumour or morbid alteration of structure goes on in the brain, and then there is a sudden effusion of serum into the ventricles. In Dr. Wollaston's case the tumour grew so gradually that it did not affect the functions of the brain; but all at once it projected into the ventricles so as to produce irritation of the lining membrane, and then there was a sudden effusion of water into the ventricles. It was the same with the gentleman who died from ramollissement of the brain. That must have been going on for months, and no doubt produced low spirits, a disposition to weep, &c. On examining the body after death we found the ventricles distended with water, and I conclude that it was the sudden effusion of water there that caused the sudden paralysis. I know of some other cases in which water has been effused into the ventricles of the brain, independently of inflammation, in a very short space of time. The ancient writers distinguished between sanguineous and serous apoplexy. In the former, blood is extravasated from the rupture of a vessel in the brain; in the latter, water is effused into the ventricles, and both occurrences may take place suddenly. I have known a person become quite apoplectic in a few hours, having been perfectly well before; and on examining the body after death, I have found the ventricles distended with serum.

Again, the sudden occurrence of paralysis in the case where there was a tubercle in the spinal cord, I apprehend, was to be explained by this circumstance, that all below the part where the tubercle was situated was in a state of softening, or *ramollissement*, as the French call it; but I shall have to advert to this subject again presently.

Different names have been given to different forms of paralysis. You hear of *hemiplegia*—half the body being struck. Sometimes there is paralysis in one leg, one arm, or down one side of the body, and not the other side, and this form of paralysis is generally called *hemiplegia*. It always depends on disease in the brain itself. The right side of the brain belongs to the left side of the body, and *vice versâ*. If the left leg and arm, therefore, become paralytic, you con-

clude, as a matter of course, that the disease is on the right side of the brain. Another form of paralysis is called *paraplegia*. That word has been used rather indefinitely, but still I believe that every one who has employed it has meant to say that the paralysis was not confined to one side of the body, but exists on both sides. The Greek preposition παρὰ signifies "stroke across."

Now, it is to the various cases that are confounded with one another under the name of paraplegia to which I wish to call your attention in this, and probably, in my next lecture.

You will often find a person with these symptoms,—I think I see such a case every month of my life. The patient complains of a difficulty of walking; he finds that he stumbles easily. When he attempts to use his limbs he sometimes finds that he cannot carry his intention into effect; the muscles do not exactly obey his will. He finds that he does not stand steady; that he must put his feet asunder in order that they may be wide, otherwise the centre of gravity is apt to go too much on one side. This difficulty increases, at last he walks very unsteadily indeed; the muscles of the lower limbs become flaccid; the weakness of the muscles extends upwards, and generally there is a loss of sensation. For a long time the latter is not complete, nor is there a complete loss of the power of motion, but the disease is gradually creeping on. By and by the patient complains of a loss of power below his waist, and not only has he a difficulty in walking, but there is a difficulty in making water; he cannot command the bladder, the urine runs away involuntarily, wets his clothes, wets the bed-clothes, and makes him offensive to himself and to others. This generally happens from the bladder being overloaded, and not being capable of emptying itself; though sometimes it is the reverse; the bladder is actually empty, and continues so, for the urine runs through without distending it. Generally, however, it is an overloaded bladder that produces incontinence of urine. The patient then has a sense of constriction as if a hoop were bound round his waist. That is a very constant symptom in these cases. Then he will complain of a sensation as though a ligature were bound round each thigh and each leg, and there is increasing numbness, with a sense of weight in the feet.

In some instances the disease remains just as I have described it; and I have known persons go on in this way for many years. I remember a gentleman who had just the symptoms I have mentioned, respecting whom I was consulted, but for whom no good could be done, and I used to see him crawling about the streets for years afterwards. But in other cases the disease goes on; the lower limbs become completely paralytic, then the upper limbs become affected, first one arm and then the other. In some of these cases the bowels are exceedingly costive; they are not to be acted upon, even by the strongest medicine, and very frequently there are pains in the abdomen. Sometimes you find the disease making rapid and at other times slow progress.

Thus I have given you a general description of the symptoms, such as are applicable to the majority of cases of paraplegia with which you will meet, commencing in the lower limbs. We now

come to consider what are the different causes on which these symptoms may depend, and what the different diseases that are indicated in this manner.

One, and, I believe, the most common cause, is that I have mentioned—a morbid change of the minute structure of the spinal cord; that is to say, softening, or *ramollissement*. The change that occurs at other times in the brain takes place in the spinal cord after a concussion of the spine. A very common effect of concussion is to injure its minute structure, and then to a greater or less extent it dissolves into a substance like cream. In this state of softening it first loses its natural consistency, but still retains the character of solid substance. By and by it becomes completely melted down to a substance like cream; the membranes can hardly be lifted out, and when placed in water the spinal cord floats, and the membranes remain by themselves. What produces this softening I cannot say. Some have said that it is inflammation, but certainly there are no marks of inflammation; there is no unusual vascularity preceding or accompanying the softening; there are no vessels loaded with blood, and, indeed, the parts are rather less vascular than natural. All that can be said is, there is some peculiar change of structure, the proximate cause of which we cannot explain, nor very often the remote cause. A young lady had this state of the spinal cord, and ultimately died from it. She was a healthy young woman in other respects, and there was nothing to explain it. There is one very common cause of it—not in young women but in men—men who rank among what is called the *better* classes, which, I suppose, means only that they are richer than others; at any rate they are not better in the point I am going to mention. There is a class of people, in London especially, who have no employment, who have large fortunes, and who spend half their time in intriguing with women; and in many instances you may trace the disease of the spinal cord to over-indulgence in sexual intercourse. Though we know more of the appearances after death than did the ancients, yet they very well described paralysis arising from this cause when they spoke of it as *tabes dorsalis*.

That is one cause of paraplegic symptoms, but from what other causes may they arise? A gentleman had formerly some pain in the back, or some symptoms which led a surgeon to apply a caustic issue in the neighbourhood of the spine. This was almost forgotten, but about two years ago, in walking, one of his feet gave way, and if his brother had not been with him he would have fallen to the ground; but he was very well again afterwards. By and by, however, he was seized with violent pain around the waist, and it was treated, without any relief, as rheumatic pain. After a time he became completely paralytic in both limbs, he lay in bed for a few days, and then recovered, so that he could walk about the room. This did not last long, he again became paralytic, the bowels were constipated, and no medicine would act upon them. The secretions from the bowels became black, like tar, the urine alkaline, and he died. This was the case which I mentioned just now. On examining the body after death there was a tubercle in the spinal cord, which no doubt had

been growing for years. It was a hard, solid tubercle, and below it the spinal cord was soft. I presume that the pain which preceded the paralysis indicated the commencement of the softening of the cord below the tubercle. I have seen other cases of medullary tumours around the spinal cord producing paraplegia of the parts below.

Another cause of this affection is an unnatural effusion of fluid into the theca vertebralis. A gentleman was brought to London completely paralytic in the lower limbs; he could not even turn in bed. By and by the upper limbs became paralytic, and he ultimately died. On a post-mortem examination I found no morbid appearances, except an immense secretion of fluid within the theca vertebralis; the dura mater and the arachnoid membrane lining it were also entirely distended with fluid, so that when the posterior part of the ventricle was removed, the fluid bulged into the opening. It was not measured, but a large quantity of fluid ran out of the theca vertebralis when the membranes were opened. There was no other disease either of the brain or the spinal marrow, and what produced this unusual quantity of fluid I do not know; there may have been some disease in the minute structure which we could not discover. Sir Astley Cooper informed me of a similar case.

Paraplegia sometimes occurs in patients who labour under carcinoma. A gentleman had a diseased prostate gland; it was much enlarged and indurated, and there was great pain in the region of the prostate. After a time he was seized with severe pains in the back and in the limbs, such as patients frequently have who labour under carcinoma—intense agonizing pain, which nothing will relieve. These pains, in fact, depend on carcinomatous disease in the bone, and the bones of patients thus affected will break from merely turning in bed; I have known this occurrence to take place in the femur. This gentleman, with disease of the prostate, suddenly became paralytic in the lower limbs, and died; there was no post-mortem examination of the body. A lady whom I attended last year was suffering from a hopeless case of carcinoma in the breast, and agonizing carcinomatous pains in the limbs. One day she became paralytic, lost the use of the lower limbs, and died. Here, also, there was no post-mortem examination. But I met with the following case:—A lady consulted me concerning a scirrhous tumour in the breast. She had gone through the operation for it a year or two before; the disease had returned, and therefore, as far as this was concerned, nothing could be done. By and by there were pains in the limbs and in the back. One night, all at once she lost the use of her lower limbs—could not move them. She died; I was engaged at the time, and could not attend the examination of the body, but Mr. Cutler conducted it. He found, as we had expected, carcinoma of the bones of the spine, and the disease had extended to the dura mater. The carcinomatous bones did not press on the spinal cord; but the disease had produced irritation of the arachnoid membrane, and there was a large secretion of bloody fluid into the theca vertebralis near the cavity of the arachnoid. It was evident that the collection of fluid in the theca vertebralis had been the cause of the paraplegia.

It has been said that paraplegia—paralysis of the lower limbs generally—depends on disease of the brain and not of the spinal marrow. This was maintained by Dr. Baillie, and published in a paper of his in the Transactions of the College of Physicians; but he gives no facts on which the opinion is grounded. It seems to have been a notion taken up by him without any facts to justify it. However, there is reason to believe that, under certain circumstances, disease of the brain may produce paralysis in the lower limbs before it produces it in the upper. I examined the body of a man who was paraplegic, and I found water in the ventricles of the brain, but no disease connected with the spinal marrow. That you may have disease, however, in the brain and in the spinal marrow, combined in the same individual, there can be no doubt. Some of those young men, who, from foolish habits, become paraplegic in the lower limbs, have also cerebral symptoms. There may be softening of the lower half of the spinal marrow, and of a good part of the brain. I think that if there is an entire absence of cerebral symptoms you have a right to conclude that the disease does not exist in the brain, but is confined to the parts below; if, however, the patient says he has double vision, if you find one pupil dilated and not the other, and there be pain in the head and giddiness, you have a right to conclude that there is disease in the brain; but still if there were absolute paralysis I should conclude that there was disease in the spine also.

The case which I am about to mention is a very remarkable one. About nine years ago I was sent for into Lincolnshire to see a gentleman who was paralytic in the lower limbs. The symptoms of paralysis had exhibited themselves eight years before, and at the same time there was pain referred to the epigastrium. The disease had now extended upwards, the arms were beginning to be affected, and there was also dilatation of the pupil of one eye; but at the commencement it was a case of regular paraplegia. Neither my advice nor that of any one else did any good, and the disease was left alone. Ten years afterwards his wife was very ill, and he was brought with her to London. She came for medical advice; but his case being considered hopeless he did not consult any one. He was now completely paralytic in his limbs and arms, he could scarcely speak, and he could only just swallow. He lay as though the head were alive and nothing else. His wife died, and he soon followed. I obtained leave to examine the body. Mr. Tatum and another friend accompanied me. We all three made a very careful examination. What we might have found if the spinal cord and brain had been macerated in alcohol, and if we had traced the fibres and examined them with a microscope, I cannot pretend to say; but, with such an examination as we could make in a private house in the course of a couple of hours devoted to it, we could not detect any morbid appearances at all. The spinal cord seemed rather smaller in size than usual, there was some little effusion between the pia mater and the arachnoid, and at the upper part of the spinal cord there was manifestly a blush. The patient had felt for a considerable time pain in the epigastrium, and I thought that might indicate some disease in the plexus

there. We took it home with us; Mr. Tatum dissected it with the greatest care, but nothing could be discovered. Do not, however, suppose that I believe this to be a mere functional disease, because we see nothing after death. The minute organization of the brain and spinal marrow is not visible to the naked eye, and even with the microscope you can only trace it a little way. I doubt not that there was some defect in the minute organization of the body, some change of structure not perceptible to us. I cannot suppose that such a train of symptoms could occur from mere functional disease.

Another cause of paraplegia is inflammation of the lower part of the spinal cord. I read yesterday in a medical journal an account of a man who had pain of the lower part of the back, and in the course of a fortnight he became completely paralytic in his lower limbs. On examining the body after death, the spinal cord was found softened, there was blood extravasated here and there, and it was said that the spinal cord bore marks of inflammation; but I am inclined to believe that inflammation of the membranes is a more common cause of paraplegia than inflammation of the spinal cord itself.

I have known a severe attack of lumbago to be followed by an attack of paralysis. I was consulted by a gentleman who had what was called severe lumbago. I only saw him once, and that in consultation, and I recommended that he should be cupped and take mercury. Some time afterwards I was asked to see him again, and then there was entire paralysis of the lower limbs. He remained in that state for some years, and then he died. After seeing this gentleman a second time, and whose case was clearly one in which severe lumbago was followed by paraplegia, I went to the house of the late Dr. Davies, of the London Hospital, to see his preparations, and amongst them was one of the spinal marrow with the membranes, the lower part, especially about the cauda equina, being encrusted with coagulated lymph. On making inquiry about the preparation he said that it was rather a curious case—that the patient had had violent pain in the loins, which was followed by paraplegia —that he died, and those were the morbid appearances. In fact, he described exactly the case of the paraplegic gentleman whom I had just visited. I have seen, I will not say several, but some cases of severe lumbago in which the patient was threatened with paraplegia, but recovered under the employment of proper treatment. There was a gentleman who had some rheumatic complaint for which he used a liniment made of tincture of cantharides. One day, by mistake, he swallowed a bottle of liniment instead of his medicine. He soon found that he had got something monstrously hot in his stomach. He had to obtain advice, and then an emetic had to be procured, so that three-quarters of an hour were lost, and by that time the tincture of cantharides had nearly passed out of the stomach. Immediately afterwards he was seized with pain in the loins, there was strangury, great pain and difficulty in making water, and this was followed by partial paraplegia; by making an effort he could walk about. I conclude that the operation of the cantharides produced

inflammation of the lower part of the spinal cord. Whether he recovered or not I do not know.

There is no doubt that paraplegia sometimes occurs as the result of functional disease. For example, a young lady, very delicate, with nervous symptoms, weak bodily powers, and an hysterical constitution, and whose sister laboured under an hysterical affection of one limb, began to be weak in her lower limbs, and walked about with some difficulty. The pulse became very small, her hands and feet cold, her appetite bad: she was one of those young women with whom we so commonly meet in the affluent classes of society, and sometimes in the lower. Finding this difficulty in walking about, and being little disposed to it, much more inclined to lie on the sofa, ready to avail herself of an excuse for not making exertion, she consulted a physician in the country, who told her that she had better use crutches. Her limbs then became paralytic, so that she could not stand, and it was supposed that there was disease in the spine. I went to see her, and after taking great pains I concluded that it was one of those cases so common among hysterical women. I advised that her attention should be called to her case as little as possible, that she should take steel from time to time, that she should be encouraged to use her limbs, that the crutches should be taken away, and a bar put across the room, by holding which she might walk along, and under this treatment she, in the course of a considerable time, walked about. She continued delicate, but the paralytic symptoms were gone. A poor girl was in this hospital, under the care of Dr. Seymour, for what he considered a mere hysterical and nervous affection of the limbs—a girl that wanted tonics, steel, and good diet. She went out of the hospital; some person under whose care she came thought that paralysis was coming on, and he cupped her again and again, blistered her, and kept her low. All the time that this treatment was pursued, she got worse, and she came into the hospital again, with her lower limbs paralytic, with large sloughs on the nates and ankles, and she died. On examining the body after death we could find no morbid appearances whatever, and, taking the history of the case and the post-mortem examination together, I cannot but believe that the disease under which she laboured, was that general want of nervous energy to which hysterical young women are liable, and that the aggravation of the symptoms was the consequence of injudicious treatment by taking away blood from a person who rather wanted blood put into her, and by tormenting her with other painful remedies.

These are the principal causes of paraplegia affecting the lower limbs, so far as I have had an opportunity of observing the disease. I need not tell you that diseases in the vertebræ will produce paraplegic symptoms; but it is not my intention at this moment to enter on diseases of the spine.

LECTURE XVIII.

PARALYSIS—(*Continued.*)

In my last lecture I described a class of paraplegic cases, in many of which the paralysis affects the lower limbs first, then creeps upwards and attacks the upper limbs, the brain ultimately becoming affected. It is not, however, a matter of course that the paraplegia should begin in the lower limbs; it may commence in the upper limbs. It may be the result of disease affecting the upper portion of the spinal cord, that disease being either inflammatory or chronic—an alteration of structure, in fact; there being the same differences here as when paralysis affects the lower part of the spinal cord.

There is on the table a preparation taken from the body of a gentleman whose case I will mention. He was a young man of irregular habits, drinking a large quantity of wine, and a good deal exposed to wet and cold in hunting. From this exposure to cold and wet he had a severe pain in the neck, which was supposed to be of a rheumatic character. He neglected it, went hunting, and drank wine as usual. In spite of this neglect, the pain subsided, and he thought that the disease was gone. But about three months afterwards he became paralytic in one arm, and then in the other. The muscles were not all paralysed, for with one hand he could take hold of the other, and lift it out of its place; but after a time the arms became completely paralytic. He now came to London and placed himself under my care. There was tenderness of the neck, there appeared to be some enlargement of its posterior part, and by and by one lower limb became paralytic, and then the other. He subsequently became comatose, lay in that state some days, and then died. On examining the body after death we found the original disease to be that which you now see on the table. A tumour was inside of the theca vertebralis, but outside of the dura mater. There was a deposit of lymph, of considerable thickness, which had become organized, extending from the great occipital foramen down to about the fourth cervical vertebra, but it was not quite sufficient to press on the cervical portion of the spinal cord. Outside of the spine there was a quantity of coagulated lymph—a large mass along part of the bodies and sides of the vertebræ, and this communicated with lymph inside by processes of lymph extending through the openings by which the nerves passed out to form the cervical plexus. The immediate cause of death was effusion of fluid into the ventricles of the brain, that circumstance occurring in this case which I mentioned in the last lecture. The malady went on till the ventricles were attacked, and then the fatal disease was superadded to the original affection. There was no disease in any part of the spine below that I have mentioned.

In this case the upper limbs became paralytic first, and the lower afterwards, and that is the usual course where there is disease affecting the upper portion of the spinal cord. It is the case in disease of the vertebræ, as I shall mention presently.

A lady came to London some years ago to consult Sir H. Halford and myself. She had become paralytic in the upper limbs, but that was all. She could walk about and do every thing but use her upper limbs; and in these one muscle had given away after another till the paralysis was complete. She then began to experience considerable difficulty in swallowing, showing that the disease was not under the control of medical treatment, and we advised her to return to the country. She went, and there she died. I am not certain whether or not she became paralytic in her lower limbs; but her surgeon in the country examined the body after death and sent the result. The disease was confined to the cervical portion of the spinal cord, and from ramollissement, similar to that which I described as taking place in the lower part of the cord, it was reduced to the consistency of cream.

Cases of paraplegia affecting the upper are not nearly so common as those affecting the lower limbs; but we see them every now and then. The opportunities of post-mortem examination, of course, are rare, but I have conducted two, and from these I should conclude that the seat of the disease is generally to be found in the cervical portion of the spinal cord.

Caries of the spine produces paralysis of the parts below, as you are well aware, and so far there is a resemblance between the symptoms produced by caries of the spine and those diseases of the spinal cord to which I have adverted in this and the preceding lecture. Owing to this similarity between the symptoms of the two diseases, cases of paraplegia are continually supposed to be cases of diseased spine. This, however, is a great error, because the treatment proper in the one case is quite improper in the other. Where there is caries, it is necessary that the patient should remain a year or two in a recumbent posture, but that is not requisite in cases of disease of the spinal cord, and probably is sometimes injurious. In many cases of caries it is right to make caustic issues, apply setons to the back, and adopt counter-irritation; but, where there is disease of the spinal marrow, if these remedies are not useless, yet they torment the patient, make a great demand on his bodily powers, and besides exhausting his strength, are sometimes absolutely injurious. Over and over again have I seen cases of paraplegia depending on disease of the spinal cord treated with caustic issues, seton, and blisters, but without being productive of the smallest benefit; on the contrary, they are generally prejudicial, independently of which they make the patient miserable.

But how are we to distinguish cases of caries of the vertebræ from cases of paraplegia depending on disease of the spinal marrow? In the former there is generally pain in that part of the spine that is affected. There is one kind of caries, which I call rheumatic caries of the spine, in which the pain is very severe, and in which pain is produced by percussion on the spine; even in cases of scrofulous caries there is generally some pain in the part affected, and some pain on percussion, but it is not constant; and there are many cases of scrofulous caries in which this diagnostic symptom (pain) is abso-

lutely wanting. This circumstance will help you in the diagnosis to a certain extent, but it is not of itself sufficient. If there be great pain in one part of the spine, and pain on percussion, you may be pretty sure that it is not disease of the spinal cord. I speak of pain that is indubitable, not imaginary pain. It is easy so to squeeze the processes of the vertebræ that the patient says it gives him pain. Still the absence of pain does not prove that the disease is not in the vertebræ, because in cases of scrofulous disease sometimes there is no pain. Paralysis, however, in cases of disease of the vertebræ, does not take place at an early period; it rarely occurs before there is angular curvature of the spine, and sometimes curvature to a considerable extent. That is a very important diagnostic mark. In cases of disease of the spine there is generally cramp in the lower limbs, and the posture of the patient is of a peculiar nature. The flexor muscles generally act, draw up the thighs and bend the legs, and you will find the patient getting into that position, with his knees drawn up towards the chest. By combining these diagnostic marks with each other you may generally make out whether the disease is within the theca vertebralis or external to it.

I now come to make some observations on the treatment of these cases, but it is rather difficult to lay down any clear rules for your guidance; that is, the treatment ought to differ according to the nature of the disease, but we have not yet sufficiently advanced in our knowledge of this complaint to be able to state positively whether the disease be of one kind or another. If the disease be an inflammatory affection of the membranes you may distinguish it tolerably well; but if it be of a chronic character, it is difficult to discriminate between softening of the spinal marrow, tubercles in the spinal cord, and effusion of fluid into the theca vertebralis. I really am not able at present to tell you how to distinguish one of these diseases from the other, in the living person, besides which the three may be combined together, or there may be one first, and the others may supervene.

However, let us suppose that there is a case, such as I have just described, of inflammation of the membranes of the spinal marrow. The patient comes to you with a severe attack of dreadful lumbago, and by and by he states that there is numbness in the legs, and then difficulty in moving them. In this case you may be pretty sure that there is inflammation of the membranes of the lower part of the cervical cord. How is that to be treated? In the first place take blood by cupping, from the loins, and repeat it according to circumstances. Begin by purging the patient, clearing the bowels well out—a right plan to pursue in all cases of inflammatory disease. Then put the patient under the influence of mercury, exhibit calomel and opium, and treat him as you would a patient labouring under pleuritis or iritis. If I am not much mistaken I have several times seen the disease stopped by the exhibition of mercury. I have known a patient labouring under numbness of the limbs and incipient paralysis, recover when the gums were made sore by mercury. But if you are called in at a late period, when the inflammation has subsided, and

the paralysis consequent on it remains, even then you cannot do better than put the patient under a course of mercury, though not such a course as you would employ in the beginning of the disease. You must not now exhibit two or three grains two or three times a day, but a mere alterative course—five grains of Plummer's pill, night and morning—the eighth of a grain of bichloride of mercury twice a day, in addition to which you may apply blisters to the lower part of the back.

The result will vary in different cases according to the time at which the treatment is commenced, or according to the intensity of the disease. In some cases you may obtain a perfect cure under the use of mercury; in others, an imperfect one. A gentleman riding in a second class railroad-carriage was exposed to a draft of cold north-easterly wind from one to two hours. The next day there was pain in the neck, and two or three days afterwards his hands were benumbed. In the course of a week both his arms became paralytic, and then the lower limbs also. We put him under a course of mercury, and he partially recovered, so that he was able to walk about and write, but he was still paralytic to a certain extent.

The treatment of a chronic affection of the spinal cord producing paralysis, must be, to great extent, empirical, because you cannot make a certain diagnosis. Let me repeat what I have just now observed, that I have never seen any beneficial results arise from the use of counter-irritation; on the contrary, I have often seen it productive of mischief. Probably the bowels are very torpid,—they will require to be kept open, and it is very difficult to effect it. Sometimes very strong aperients are necessary for this purpose; but it is essential that they should be kept open, for the secretions of the digestive organs are very often exceedingly disordered. The stools will be black, like tar, and the lodgment of the black secretion in the intestinal canal, appears to be productive of great mischief to the system. Calomel and a black draught may be exhibited every now and then, but a patient cannot take them from day to day. Sometimes the comp. ext. colocynth will be sufficient, but simple purgatives often fail. The pills which I am about to mention I have found to be convenient in cases of this kind. Two scruples and a half of comp. ext. colocynth; half a scruple of soap; one drop of croton oil. Let these be well rubbed up and carefully mixed, and divided into a dozen pills, one or two of which may be taken every night or every other night when wanted. These are excellent pills; they cause nothing like the inconvenience produced by large doses of croton oil, and are very efficient indeed. The disease is very probably quite incurable, and it does not matter what medicine you give the patient. But still every now and then the progress of the disease is stopped, and the patient gets very well again.

The treatment which I have found to be most successful, and under which I have seen the greatest benefit arise, is a grain of zinc made into a pill and given three times a day, and then a draught of twenty minims of tincture of cantharides to wash it down. If you dissolve the sulphate of zinc in the draught it makes it nauseous,—you may

as well give ink. After a time the sulphate of zinc may be increased, and if you please, you may carry it up to five or six grains; but I do not advise you to do it, for if you increase it to a certain point, it makes the patient sick, and you cannot induce him to take it afterwards. It is from the continued use of the zinc, and not from the exhibition of large quantities, that benefit is to be derived. The zinc may be increased to a grain and a half, and the dose of tincture of cantharides may be also increased, but I do not advise you to go beyond what I have stated of the latter; for if you do it is very apt to irritate the urinary organs. The tincture of cantharides is a diuretic, and some have supposed that it does the most good when it acts as such; probably that may be the case, but it seems to be a stimulus to the nervous system also. I mentioned a case in my last lecture in which a gentleman became paralytic in the lower limbs from inflammation of the lower part of the spinal marrow, induced by a local disease arising from the tincture of cantharides swallowed by mistake. It is easy to suppose that large doses of this agent may excite the vessels of the spinal cord so as to produce inflammation, and that very small doses may be a grateful stimulus to it, tending to restore its power in cases of paralysis. The best recoveries that I have seen, have been under this treatment. Some patients have appeared to get very well again; in others the disease appears to have been suspended,—it has made no farther progress. I see a gentleman every now and then who laboured under paraplegia, and in whom this treatment was employed. He is now able to walk about, though his limbs are still weak; he has been neither better nor worse for some years. In other cases I have thought that benefit has arisen from the long-continued use of very small doses of bichloride of mercury combined with tincture of cantharides. Small doses do not seem to act as mercury on the system. I apprehend it acts much in the same way as the sulphate of zinc. Exhibit the sixteenth of a grain of bichloride of mercury in a certain quantity of tincture of cantharides, in a draught three times daily, and such plan of treatment will sometimes be useful. But it is right to state that in a great number of cases of chronic paraplegia the disease is incurable. The disease, however, may go on for years before it ascends to the brain and destroys life.

I have described to you paraplegic affections occurring in cases of hysteria. These instances are not very uncommon, but paralysis arising from hysteria is very different from that originating from organic disease or pressure on the spinal cord. In hysteria the evil is not that the muscles do not obey the will, but the will is not exercised. It is a remarkable circumstance that a woman will be paralytic, think that she cannot use her limbs, and yet on something exciting or agitating her she can walk very well; and sometimes what is supposed to be paralysis in hysterical women is altogether a cheat. A young lady was supposed to be paralytic in her lower limbs, but on some one going in to look at her, they discovered her standing on a chair to reach down her bonnet. It is right that you should be aware of the tendency to practice deceit in all hysterical

persons, and that you should make allowances for it; for it is a curious fact that some of those who are prone to deceive about their complaints turn out very well afterwards, and constitute some of the best members of society. One person will pretend to pass gravel which she has picked out of the earth; another will pretend to pass black urine which she made black by mixing ink with it; and another will pretend to be paralytic who is not paralytic at all. You should never expose these patients if you can avoid it, but try to get their attention directed to other things; for if you expose them, even to their own families, they will scarcely ever recover their character, whereas when the disposition to hysteria is removed, many of them become excellent persons.

As this is not a systematic course of lectures, I am not particularly careful about the order in which I bring the subjects before you; and I shall conclude this lecture by adverting to some other cases of paralysis about which you will be consulted, of a different nature from those I have hitherto described. You will find a person paralytic on one side of the face, and nowhere else, and this may indicate some formidable disease, but that is not usually the case—there is no great mischief, and the patient gets well. The paralysis, if confined to one side of the face, does not excite any fear, as in the case of cerebral paralysis. It frequently arises from pressure or other injury affecting the portio dura. A person is exposed to a draft of cold air, and the next day one side of the face is paralyzed, but it is unaccompanied with pain; the patient, however, becomes frightened, fancies that she is going to be paralytic, and her friends participate in the feeling. Let her be careful not to expose herself to the draft again, give her blue pill every night, an aperient every second or third day, let her live moderately, and in nine cases out of ten the muscles will begin to act, so that in two or three months she will be well. I cannot exactly say what is the pathology of such cases as I have just described. There is some deficiency in the nervous power; there may be inflammation of the neurilemma, or of the canal through which the nerve passes, but certainly there is no pain indicating its presence. There are, however, other cases in which there is clearly inflammation—inflammation of the petrous portion of the temporal bone. A gentleman was seized with terrible pain in the ear, it increased in severity, went to the head, became intolerable, keeping him awake at night, and making him almost delirious. One side of the face became paralytic, and he came to London just at that period. Dr. Chambers and myself were consulted on the case, and we concluded that there was inflammation of the petrous portion of the temporal bone extending from the tympanum. We cupped him again and again, put him under mercury, and made the gums sore. The pain then relaxed, the paralysis was gradually removed, and he got well. I saw him lately, and found him using one side of the face as well as the other. I believe that in these cases inflammation of the tympanum takes place first, and that it extends thence to the bones in the neighbourhood.

The treatment to be employed is that which I have just mentioned,

and it almost invariably succeeds; namely, taking away blood, purging the patient, and making the gums sore with calomel and opium.

Partial paralytic affections may take place anywhere. A dropping of the eyelid—ptosis, from paralysis of the levator muscle—is not very uncommon. Occasionally it depends on something in the state of the system, apparently without organic disease, causing an insufficient supply of nervous energy to the muscle. It may be relieved in some instances by a course of plue pill, occasional purgatives, and so on; but where it has existed for a long time, and these simple rules have failed in removing it, according to my experience it has originated in disease within the cranium, and you may expect to find deposit on the nerve there, or disease in that part of the brain from which the nerve arises. A gentleman had tic douloureux of the face; he then had epileptic attacks and ptosis of one eyelid; the eyelid completely dropped. The body was examined after death, and we found the base of the brain—the cerebrum—in a state of ramollissement to a considerable extent. All that part of the brain from which the nerves had originated, was in a state of softening, and this accounted at once for the epilepsy, the tic douloureux, and the ptosis. Paralysis of the upper eyelid after an injury is not of serious consequence; it may arise from an extravasation of blood pressing upon the nerve, and that may be absorbed; but it is a very bad symptom when it follows inflammatory disease of the brain; for it is then generally the result of a deposit of lymph, or probably of matter, at the part whence the third pair of nerves has its origin.

It is not unusual to find partial paralytic affections in the lower limbs. A patient is exposed to cold, and then finds that he is unable to walk. On examination you discover that a part of the leg is numbed, and some of the muscles, but not all, are paralytic. Put him on a course of blue pill, combine with it the use of some liniment, and he gets well. It is an affection of a nerve itself, not of nervous centres.

You will be consulted about children who are paralytic. There is a peculiar paralytic affection of the limbs, that occurs in children who are very young. The child generally has a fit at the time which has terminated in water in the brain, and some time afterwards one or more limbs become paralytic, or one set of muscles in a limb and not the other. In some cases the muscles at the back part of the leg become affected, the heel is drawn up, and the child grows up with contraction of the foot. It is necessary at some time or other to divide the tendon and relieve the contraction. Sometimes all the muscles of the lower limb become paralytic, and in other cases there is paralysis in one arm. I know a gentleman who, when he was an infant, had some affection of the brain, in consequence of which, one arm became paralytic, and has continued so through life. Partial paralysis is often the cause of squinting; some of the muscles over the eyes become paralyzed, and not the others.

I saw a child with a very singular paralysis of the following kind:—It seemed that the pharynx was paralyzed, or some of the muscles external to it, which are necessary to deglutition, for it was with the greatest difficulty that he could swallow. It was evidently a paralytic affection which had come on suddenly without inflammatory symptoms. I never heard the result, but I suppose the child must have died from starvation. It could scarcely take sufficient food to enable it to grow up. I really do not know what is the change produced in the brain in these cases. It does not appear to be of any great extent, and does not extend afterwards.

I need not state that every part of the body is represented in the brain. As the mandates of the will go from the brain to every muscle, so from every part of the body, sensations are communicated to the brain, and injury to that part of the brain which belongs to a particular muscle may produce paralysis. The paralysis having once taken place, it seems to go no further. It does not destroy life; but in most cases, being once established, it remains through life. The patient is never very well; he may, however, live to be old, and if you examine the brain you find nothing at all to account for the symptoms.

A paralyzed limb does not grow like the other limb, and this is a source of great inconvenience in the lower limbs. As the child grows up, one leg is shorter than the other; some of the muscles may act and some not, but the whole of the limb suffers, and the patient is under the necessity of having a shoe with a thick sole to enable him to walk better.

If you are consulted on one of these cases in the very first instance, I believe that you may do good by putting the patient under the influence of mercury. Even within the first two or three months it is well to try the effect of mercury on what I call, in order to distinguish it, "infantile paralysis;" but after that I do not think that it is worth while to have recourse to remedial measures. I have tried all sorts of remedies, and I have seen them resorted to by others, but I never saw any good arise from them. The best thing you can do for a patient growing up with paralysis in the lower limb is, to consider whether any mechanical contrivance can be made use of to take the place of the paralyzed muscles, and enable the child to walk about better than he would otherwise be able to move.

LECTURE XIX.

EXTRACTION OF FOREIGN BODIES.

Two or three years ago I was consulted concerning a young person, a female, who had some complaint in her nostrils. There was a putrid discharge from them, and those symptoms were present which usually indicate the presence of diseased or dead bone of the nostrils; and presuming that this was the nature of the case, I prescribed sarsaparilla, and treated her accordingly. This complaint had been going on since she was quite a child, and when I saw her

and it almost invariably succeeds; namely, taking away blood, purging the patient, and making the gums sore with calomel and opium.

Partial paralytic affections may take place anywhere. A dropping of the eyelid—ptosis, from paralysis of the levator muscle—is not very uncommon. Occasionally it depends on something in the state of the system, apparently without organic disease, causing an insufficient supply of nervous energy to the muscle. It may be relieved in some instances by a course of plue pill, occasional purgatives, and so on; but where it has existed for a long time, and these simple rules have failed in removing it, according to my experience it has originated in disease within the cranium, and you may expect to find deposit on the nerve there, or disease in that part of the brain from which the nerve arises. A gentleman had tic douloureux of the face; he then had epileptic attacks and ptosis of one eyelid; the eyelid completely dropped. The body was examined after death, and we found the base of the brain—the cerebrum—in a state of ramollissement to a considerable extent. All that part of the brain from which the nerves had originated, was in a state of softening, and this accounted at once for the epilepsy, the tic douloureux, and the ptosis. Paralysis of the upper eyelid after an injury is not of serious consequence; it may arise from an extravasation of blood pressing upon the nerve, and that may be absorbed; but it is a very bad symptom when it follows inflammatory disease of the brain; for it is then generally the result of a deposit of lymph, or probably of matter, at the part whence the third pair of nerves has its origin.

It is not unusual to find partial paralytic affections in the lower limbs. A patient is exposed to cold, and then finds that he is unable to walk. On examination you discover that a part of the leg is numbed, and some of the muscles, but not all, are paralytic. Put him on a course of blue pill, combine with it the use of some liniment, and he gets well. It is an affection of a nerve itself, not of nervous centres.

You will be consulted about children who are paralytic. There is a peculiar paralytic affection of the limbs, that occurs in children who are very young. The child generally has a fit at the time which has terminated in water in the brain, and some time afterwards one or more limbs become paralytic, or one set of muscles in a limb and not the other. In some cases the muscles at the back part of the leg become affected, the heel is drawn up, and the child grows up with contraction of the foot. It is necessary at some time or other to divide the tendon and relieve the contraction. Sometimes all the muscles of the lower limb become paralytic, and in other cases there is paralysis in one arm. I know a gentleman who, when he was an infant, had some affection of the brain, in consequence of which, one arm became paralytic, and has continued so through life. Partial paralysis is often the cause of squinting; some of the muscles over the eyes become paralyzed, and not the others.

I saw a child with a very singular paralysis of the following kind:—It seemed that the pharynx was paralyzed, or some of the muscles external to it, which are necessary to deglutition, for it was with the greatest difficulty that he could swallow. It was evidently a paralytic affection which had come on suddenly without inflammatory symptoms. I never heard the result, but I suppose the child must have died from starvation. It could scarcely take sufficient food to enable it to grow up. I really do not know what is the change produced in the brain in these cases. It does not appear to be of any great extent, and does not extend afterwards.

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she was eleven or twelve years of age. Not long ago, in blowing her nose, something came out of her nostrils—a large solid substance. Her family thought that this was the piece of dead bone which was expected to appear, and it was sent to me; but, on examining it, I found that it was not bone, nor had it the appearance of ever having been organized. It was convex on one side and concave on the other, and seemed to have been formed upon a nucleus. Dr. Prout was good enough to examine it chemically, and he found it to consist of dry mucus, with phosphate of lime, such as is secreted by an inflamed mucous membrane. The mucous membrane of the nose, like that of the bladder, will, when irritated, secrete phosphate of lime. I was led, from this, to conclude that, originally, some foreign substance had been introduced into the nose, and if it were a round body, this would account for the concavity on one side of the concretion. Here was a case in which there was great reason to believe that some foreign body had been introduced into the nostrils, and had remained there for years, producing all the symptoms usually arising from diseased bone.

A little boy was brought to me a few years ago, with a putrid discharge from the nostrils. There, also, I thought that there was a piece of diseased bone. He had had this for one or two years. On looking into the nostril, however, I perceived, at the upper part, something rather larger than a piece of dead bone might be supposed to present. I took hold of it with the forceps, and, on removing it, found it was a tamarind-stone which the boy had thrust into the nostrils a year or two before, no one knowing any thing of it. In each of these cases, when the foreign body was taken away, the symptoms subsided.

Another patient was brought to me supposed to have diseased bone in the nose,—a little girl in whom there had been a putrid discharge for two or three years. There I could see nothing, but, from the symptoms, I concluded that disease was going on in the bone. I prescribed for this patient sarsaparilla, and one morning something was blown out of the nose. It was brought to me, and I discovered that it was a piece of sponge that had stuck in the nostril, and was now filled with mucus, and, I suppose, some phosphate of lime. As no one knew the history of the case, I suppose that the child must have thrust it in herself. It is not very uncommon for children to get foreign bodies into their nostrils, and these cases show that you may be led into great error by supposing that there is diseased bone when there is none at all.

In two of these cases the foreign body was blown out—came away spontaneously; and in the case of the tamarind-stone I removed it very easily with a pair of forceps. Other means, however, may be adopted for removing these foreign bodies. A child was brought to me who had got a glass bead into the nostril, and it was known that it was there. I tried to take hold of it with the forceps, but they slipped over its smooth surface. I then introduced a probe, bent in a peculiar manner, which, getting behind the bead, pulled it out.

Foreign bodies may get into the external meatus of the ear. A

child was brought to me who had got a broken piece of slate-pencil, about half an inch in length, in the meatus. You might suppose it an easy matter to get a foreign body out of the external meatus of the ear, that part being so much more in sight than the nostril. But it is often very difficult, and for this reason: in the nose you may poke with the forceps, and do no harm. I have already stated what great manipulations the nostril will bear. But what will happen if you poke with the forceps in the ear? A child was brought to this hospital with a pea in the ear. A great many attempts had been made to remove it prior to the child being brought here. The pea was then out of sight, and the child had very alarming symptoms of inflammation of the brain. The little patient died; and it was found that in attempting to extract the pea, the membrana tympani had been destroyed. The injudicious poking of the tympanum with the forceps had caused inflammation of the bone of the tympanum, and a separation between it and the dura mater, so that the child died in consequence of the rude introduction of the forceps into the ear. Indeed, it is a very difficult thing to extract a foreign body from the ear with forceps, and if you attempt it you must proceed with the greatest caution. I have, however, extricated foreign bodies from the ear with a narrow pair of forceps, by letting the rays of the sun shine into the meatus, and then introducing the forceps, so that one blade came upon each side of the foreign body. But if you attempt it without the rays of the sun shining into the ear, and using your eyes carefully, and your hands slowly and attentively, nothing is more easy than to drive the body against the membrana tympani, break the latter, and push the body into the tympanum. I do not say that you are not to extract foreign bodies from the ear with forceps, but you must do it with the greatest care; for the want of care may lead to the destruction of the patient. But I have more frequently succeeded in these cases by other means. I stated that a child was brought to me with a piece of slate-pencil in the ear. I placed the child opposite the light, and injected some tepid water into the ear with a syringe. There was room for the water to penetrate into the meatus, and as it came back it washed out the slate-pencil. There was a case brought into the hospital in which there was some foreign body—I believe a pea—in the external meatus. I tried all sorts of methods to get it out. I could not use the forceps, and it nearly filled up the meatus, so that either water could not pass behind it, or it was so jammed that the water injected by the syringe would not wash it out. I said, "Let it alone, let it remain there, the pea in all probability, will dry and waste of itself, and then it will come out, or when it is rotten it may be washed away with a syringe; but I will not make any further efforts to remove it now; for I may drive it into the tympanum and kill the patient." In one case, where a foreign body had got into the ear, I extracted it, like the glass bead, with a bent probe, which I introduced very carefully behind it.

Having called your attention to this subject, I shall proceed to speak of foreign bodies in other cavities. You may find them in any cavities that have natural outlets. They may be thrust in, or they

may be swallowed. They may, when swallowed, pass at once into the stomach; some, from their bulk or irregular figure, stick in the pharynx or œsophagus; and others, even of small size, if sharp and pointed, may stick in the pharynx or tonsils.

The small bones of fish, if they be swallowed, and stick anywhere, generally do so in the tonsils. The following is not a very uncommon case:—A patient sends for you who has swallowed a fish-bone; he feels an uneasy sensation, and every time he tries to swallow, he finds pain. You look into his throat and see a fish-bone sticking in the tonsil. Nothing can be more easy than to hold down the tongue with one finger on the flat end of a spoon, take hold of the fish-bone with a pair of forceps, and remove it. The fish-bone, however, may be stuck in the lower part of the pharynx, and then you cannot see it; but you may feel it with the finger, and having so done, you may seize it with the forceps and remove it. The part at which fish-bones most frequently stick is where the œsophagus and pharynx unite just behind the cartilages of the larynx. The reason why they are so liable to stick there is, that the cartilages of the larynx are not capable of being dilated; whereas, if they pass lower down, the whole tube of the œsophagus may become dilated.

The *treatment* of these cases differs much according to circumstances—according to the exact position of the body swallowed, and according to the nature of the body itself. A person swallows a large piece of meat, and it sticks somewhere in the pharynx or œsophagus. If, on introducing the finger, you feel it quite distinctly in the pharynx, there is no reason why you should not remove it with forceps. But if it lodge in the œsophagus, then the best thing that can be done is, to introduce a common œsophageal bougie and push the piece of meat down into the stomach. A little skill is necessary in introducing the bougie. There was an Indian juggler who used to swallow a large swordblade. The sword was straight, and he pushed it readily into the stomach. The way in which it was done was this:—The man threw his head as far back as possible,—and, from early tuition, he could do that farther than any of us,—so that he made the mouth, the pharynx, and the œsophagus, one straight line, and then he introduced the sword. You should act on this principle in introducing a bougie. Let the patient be placed on her chair, as it occurs more frequently in hysterical women than in others, with her head turned back as far as possible; and then having a bougie well oiled, introduce it into the pharynx, and with the finger push it down. If it meets with resistance, use moderate force to push the piece of meat into the stomach. A moderate force is always sufficient; you must be careful how you employ great force. I knew of a case where a surgeon, using a bougie roughly, pushed it through the œsophagus into the posterior mediastinum and killed the patient. I heard of another case where the same thing happened. However, it must require considerable force to push the bougie through the œsophagus; and it is only a moderate force that is necessary to push the meat into the stomach. But supposing it to be not a piece of meat, but a piece of bone, or any other foreign body; first ascertain whether it is within

the reach of the finger. I have already stated that a large piece of bone will generally stick in the lower part of the pharynx where that and the œsophagus unite, and you may then feel it with the finger. Endeavour to introduce the finger behind the glottis, and if you can do that, seize the bone with the forceps. You must be prepared with different kinds of forceps, some of which open laterally. It may be that the foreign body lies with two flat surfaces, one to one side and the other to the other, and then the forceps that open laterally answer best. If it be in the other position, with the flat surfaces looking forwards and backwards, you must have forceps which open in another direction. You may sometimes employ shorter forceps, and in other cases longer, but they should be of tolerable length.

But let us suppose that the foreign body cannot be felt with the finger, are you then to attempt to take hold of it with forceps? Really, to extract a foreign body from the œsophagus, below the part at which you can feel it with the finger, would be a very difficult operation, and probably not a very safe one; for, in poking with the forceps, you might carry them through the coats of the œsophagus. It might require great force to drive a bougie through them, but much force would not be required in order to drive through them a strong body made of steel. If the foreign body be low down, and you are to extract it at all, you must do it by other means; but probably it will be best to push it on into the stomach. If it be small enough to pass the œsophagus, it certainly will be small enough to pass the pylorus; at least, in all probability. You may push it into the stomach best by means of a common bougie, or what is called a probang—a piece of whalebone with a sponge at one end. This is to be introduced into the œsophagus and pushed down towards the stomach. It may operate in two ways. It generally acts by the sponge pushing the substance into the stomach; at other times, if the foreign body do not occupy the whole diameter, but only impinges by its two shoulders, the probang may be passed below it, and as you pull up the sponge the foreign body may be drawn up with it. You make a sort of blunt hook, to be fastened to the whalebone, the intention of which is that it should be passed below the foreign body, and the foreign body dragged up by the blunt hook. The best thing, however, that you can do is to push it into the stomach, and that is the most easily accomplished.

Although it is easy to speak of dislodging these foreign bodies, you will not always find it so easy in practice; and if you cannot easily remove them, what are you to do? If the patient suffer very little inconvenience, and the part be beyond the reach of the finger, I think it is best to let them alone; but if the part be within reach of the finger, then there can be no doubt as to the propriety of attempting to remove them. If, however, there be great difficulty in dislodging the body, then it is best to let it alone, and nature will generally do what is wanted. The œsophagus will, by giving way, dilate below; the fibres will contract above; and gradually the thing will creep down to the stomach; or, perhaps, it may be hawked up again. I was called to a gentleman who said that he had swallowed a large

piece of fish-bone—a part of the head of a cod. I could feel nothing with the finger; I passed the bougie into the stomach, and, to state the truth, I rather doubted whether any thing had lodged there. As his life was not in danger, although he was suffering some inconvenience, I thought I would let it alone. In two or three days he hawked up something, and there came away a piece of bone, larger than the thumb, which had been lodged in the œsophagus. According to my experience, in the majority of cases where foreign bodies are stuck in the œsophagus, if you fail in relieving the patient, nature will accomplish it. I cannot say that I have seen any cases where any ultimate harm has arisen from a foreign body stuck in the œsophagus. Such cases have occurred, and there have been instances where a foreign body has pressed on the trachea and obstructed respiration, so that the patient has been nearly suffocated. If you are called to such a case, the first thing you will do is, to make an opening into the trachea so as to enable the patient to breathe, and then you may examine the œsophagus and pharynx, and ascertain whether the foreign body can be removed or not. Cases have been recorded where an incision has been made into the œsophagus for the purpose of taking out the foreign body lodged in it; and other cases are upon record where the foreign body has occasioned suppuration of the œsophagus and an abscess in the neck, and on opening it the foreign body was found in the cavity of the abscess. Such instances, however, are very rare; and on looking over the cases recorded in the Memoirs of the French Academy of Surgery, where there is a large collection presented, drawn from the authors of all ages, I do believe that, in the great majority, where the operation has been performed for the removal of foreign bodies from the œsophagus, the patients would have done much better if they had been left altogether to nature, and to the operation of their own powers.

Now, supposing the foreign body to have got into the stomach, what will it do there? Why, small bodies over and over again get into the stomach, and come away. If it be a sixpence, or a farthing, you may be pretty sure that in the course of two or three days it will be found in the evacuations. It is astonishing what foreign bodies will pass through the stomach, and go through the intestines, without doing harm. A gentleman, in a paroxysm of insanity, swallowed a pair of compasses three inches in length, and the family sent to me in great fright. The compasses had not stuck in the œsophagus, but had gone into the stomach. To think of looking for them there was quite absurd, and I told them to let him alone. He must have swallowed them with the blunt end forwards, and the probability was that they lay towards the pylorus. In the course of a fortnight, without his having suffered even a colicky pain, they one day found the compasses in his close-stool pan. He lived a considerable time afterwards, and never suffered any inconvenience from this exploit. Several persons have been in the habit of swallowing large bodies, and getting money for exhibiting the feat. A sailor, in America, in a drunken fit, swallowed a large knife. It went into the stomach, produced some colicky pains for a few days, and was then voided per

anum. Two or three days afterwards he did the same thing, and finding that people stared at him, and gave him money, he went on with it. People went on purpose to see this exhibition of swallowing knives. By and by, however, he got into very ill health; there was severe colicky pain in the intestines, and in the abdomen; his stools always came away black; and he sank, and died. On examining the body, several blades of knives were found, half destroyed, from the oxidation to which they had been subjected. But it seemed that the immediate cause of death was a large knife which stuck across the upper part of the rectum, running through both sides of the gut.

The great majority, even of large substances, taken into the stomach, pass through the pylorus, travel along the intestines, and find their way out at the anus. There are particular parts of the intestines, however, where these foreign bodies are most likely to stick; they may remain in the cul-de-sac of the cæcum. A woman was brought here with a tumour in the right iliac region. She died, and, on examining the body after death, an abscess was found connected with the cæcum, and in the middle of the abscess there was a pin. Over and over again women and children swallow pins, and they generally pass away without doing harm, but in this case the pin stuck in the cæcum, and getting into the cellular membrane, it caused a small infiltration of feculent matter and produced the abscess. The part, however, in which foreign bodies are most likely to remain, is the rectum. No doubt that abscesses by the side of the rectum and fistulæ in ano, in many instances, arise from some foreign body sticking in the rectum. I was called to a gentleman suffering great uneasiness in the rectum. At first I thought there were piles, but when he described his symptoms more accurately, I was convinced that there was something more than internal piles. I introduced my finger into the rectum, and found that there was some hard substance above the sphincter, and which appeared to be half in the gut and half out. With some difficulty I dislodged it, seized it with a pair of forceps, and removed it. It turned out to be a large core of an apple, the sharp edge having stuck in the rectum. If it had not been thus removed, it would have made an abscess. I was sent for to a gentleman with a large abscess by the side of the rectum. The patient had a dry, brown tongue, and other typhoid symptoms, and I therefore concluded that it was full of putrid matter. I opened the abscess freely, and let out a large quantity of stinking putrid matter. Having done that, I thought it advisable to examine the abscess with my finger, and I found a hard body sticking in it, like a great pin. With some difficulty I removed it, and it proved to be a fish-bone, perhaps two inches in length, one end of which had stuck in the side of the rectum, and the other lay across the abscess. He had swallowed it without being aware of it; it had passed easily down the œsophagus, through the stomach and pylorus, and all the coils of the intestines and cæcum, but when it reached the rectum, it passed through one side of it, allowed some of the fecal matter to intrude by its side, and caused this large abscess. Many cases are recorded by writers where the foreign bodies that have been swallowed have produced fistulæ.

When a foreign body has got into the stomach, you must consider it as out of your hands altogether, except that you must keep the bowels gently open. All violent purging should be avoided; for if there be a sharp pin, great peristaltic action may cause it to do much injury. You may exhibit lenitive electuary or castor oil, but you must not be in a hurry to expel the substance, for it will generally pass after remaining in for a week or a fortnight, and if it be a small body it will come out much sooner. For the most part there is but little cause of apprehension, though in some cases unfortunate occurrences arise, as in the case of the woman who swallowed the pin. It is desirable to see that the substance does come away, and you must take care that the patient has his evacuations in a close-stool pan, and that they be minutely examined.

It has been proposed by the old writers to make an incision into the intestines, but at this time of day I do not think it is necessary to explain how much better it is to leave the case to nature than to have recourse to such a dangerous operation.

There is another matter of considerable practical importance, to which I wish to call your attention, with respect to matters supposed to be stuck in the œsophagus. A woman was brought to town who was thought to have swallowed a piece of bone, and I believe that there was no doubt that she had done so. I introduced my finger, and, not being able to feel it, I concluded that it was below the reach of the finger. I then passed an œsophageal bougie into the stomach, but could not feel it; I then introduced a probang with a sponge, but with no better effect; but still the woman had the sensation of its being there. I now began to doubt whether it really stuck there, and to suspect that the sensation she experienced indicated that some part of the œsophagus had been abraded or torn by the foreign body, but that the body itself had passed into the stomach. It is a common trick with conjurers to put a half-crown into the hands of a person, to press it firmly, and then to say to him, "You are sure it is there?" The party says "Yes." In fact, he has the feeling of it, but when he opens his hand it is not there. The sensation made by the pressure on the hand remains a considerable time after the body itself has been removed, especially if the feeling be assisted by the imagination. You get a piece of sand or gravel into the eye; it is taken out directly, but you persist in saying that it is there; for a little inflammation of the eye produces a feeling as if a foreign body were on the conjunctiva. So I thought it might be with this patient, who imagined that she had a bone in the œsophagus which she could not swallow. Under that impression I ordered an opiate blister; and, under its influence, the sensation was, on the next day, very much abated; and, on the following day, was entirely removed. I think that the rapid subsidence of the symptoms under this treatment proved that they depended on an injury inflicted, and not on the foreign body remaining there. I met with a similar case in the following instance:—A maid-servant was supposed to have something sticking in the œsophagus, but, with the largest bougie or probang, nothing could be discovered there. I treated her in the same manner, and, in a day

or two, the sensation was gone, and she was quite well. I suspect that this is not a very uncommon case. A person sends to you, and says that he has swallowed a fish-bone; you cannot find it; in reality, it has passed on; but it has pricked the œsophagus. By leaving such cases alone I have seen instances in which, in a day or two, the sensation has entirely disappeared.

LECTURE XX.

EXTRACTION OF FOREIGN BODIES. (*Continued.*)

I MENTIONED, at the conclusion of my last lecture, that foreign bodies taken into the mouth not unfrequently stop in the rectum; but they may get into the rectum in other ways. Mr. Thomas was sent for to a gentleman under the following circumstances:—He had been very subject to costive bowels, and he used to make them act by introducing a piece of stick or cane eight or ten inches in length into the rectum, and there he left it, until, irritating the mucous membrane of the intestines, they acted, answering the purpose of an injection. He had been in the habit of doing this for some years, but one day the cane slipped out of his hand, and, to use his own expression, "it was sucked up into the gut." At first he was ashamed to send for Mr. Thomas, but after it had been there some days, such was the torture that he sent for him in great distress. Mr. Thomas introduced his finger into the rectum, but he could feel nothing. The sphincter muscle gradually relaxed, and he was then able to get in two fingers, and in a few minutes he passed in his whole hand. He then felt the piece of cane sticking obliquely at the upper part of the gut, and he abstracted it without any mischief. There is, in this case, a circumstance of great interest, and one that I believe was first observed by Mr. Thomas, namely, that the sphincter muscle gradually became relaxed under the pressure of the hand, so as to admit not only one finger, but two, and ultimately the whole hand. I have observed the same thing in several cases in which I have had occasion to make an examination, and the knowledge of this fact is very useful, indeed, on certain occasions which occur not only in hospital, but not unfrequently in private practice. I am very glad to have an opportunity of explaining to you the cases to which I allude, because I remember well that when I first met with them in private practice they puzzled me very much, and I shall be glad if you are saved that perplexity which I suffered myself. Persons of the affluent classes, for the most part, attend a great deal to the state of their bowels, and it is necessary that they should all do so. Those who live luxuriant and indolent lives are liable to have their bowels become very torpid, and you may be assured that there is no harm in their constantly attending to their bowels. I have known people belonging to the affluent classes

When a foreign body has got into the stomach, you must consider it as out of your hands altogether, except that you must keep the bowels gently open. All violent purging should be avoided; for if there be a sharp pin, great peristaltic action may cause it to do much injury. You may exhibit lenitive electuary or castor oil, but you must not be in a hurry to expel the substance, for it will generally pass after remaining in for a week or a fortnight, and if it be a small body it will come out much sooner. For the most part there is but little cause of apprehension, though in some cases unfortunate occurrences arise, as in the case of the woman who swallowed the pin. It is desirable to see that the substance does come away, and you must take care that the patient has his evacuations in a close-stool pan, and that they be minutely examined.

It has been proposed by the old writers to make an incision into the intestines, but at this time of day I do not think it is necessary to explain how much better it is to leave the case to nature than to have recourse to such a dangerous operation.

There is another matter of considerable practical importance, to which I wish to call your attention, with respect to matters supposed to be stuck in the œsophagus. A woman was brought to town who was thought to have swallowed a piece of bone, and I believe that there was no doubt that she had done so. I introduced my finger, and, not being able to feel it, I concluded that it was below the reach of the finger. I then passed an œsophageal bougie into the stomach, but could not feel it; I then introduced a probang with a sponge, but with no better effect; but still the woman had the sensation of its being there. I now began to doubt whether it really stuck there, and to suspect that the sensation she experienced indicated that some part of the œsophagus had been abraded or torn by the foreign body, but that the body itself had passed into the stomach. It is a common trick with conjurers to put a half-crown into the hands of a person, to press it firmly, and then to say to him, "You are sure it is there?" The party says "Yes." In fact, he has the feeling of it, but when he opens his hand it is not there. The sensation made by the pressure on the hand remains a considerable time after the body itself has been removed, especially if the feeling be assisted by the imagination. You get a piece of sand or gravel into the eye; it is taken out directly, but you persist in saying that it is there; for a little inflammation of the eye produces a feeling as if a foreign body were on the conjunctiva. So I thought it might be with this patient, who imagined that she had a bone in the œsophagus which she could not swallow. Under that impression I ordered an opiate blister; and, under its influence, the sensation was, on the next day, very much abated; and, on the following day, was entirely removed. I think that the rapid subsidence of the symptoms under this treatment proved that they depended on an injury inflicted, and not on the foreign body remaining there. I met with a similar case in the following instance:—A maid-servant was supposed to have something sticking in the œsophagus, but, with the largest bougie or probang, nothing could be discovered there. I treated her in the same manner, and, in a day

or two, the sensation was gone, and she was quite well. I suspect that this is not a very uncommon case. A person sends to you, and says that he has swallowed a fish-bone; you cannot find it; in reality, it has passed on; but it has pricked the œsophagus. By leaving such cases alone I have seen instances in which, in a day or two, the sensation has entirely disappeared.

LECTURE XX.

EXTRACTION OF FOREIGN BODIES. (*Continued.*)

I MENTIONED, at the conclusion of my last lecture, that foreign bodies taken into the mouth not unfrequently stop in the rectum; but they may get into the rectum in other ways. Mr. Thomas was sent for to a gentleman under the following circumstances:—He had been very subject to costive bowels, and he used to make them act by introducing a piece of stick or cane eight or ten inches in length into the rectum, and there he left it, until, irritating the mucous membrane of the intestines, they acted, answering the purpose of an injection. He had been in the habit of doing this for some years, but one day the cane slipped out of his hand, and, to use his own expression, "it was sucked up into the gut." At first he was ashamed to send for Mr. Thomas, but after it had been there some days, such was the torture that he sent for him in great distress. Mr. Thomas introduced his finger into the rectum, but he could feel nothing. The sphincter muscle gradually relaxed, and he was then able to get in two fingers, and in a few minutes he passed in his whole hand. He then felt the piece of cane sticking obliquely at the upper part of the gut, and he abstracted it without any mischief. There is, in this case, a circumstance of great interest, and one that I believe was first observed by Mr. Thomas, namely, that the sphincter muscle gradually became relaxed under the pressure of the hand, so as to admit not only one finger, but two, and ultimately the whole hand. I have observed the same thing in several cases in which I have had occasion to make an examination, and the knowledge of this fact is very useful, indeed, on certain occasions which occur not only in hospital, but not unfrequently in private practice. I am very glad to have an opportunity of explaining to you the cases to which I allude, because I remember well that when I first met with them in private practice they puzzled me very much, and I shall be glad if you are saved that perplexity which I suffered myself. Persons of the affluent classes, for the most part, attend a great deal to the state of their bowels, and it is necessary that they should all do so. Those who live luxuriant and indolent lives are liable to have their bowels become very torpid, and you may be assured that there is no harm in their constantly attending to their bowels. I have known people belonging to the affluent classes

who have been in the habit of taking medicine almost every day. I know one hearty old gentleman, eighty-six years of age, who can walk round the Regent's-park, who has taken an aloetic pill every night for threescore years. I knew another gentleman, who died at ninety-two, who took either an aloetic or a rhubarb pill for the same length of time, and I could give many other examples. But there are others who do not attend to their bowels; scybalæ form in the colon, they pass on to the rectum, but they are not easily discharged per anum. The softer fæces pass over the scybalæ, other scybalæ descend into the rectum, and the accumulation goes on until at last the rectum becomes completely filled up with a great mass of hardened fæces, as large as the fist, and even larger, so that half a pound or perhaps a pound weight may be collected there. The patient now suffers exceedingly, and he—or perhaps I ought to say she, for it is more common in women than in men—has a desire to go to the water-closet. She goes, great pain is produced, but nothing comes away, the bowels being stopped up with these hardened fæces. The nature of the complaint may be ascertained by introducing the finger into the rectum; you there feel the hard mass of fæces. How is that to be got rid of? By injection? An injection will not act on this large mass. You must first dilate the sphincter muscle by introducing the fingers, and then with the handle of one or two pretty large spoons the whole mass may be extracted. A good nurse can accomplish it very well, if you tell her how. Let her take a couple of dessert-spoons and bring away a little and a little more, and when the rectum is nearly empty, warm water injected two or three times will remove the remainder. Until I was aware how much the sphincter muscle might be dilated, I found it difficult to manage these cases. I used to try to accomplish it by introducing a narrow spoon into the rectum and bringing away a little at a time, but that was a very tedious process.

Foreign bodies may find their way into the urinary organs, and actually into the bladder. There is in the museum of the hospital a preparation of a calculus, which I purchased at the sale of the late Mr. Heaviside's museum. It is a section of a calculus formed upon a hazelnut. It was extracted from the body of a woman by operation, and on cutting through the calculus the hazelnut was found in the centre. There was no history of the case, but it is evident that the woman, playing some foolish trick with herself, had forced the hazelnut through the urethra into the bladder. Mr. Thomas gives an account of a case in which he extracted a silver toothpick from the bladder. A woman had some difficulty in making water—probably an hysterical difficulty—she introduced the toothpick into the urethra, and it slipped back into the bladder. Sir A. Cooper cut a woman for what was supposed to be stone in the bladder, and when he removed it, it was found to be a piece of coal which had been thrust up the urethra.

No doubt these things are generally done from that peculiar perversion of mind which you find in very hysterical women; but it is sometimes done as a mere cheat, for the purpose of exciting compassion, and obtaining money from compassionate persons. A woman at Ryde, in the Isle of Wight, consulted Mr. Bloxam, a gentleman educated at this hospital, and who now resides there, for stone in the bladder. He introduced a pair of forceps and removed a stone of a very peculiar kind. By and by she had another, and he removed that. He thought they were very odd-looking stones, and as I happened to be at the Isle of Wight he showed them to me, and told me that the women had then got a third. We examined them, and they were evidently pieces of common lime-stone, that the woman had cut into such a shape that she could push them into the bladder. She found it a good trade, inasmuch as she obtained money from the compassionate ladies of Ryde on account of her sufferings. I brought the stones up to town, and Dr. Prout examined them. Here the stones were really passed into the bladder; but I may take this opportunity of stating, by way of guarding you against what occurs in private practice, and, indeed, in hospital practice, that very frequently people pretend to pass calculi from the bladder which were never there at all. It is often very difficult to understand what motive there can be in women for trying to deceive in this respect. We can only attribute it to that perverted state of mind which I mentioned before, and which frequently amounts to insanity. Mr. Childer long ago—for he has now been dead twenty years—brought me a wafer-box full of what were said to be calculi passed from a young lady's bladder. On looking at them I said, "Calculi! they are bits of brickbat and flint, and nothing else." He replied, "It is true, but there is a singular history belonging to them." He then told me this story:—A young lady, the daughter of a gentleman of fortune, all at once began to bleed, and, as she said, passed these calculi from the bladder. Her father and mother went to stay at the house of a country gentleman, and there she was taken very ill indeed at the water-closet, discharged a great quantity of blood, and produced an immense quantity of calculi, which she said came from the bladder; but they were examined very carefully, and found to be just what I have stated. I might mention many circumstances of the same kind. Among poorer people it is sometimes done for the sake of exciting compassion. A woman produced her little boy who was said to pass stones from the bladder. They were sent to me to examine, and I found that they were nothing but pebbles and flint. It was evidently a trick to get money from compassionate ladies, and in which she was successful.

But foreign substances find their way into the urinary organs of the male as well as the female. A man came here with symptoms of stone, but on passing the sound the stone was felt anterior to the bladder. Sir Everard Home cut him for the stone, and brought out one that was narrow, but two or three inches in length. On making a section it was found to be formed on a flower-stalk. The history of the case was this:—The man was a gardener in the country; he had a stricture of the urethra, there was difficulty in making water, and occasionally he used to pass a flower-stalk as a bougie and relieve himself. One day the flower-stalk broke, it remained in, and formed the nucleus of a stone, half in the bladder and half in the

urethra. I operated on a young man for stone in the bladder, and on cutting through the stone there was a large piece of common wax in the centre. The preparation, I believe, is in the museum. This was a very foolish young man, as you may suppose, who happened unluckily for himself, to have a wide urethra, and in some fit of folly he rolled up a piece of wax, introduced it into the urethra, and it gradually found its way back to the bladder. I saw him at the time, and, as I supposed that the wax had gone into the bladder, I recommended him to keep quiet, and let the case be thoroughly investigated. But he was engaged to go to India; he did not suffer inconvenience, as if from the wax in the bladder, though we had a right to conclude it was there, and, contrary to my advice to keep himself quiet, he sailed for India. He came back two years afterwards with a stone in his bladder. A more extraordinary case occurred in the practice of Mr. Keate: I saw the patient with him, and assisted in the operation. A gentleman had symptoms of stone in the bladder, and on cutting into that organ he found that there was no stone, but a great piece of common sealing-wax, of which he drew out several inches in length. This monstrous blockhead—for so I must call him—being tipsy, thought he would pass a bougie for himself. He imagined that wax was wanted for a bougie; he therefore procured the sealing-wax, softened it by the fire, rolled it up in his hands into the shape of a bougie, introduced twelve or thirteen inches through the urethra into the bladder, and there it lay coiled up.

Foreign bodies may get into other parts of the human frame. A musket ball, for instance, may lodge in it for many years, doing no harm. A gentleman of my acquaintance was wounded the day before the battle of Waterloo. There was the hole at which it entered, but none at which it appeared to have escaped, so that it was no doubt lodged within. After a time the wound healed, and he got well. He was a young man, he frequented balls, danced like other people, and felt no inconvenience from the ball. He died several years afterwards of disease of the brain. But at other times musket-balls lodging in the human body may do great mischief. In the museum is a section of a diseased elbow which was amputated here. On sawing through it longitudinally a musket-ball was found in the centre of the bone, which had produced the disease of the joint. But musket-balls, even when lodged in soft parts, do harm in another way. A gentleman was shot in the eyes with small shot, and it produced the most dreadful case of neuralgia that I ever met with. I presume that the shot pressed on the optic nerve. A gentleman had a musket-ball lodge in the leg. It could not be felt, and as it gave him no inconvenience it might be doubted whether it was there or not. By and by it shifted its place, and became more superficial so as to be felt under the skin. Spasm now occurred in the leg, followed by fits resembling those of epilepsy, and to these he was subject while the ball remained in this position. After a time the ball again shifted its place, went back, so that it could not be perceived externally, and then there was an end of the fits and of the other nervous symptoms. I presume that when it first shifted its place it pressed upon some

nerve, and produced the spasm and these fits. Unfortunately, when it was in this situation, and might have been extracted, that course was not pursued; and when it again receded it would have been in vain to attempt it. It was of no use to look for a ball that you could not feel externally.

It is not uncommon for pins and needles to be found lying in the cellular membrane. Sir Charles Bell describes the case of a woman who had an abscess in her chest, from which was extracted a pin some two or three inches in length. It was supposed that the pin had been swallowed, and had made its way out through the œsophagus into the cellular membrane. In other cases it has been supposed that a pin or a needle which has been swallowed, has worked its way through the œsophagus into the chest or neck. But cases sometimes occur in which needles are taken out of human bodies in large numbers. The following case occurred in my practice:—A lady of hysterical habit was unfortunately married to a gentleman who became insane. Once or twice during a paroxysm he very nearly murdered her. What with anxiety about him, and apprehension about herself, her nervous system, which was bad enough to commence with, became much shaken. He died, but she remained in a frightful state,—very weak in health, with constant nervous pain on one side, and subject to what are called fainting fits; in fact, a sort of hysterical catalepsy,—that kind of fit which is produced by animal magnetism working on the imagination of hysterical women, in which the patient appears to be unconscious, but is not so in reality. One day she had with her a paper of needles, containing about fifty, fresh from the place where they were bought. She was by herself, she rang the bell in haste for the servant, and said that she had had one of her fits, and that the needles had run into her leg. This seemed a very odd story. Only eight needles out of the fifty were found left in the paper. It was thought they had got into the footstool. That was unpicked, but nothing was found in it, except a few broken pins. They looked at her leg, and seeing something they did not understand, they sent for a surgeon in the neighbourhood, who found one or two needles pricking under the skin; he opened the skin with a lancet and took them out. In the course of two or three days other needles were discovered; he tried to take them out, but they slipped away, and I was sent for. With some trouble I removed them, and on a subsequent occasion I took out more; altogether we removed about twenty-eight needles from her leg—they were in one leg only. The leg became swollen and œdematous; and, having been in weak health before, she now became still weaker, and sank and died apparently from the mere want of nervous energy. On examining the leg I found several needles still left in it; they were not all taken out, but it would appear that there were just enough to account for those missing.

There are two points in this case to be considered; first, the taking out of the needles which, as a practical question, is of some importance; and, secondly, how the needles got there.

It may appear a very simple thing to extract needles that are stuck

in a woman's leg, but it is not so simple in practice; for every motion of the limb makes the needles shift their situation; and if, in trying to remove them, you make any pressure upon them before you seize them with the forceps, they slip away. No attempt should be made to take needles out of the human body until they are close to the surface, and when you can with a light hand feel one end of them under the skin. You may then venture to puncture the skin with a lancet, and take care to pass, if possible, by the side of the needle, so as not to make pressure upon it. When you see the black point of the needle take hold of it with forceps and extract it. With a light hand you may take out a needle; but if a surgeon be rough, the needle slips away, and extraction is impossible.

But how was it that the needles in the case in question entered the leg? There is only one way of explaining it, namely, that she run them in herself. It is ridiculous to suppose that a paper of needles could run in by themselves. In this state of hysterical catalepsy the patients are not insensible. You know how the girls who are magnetized deceive and cheat. They pretend to read with the back of their head, and prophecy all sorts of stuff, and it is just the same here. This woman was humbuging herself in one way as they do in another. I have no doubt that she run the needles into her leg herself. I can conceive that one needle or two may run in by accident; you may sit down on some needles, and one or two may enter without your being aware of it at the time, but that a whole paper of needles could thus run in I do not believe. When a boy, I read in the "Annual Register" an account of an extraordinary case of a young woman who had swallowed a quantity of needles. The circumstance was forgotten, but years afterwards the needles made their appearance, and they were extracted, some from the arm, some from the breast, and some from other parts. This story was gravely recorded as one of the needles having been swallowed, and then finding their way out of the stomach into different parts of the body many years afterwards. If a quantity of needles passed into the stomach, I should think that they were more likely to do mischief to that organ itself, or to the intestines and peritoneum, than to run separately, and find their way out at the arms and legs. But I cannot understand how a woman could swallow twenty needles. Could you swallow twenty or thirty fish-bones? Certainly not. We know that hysterical women cheat in all manner of ways, and I have no doubt that these women run the needles in themselves. I do not, however, advise you, when called in, to expose such persons; for that is neither a kind nor a right thing to do. I have before said that some of the very best disposed young women will, when under the influence of hysterical disease, play tricks of this description. One young lady who, I believe, when in health, was as good and honest as she could be, puzzled several medical men for a long time by mixing ink with her urine; and there are a number of stories of the same sort.

Foreign bodies may find their way into the trachea, and I shall conclude this lecture with a few observations on that subject.

A foreign body generally finds its way into the trachea in the following manner:—The patient has something in his mouth, he tries to speak just in the act of swallowing it, and in the effort to speak the epiglottis is raised just at the time when it ought to be shut down, and the morsel gets into the glottis. If it be large enough to stop the glottis it produces suffocation. It may, however, occasion coughing, and the cough generally brings it up; but at other times, instead of being coughed up, it slips down; that is, although the patient coughs, yet it slips down; and in other instances it slips down before he coughs,—and then you have a foreign body in the trachea.

The foreign bodies that thus enter the trachea may be very numerous and very various; for example, cherry-stones, almonds, pieces of meat, pieces of bone, gold and silver coin; and the effect they produce differs according to a variety of circumstances, according to their shape, and their particular position. The foreign body may be so large that it descends to the bifurcation of the trachea, and it will not go down farther. It may be so large that it nearly fills up the diameter of the trachea, but that is not often the case, for a body that is small enough to go through the glottis will seldom be of sufficient size to fill up the trachea. Besides that, if it be broad it seldom lays directly flat across, but obliquely, and then there is a space on each side. Again, it may be very light, so that it rises up at every attempt to cough; or it may be very ponderous, so that it remains always at the most depending part. It may be small enough to pass down into one of the subdivisions of the trachea, and if it do, it generally passes into the right bronchus, because that is the wider, and lies more nearly in a line with the trachea than the left. Supposing the body to be light, such as a cherry-stone or an almond, and smooth, and being smooth, movable, it may lie at the bottom of the trachea, and the patient experience no inconvenience from it until a fit of coughing is excited. Several instances have occurred in which a small foreign body has been coughed up again through the glottis; and in other cases, being raised by the act of coughing, it has stuck in the glottis, strangled the patient, and produced instant death. But supposing that, without being very ponderous, it is of a large irregular shape, with sharp edges, and is lying across the trachea, with the corners stuck in one part of that passage, or of the bronchus; then it does not occasion at first much difficulty of breathing; for very probably there is sufficient space for the air to pass by its sides. But, being in the trachea, it brings on inflammation in the mucous membrane, attended with a great secretion of mucus; and this viscid mucus stops up that part of the opening of the trachea which is not blocked up by the foreign body, so that the tube becomes completely obstructed, and the patient dies of suffocation. This is another way in which it may prove fatal.

But supposing the foreign body to be composed of metal; that being a heavy substance, it will keep at the bottom of the trachea if it be of large size, or if small, it will descend into the bronchus. Generally speaking it passes into the latter situation; for a metal body that is small enough to go through the aperture of the glottis will

usually be small enough to be carried by its own weight to the bottom of the bronchus.

Another question arises here. What will happen when a ponderous body—a coin or other metallic substance—lodges in the bronchus? It will not cause great difficulty of breathing; for generally it is small enough not completely to obstruct that bronchus, or, at any rate, the patient can breathe with the other. It may occasion coughing, and if the patient invert himself so as to bring the head downward and elevate the chest, it will run down to the glottis and threaten suffocation. But the patient is in no danger of suffocation if he do not put himself into a position which, not being a natural one, it is not likely that he will do. It may, therefore, remain lodged there for a long time; but what will happen at last? It will give rise to disease of the lungs. A man swallowed a Louis-d'or, which got into the trachea; he died three or four years afterwards, and on examination there was found disease of the lung, the Louis-d'or being in an abscess. This case is recorded in the "Memoirs of the French Academy of Surgery." A boy got a sixpence into the trachea; he was sent to Guy's Hospital, where it was found that his lungs were diseased, and therefore Mr. Key refused to make any attempt to remove the sixpence. A boy swallowed a tin tack; when I saw him he was expectorating pus, so that it had formed an abscess, and it was doubtful whether the tin tack was there or not. By and by he coughed up the tin tack, and the discharge of pus ceased, and the patient recovered.

Foreign bodies are very frequently coughed up, and it has been proposed to endeavour to expel them by making the patient cough. No doubt you can make the patient cough, and there is a chance of the foreign body being thus removed; certainly, if it is to be got rid of by natural efforts, it must be by coughing. Some have proposed to bring up the foreign body by giving the patient an emetic, but I apprehend that it would be useless. In the act of vomiting there is a deep inspiration, not a forcible expiration; the diaphragm descends in order to press on the stomach, and, combining with the action of the abdominal muscles, it expels the contents of that organ. After vomiting is over there is no convulsive coughing, so that the diaphragm gradually returns to its own place. The idea of exhibiting an emetic is founded altogether on a wrong physiological notion; and I think it is dangerous to trust to the act of coughing for bringing up the foreign body. It is very true that it may be coughed up through the glottis; but it may stick in the glottis, and then the patient would die.

Now, what is the best rule to follow? If you are satisfied that the foreign body is in the trachea, I believe that the proper course to pursue is not to trust to nature, she may manage it, but you are not certain of it, and in a great number of cases where it is left to nature the patient dies. Make an opening in the trachea, and I believe that it is best to make it low down. You may proceed here as leisurely as you please, for the patient is not in danger of instant suffocation. Take up every vessel as you proceed, and separate the parts as much

as you can with a director, instead of cutting them, so as to avoid hemorrhage. If you open the trachea when bleeding is going on, every time the patient inspires, blood is drawn into the trachea, and the patient may be suffocated by the surgeon opening the trachea too hastily, and allowing it to become filled with blood. I know a case in which a surgeon performed tracheotomy, and the patient died almost directly. On examining the body, as I am informed, the trachea and bronchi were full of blood. Make the opening, then, as leisurely as you please; separate the parts by a blunt instrument rather than a knife; divide three or four rings of the trachea longitudinally, but there is no occasion to remove any portion of the trachea. What will now occur? When you have divided the trachea, if it be a light and movable body, such as a cherry or tamarind-stone, as soon as you have made the opening, if you hold back the edges, cough comes on, the foreign body is thrown up, and escapes by the artificial opening; or even if it do not escape there, the danger of suffocation, in consequence of its sticking in the glottis, is prevented. But if the foreign body be a bone or any rough substance that is stuck in the trachea, and not movable, then you may introduce the forceps and remove it; and I can conceive of cases in which it is right to take a foreign body from the bronchus. I advise you, however, never to attempt the latter if you can effect the object in any other way. The introduction of forceps into the bronchus will occasion violent coughing, great irritation, and it is a frightful thing to introduce these instruments into the bronchus when the patient is agitated by a convulsive cough. Only conceive of the important organs in the neighbourhood. The lungs are below, and you may injure them, or you may take hold of one of the subdivisions of the bronchi instead of the foreign body. There is the pulmonic plexus of nerves behind; you are close to the phrenic nerves; you are not far from the great vessels of the heart; and the heart itself is close by. Think of the mischief you may do by poking among these important organs with forceps when the patient is agitated by a convulsive cough. Still, if there be a piece of bone stuck across the bronchus, it may be the only way of taking it out. But it does not often happen that any ragged body will go into the bronchus; if, however, it do, you may have to introduce the forceps five or six inches from the part where you make the wound externally.

But suppose a case in which there is a loose and ponderous body in the bronchus. In the case of Mr. Brunel, which occurred last year, there was a half-sovereign in the right bronchus. This gentleman, in playing with a child, flung a half-sovereign into his mouth, and it slipped down the windpipe. In the first instance it produced sickness, and as he drew his breath, previously to vomiting, it descended into the bronchus and occasioned coughing every now and then. When his head was placed down it could be felt rolling along the trachea. We attempted to remove it by placing him on a movable platform, so that his feet were up and his head down nearly at right angles. The half-sovereign descended and stuck in the glottis so as nearly to choke him. We therefore determined not to repeat this

experiment till we had got an opening in the trachea which would act as a safety-valve. We made an opening some few days afterwards below the thyroid gland, but the half-sovereign was not coughed up as a cherry-stone would have been, because it was too heavy. We made some attempts to use the forceps, but found it so dangerous that we desisted. When he had recovered from the effects of this operation,—in the mean time passing a probe every now and then,—we again placed him on a movable platform, his back was struck with the hand, and the half-sovereign escaped from the bronchus. He could feel it rolling along the trachea, till it came to the glottis, and now, instead of sticking there, it passed through, just as you could roll it through the dead body, and came out of the mouth. There was no spasm of the glottis, and the absence of it was to be attributed to the opening in the trachea; for blood came out with the half-sovereign, which had evidently passed in from the external wound, and where blood went in you may be sure that the air went in also. I apprehend the rule to be this:—In all cases where a foreign body has got into the trachea you must not trust to nature, but make an opening into the trachea; and then it is very likely that if the body be light, it will be forced through the opening; or if, by its own weight, it can be made to assume a certain position, it will pass out through the glottis; or, if it be a rough, irregular substance, and sticks in the trachea, you may then, through the artificial opening, seize it with the forceps and extract it. But I advise you to be very careful how you use the forceps, except where the foreign body is actually in the trachea; cases may occur in which you must use them in the bronchus, but it must be done with the greatest possible caution.

LECTURE XXI.

FISTULA IN ANO.

I PRESUME that you are all aware of the fact that abscesses are very liable to form in the vicinity of the rectum, and that when so formed, they heal only with considerable difficulty, and, for the most part, do not heal spontaneously. You are also aware that the parietes of those abscesses contract, and become hard and callous, in which stage the disease takes the name of *fistula in ano*.

Now, this affection, although of frequent occurrence in hospital practice, is much more common in private practice, and, therefore, it is, in every point of view, a disease of great interest to the surgeon.

The first question that presents itself is this—Why is it that abscesses are so particularly liable to form in the situation in question, and that when so formed they do not heal like abscesses occurring in other parts of the cellular membrane? I formerly supposed that the

healing process was prevented chiefly by the irregular action of the sphincter and levator ani muscles. Further consideration, however, and more mature experience, have led me to the conclusion that this opinion was incorrect. That such causes may interfere with the healing of any abscess I well know, but I am now fully satisfied that they will not afford sufficient explanation why it so rarely happens that abscesses near the rectum heal spontaneously, and, at any rate, it is quite clear that the action of these muscles will not explain the formation of these abscesses. In order to explain their formation I must call attention to what happens in other parts of the intestinal canal. The mucous membrane, under a variety of circumstances, is liable to ulcerate. In patients who die from diseased liver, or phthisis pulmonalis, or at the end of continued fever, and various other diseases, you find the mucous membrane of the bowels ulcerated. This ulceration seldom extends further, does not involve the muscular tunic, but sometimes the latter is affected, and then some of the contents of the intestines escape. Should this occur where the intestine is covered by the peritoneum the contents may escape into the peritoneal cavity. For example, there was a little boy, seven years of age, who had symptoms of mesenteric disease, and who had just recovered from what was supposed to be a fever. When he appeared to be convalescent he was suddenly seized one evening with what was called a fainting fit, in which his pulse was not perceptible. After some time, under the influence of a stimulant, he recovered; nevertheless, he continued low and depressed. On the following day he had another attack of the same kind, from which he did not rally, and on examining the body after death I found that there was ulceration on the inner surface of the ileum, and that the mesenteric glands were diseased. In one place the ulcer had extended by a small opening through the muscular tunic, and also through the peritoneum, and a small quantity of the feculent matter had escaped into the cavity of the belly. Every person who has had much experience of disease has seen cases of the same kind; but there are others in which both the muscular tunic and the peritoneal coat ulcerate, and yet the contents of the intestine do not escape into the cavity. Adhesions take place round the ulcerated spot before the ulceration of the peritoneal coat is completed, and these adhesions cause the contents to escape, not into the peritoneal cavity, but to become infiltrated into the cellular membrane of some part of the abdominal parietes. A young man, of seventeen or eighteen years of age, who had long been in ill-health from disease of the lungs, and who was indisposed in other ways, was supposed to be rather better than usual, but one evening he was seized with violent pain in one side, and there was considerable tenderness of the whole of the abdomen. Two physicians were sent for; the symptoms were not exactly those of peritoneal inflammation, but they could not explain the symptoms so well in any other way as by assuming that he laboured under peritoneal inflammation. The inflammatory symptoms subsided, and two or three months afterwards I was called in to see him on account of a tumour which had formed in the front of the belly. It was an ab-

experiment till we had got an opening in the trachea which would act as a safety-valve. We made an opening some few days afterwards below the thyroid gland, but the half-sovereign was not coughed up as a cherry-stone would have been, because it was too heavy. We made some attempts to use the forceps, but found it so dangerous that we desisted. When he had recovered from the effects of this operation,—in the mean time passing a probe every now and then,—we again placed him on a movable platform, his back was struck with the hand, and the half-sovereign escaped from the bronchus. He could feel it rolling along the trachea, till it came to the glottis, and now, instead of sticking there, it passed through, just as you could roll it through the dead body, and came out of the mouth. There was no spasm of the glottis, and the absence of it was to be attributed to the opening in the trachea; for blood came out with the half-sovereign, which had evidently passed in from the external wound, and where blood went in you may be sure that the air went in also. I apprehend the rule to be this:—In all cases where a foreign body has got into the trachea you must not trust to nature, but make an opening into the trachea; and then it is very likely that if the body be light, it will be forced through the opening; or if, by its own weight, it can be made to assume a certain position, it will pass out through the glottis; or, if it be a rough, irregular substance, and sticks in the trachea, you may then, through the artificial opening, seize it with the forceps and extract it. But I advise you to be very careful how you use the forceps, except where the foreign body is actually in the trachea; cases may occur in which you must use them in the bronchus, but it must be done with the greatest possible caution.

LECTURE XXI.

FISTULA IN ANO.

I PRESUME that you are all aware of the fact that abscesses are very liable to form in the vicinity of the rectum, and that when so formed, they heal only with considerable difficulty, and, for the most part, do not heal spontaneously. You are also aware that the parietes of those abscesses contract, and become hard and callous, in which stage the disease takes the name of *fistula in ano*.

Now, this affection, although of frequent occurrence in hospital practice, is much more common in private practice, and, therefore, it is, in every point of view, a disease of great interest to the surgeon.

The first question that presents itself is this—Why is it that abscesses are so particularly liable to form in the situation in question, and that when so formed they do not heal like abscesses occurring in other parts of the cellular membrane? I formerly supposed that the

healing process was prevented chiefly by the irregular action of the sphincter and levator ani muscles. Further consideration, however, and more mature experience, have led me to the conclusion that this opinion was incorrect. That such causes may interfere with the healing of any abscess I well know, but I am now fully satisfied that they will not afford sufficient explanation why it so rarely happens that abscesses near the rectum heal spontaneously, and, at any rate, it is quite clear that the action of these muscles will not explain the formation of these abscesses. In order to explain their formation I must call attention to what happens in other parts of the intestinal canal. The mucous membrane, under a variety of circumstances, is liable to ulcerate. In patients who die from diseased liver, or phthisis pulmonalis, or at the end of continued fever, and various other diseases, you find the mucous membrane of the bowels ulcerated. This ulceration seldom extends further, does not involve the muscular tunic, but sometimes the latter is affected, and then some of the contents of the intestines escape. Should this occur where the intestine is covered by the peritoneum the contents may escape into the peritoneal cavity. For example, there was a little boy, seven years of age, who had symptoms of mesenteric disease, and who had just recovered from what was supposed to be a fever. When he appeared to be convalescent he was suddenly seized one evening with what was called a fainting fit, in which his pulse was not perceptible. After some time, under the influence of a stimulant, he recovered; nevertheless, he continued low and depressed. On the following day he had another attack of the same kind, from which he did not rally, and on examining the body after death I found that there was ulceration on the inner surface of the ileum, and that the mesenteric glands were diseased. In one place the ulcer had extended by a small opening through the muscular tunic, and also through the peritoneum, and a small quantity of the feculent matter had escaped into the cavity of the belly. Every person who has had much experience of disease has seen cases of the same kind; but there are others in which both the muscular tunic and the peritoneal coat ulcerate, and yet the contents of the intestine do not escape into the cavity. Adhesions take place round the ulcerated spot before the ulceration of the peritoneal coat is completed, and these adhesions cause the contents to escape, not into the peritoneal cavity, but to become infiltrated into the cellular membrane of some part of the abdominal parietes. A young man, of seventeen or eighteen years of age, who had long been in ill-health from disease of the lungs, and who was indisposed in other ways, was supposed to be rather better than usual, but one evening he was seized with violent pain in one side, and there was considerable tenderness of the whole of the abdomen. Two physicians were sent for; the symptoms were not exactly those of peritoneal inflammation, but they could not explain the symptoms so well in any other way as by assuming that he laboured under peritoneal inflammation. The inflammatory symptoms subsided, and two or three months afterwards I was called in to see him on account of a tumour which had formed in the front of the belly. It was an ab-

scess; I opened it, and there came out pus, and with it a good deal of foreign matter, which I was satisfied must have come from the intestinal canal. The abscess made its way in several other places, and ultimately this young man died. On examining the body after death it was found that there were ulcerations at the lower part of the ileum; one of these ulcers had extended through the muscles and peritoneal tunics, but around that ulcer the ileum had contracted adhesions to the abdominal parietes above the groin, and the matter had escaped into the cellular membrane between the layers of the abdominal muscles, and from thence had made its way forward to the part where I opened it. This patient died, but it is not a matter of course that, under such circumstances, such should be the result. I was called in to see a little boy who had been supposed to labour under mesenteric disease, and I found that there was an abscess near the umbilicus, discharging pus and feculent matter. We attended to his general health, kept him in a recumbent position, lying on his back, which, I apprehend was the most essential part of the treatment. Some very simple dressing was applied to the opening, and the boy ultimately recovered. I do not know whether he is still alive, but he was alive two or three years afterwards. I saw another case of the same kind, and I know that the boy lived a considerable time, but as he was taken away from London I cannot tell whether he ultimately recovered or not.

That part of the intestine in which ulceration of this kind is most likely to take place, is the lower part of the ileum, but it not unfrequently occurs in the cæcum. Abscesses in the right iliac region generally belong to the cæcum. A young man, on jumping from a coach felt something, as he said, give way in the right groin, and he came to London with a tumour in that situation. I thought that there was a deep-seated gland which was suppurating, and recommended him to go home, to keep quiet, and to poultice the tumour. A month after he had jumped from the coach he sent to say that the abscess had burst. There was a discharge of pus from it, but it was of a very offensive character, and on examining it carefully I was satisfied that there were fæces mixed with it. He had no bad symptoms at first, and being a very nervous man I did not tell him the exact nature of the case lest it should alarm him. Two or three days afterwards he took some medicine, and a draught of decoction of bark. A short time after, to his horror, the decoction of bark ran from the groin and frightened him out of his wits. From that moment his nervous system began to give way, he became in a state of great nervous excitement, and died ten days after the bursting of the abscess.

On a post-mortem examination I found an ulcerated opening of the cæcum; the fæces had escaped through it into the cellular membrane at the posterior part of the cæcum, and formed an abscess, which burst into the groin. There was a woman in this hospital, with an abscess in the groin, and we supposed it to be connected with dead bone, which is the case with a great number of chronic abscesses. Perhaps sufficient attention was not paid to the quality of the discharge; but one day the woman, in taking off a poultice,

found in it a lumbricus. She ultimately died, and on examining the body after death we found an ulcerated opening of the cæcum through which this intestinal worm had made its way. It was evident that the ulcerated opening of the cæcum, which was at the posterior part, had been the beginning of the abscess. Though these cases are not exceedingly rare, I mention them, because stating specific cases will often impress an important fact on the mind much more than a general observation.

I believe that this is the way in which fistulæ in ano are always formed, namely, the disease is originally an ulcer of the mucous membrane of the bowel, extending through the muscular tunic into the cellular membrane external to the intestine; and I will state my reasons for entertaining this opinion. The matter is one of great interest as a question of pathology, but it is one of great importance, as I shall show by and by, in connection with surgical practice. It is admitted by every one that in the greater number of cases of fistulæ in ano there is an inner opening to the gut as well as the outer opening; and I am satisfied that the inner opening always exists, because I scarcely ever fail to find it, now that I look for it in the proper place and seek it carefully. I have, in a dead body, examined the parts where fistulæ had existed several times, and in every instance I have found an inner opening to it. This affords a very reasonable explanation of the formation of these abscesses; it is almost impossible to understand, on any other ground, why suppuration should take place in the vicinity of the rectum more than in any other part of the body, and why the cellular membrane there should suppurate more than cellular membrane elsewhere. Moreover, the pus contained in an abscess near the rectum scarcely ever presents the appearance of laudable pus,—it is always dirty-coloured and offensive to the smell,—sometimes highly offensive, and occasionally you find feculent matter in it quite distinct. There is no reason why an abscess simply formed in the cellular membrane should smell of sulphuretted hydrogen; but there is a good reason why it should do so if it be connected with the rectum.

This being the case, it is easy to understand why these abscesses do not heal. The least quantity of mucus even from the gut, or of feculent matter, issuing into the cavity of the abscess, is sufficient to occasion irritation and prevent it healing, and I have more than once, in the living person, been able to trace the progress of the formation of one of these abscesses. For example, I was sent for to see a lady who complained of some irritation about the rectum, and on examining it I found an ulcer at the posterior part. I ordered her to take Ward's paste,—confec. piperis nigrum, or cubebs pepper, I forget which. A month afterwards she again sent for me, and I found that there was an abscess. I opened it, and from the outer opening the probe passed into the gut through the ulcer which had been the original cause of the disease. The original opening of the abscess is generally very small indeed, but occasionally it is large, and when the ulceration has proceeded to some extent, large enough to admit the end of the little finger. The inner orifice is, I believe, always

situated immediately above the sphincter muscle, just the part where the fæces are liable to be stopped, and where an ulcer is most likely to extend through both the tunics.

I believe that the most common cause of abscess of this kind is, the lodgment of hard fæces in the bowels; by the straining that takes place to expel them, the mucous membrane gets torn or abraded at one part, and then the passage of the fæces causes ulceration. Some time afterwards straining again occurs, and then the muscular tunic gives way, and the fæces escape into the cellular texture. Foreign bodies, however, in the rectum, sometimes cause abscesses. I mentioned two cases in my last lecture, but I shall mention them again. I mentioned them before because they particularly appertained to the subject we were then discussing. I was called in by a gentleman who complained of great irritation about the rectum. I thought that he laboured under internal piles, but the next day he complained still more, and on examination of the rectum I found a hard substance sticking in the membrane. It was a piece of apple-core which he had swallowed the day before, and if it had not been extracted it would have occasioned ulceration, some of the fæces would have been pressed through the opening, and in all probability the apple-core would have been found in the cavity of the abscess. I was sent for to see another gentleman who was exceedingly ill with a large abscess in front of the anus. He had a brown or rather a black tongue, and bad typhoid symptoms. I opened the abscess freely, let out a quantity of putrid offensive matter, and, on introducing my finger into the abscess, I found a long fish-bone sticking across, with one end in the gut and the other in the abscess. He had swallowed the bone, it had stuck in the bowel, and a little of the fæces escaping by the side made a putrid abscess. Patients with disease of the liver, disease of the lungs, and in certain states of ill-health, are especially liable to abscess and fistula of the rectum. The reason is this: persons thus affected are peculiarly liable to ulcer of the mucous membrane; one of the mucous glandules is attacked, and being very thin it gives way under the straining that takes place to expel the fæces, and fæces escape through the opening.

The first formation of an abscess about the rectum is not in general attended with very urgent symptoms. The patient has a sense of bearing down, a fulness and weight; he thinks that he has got piles, he puts his hand by the side of the anus, and finds a little hardness. After a time it increases, the parts become tender; there is pain when he passes his evacuations; perhaps some difficulty in passing them; by and by the pain becomes still greater, the skin inflames, the abscess, if left to itself, bursts, and a quantity of matter is discharged, which matter is almost invariably offensive, dark-coloured, and putrid. The disease sometimes forms so insidiously that the patient is not cognizant of it till the abscess has burst. Twenty years ago a physician in large practice in London felt very ill, languid, listless, and unfit for business; and in the middle of the day, in consequence of headache and an incapability of exertion, wanted to go home and lie down for an hour before he could finish seeing his patients. One afternoon, intending to walk home, he had sent away his carriage. He found something give way, burst into his small-clothes, and on his return he found that it was a putrid abscess—a fistula. He went through an operation for it, and got well.

While these abscesses are forming there is sometimes little or no constitutional disturbance; but in other instances there is a great deal of it, and I believe that it depends chiefly on the quality of the pus, and that, again, on the size of the opening. If the opening be pretty large, and a considerable quantity of feculent matter escapes, the pus is then of a very putrid quality, and the more putrid its character the more offensive it is to the smell, and the more poisonous it is to the patient's system; for as it is more offensive to the smell so it is more loaded with sulphuretted hydrogen. Such a collection of putrid matter sometimes produces very urgent symptoms. I was sent for to see an elderly gentleman in the neighbourhood of London with the late Dr. Blickham. I will not say that on my arrival the patient was in *articulo mortis*, but he looked as if he had not long to live—I should say hardly twenty-four hours. On inquiring into the history of the case I ascertained that he had a fistula by the side of the rectum. He had suffered under it for many years; for being afraid of an operation he had let it go on. The external orifice occasionally closed for a time, but in a few days it opened again, and gave exit to the matter. Two or three months, however, prior to the time of which I am speaking, the outer orifice had closed, and there had been no discharge, and at first no inconvenience had been felt. By and by there was a sense of pressure, a bearing down of the rectum, and the patient became very much out of health. At last typhoid symptoms supervened, and he appeared, as I have said, almost dying. I examined the parts externally, and saw that the orifice of the fistula had cicatrized. I then introduced my finger into the gut above the sphincter muscle, and I could feel an immense tumour on one side, which was evidently a large collection of matter. With the forefinger of one hand in the rectum, with the other I ran in a lancet up to the point where the matter was collected. Not only the shoulders but the whole blade of the lancet was buried before matter escaped, and then there was a little putrid discharge. With a probe-pointed bistoury I dilated the opening, and there came away a pint of such putrid matter that the whole house was poisoned by it; it could be smelt almost as bad as if a nightman had emptied his cart into it. The patient was better directly; though the incision was large there was no bleeding, and he recovered without a bad symptom. This circumstance took place many years ago, and he died lately of another complaint.

I have stated that the inner orifice of the abscess is always just above the sphincter muscle, and it may be that the abscess extends no higher than this. But in a great number of cases it does extend higher up—sometimes one inch, sometimes two; nay, I have sometimes found a probe pass four or five inches up the pelvis into a large cavity beside the rectum. These are cases of some interest, respecting which I shall have to speak to you again presently.

The external orifice of the abscess is generally in the skin, a little distance from the anus. Sometimes it seems to pass through the substance of the sphincter muscle, and on other occasions it opens externally to it. The abscess may burrow, and may be two or three inches away from the anus.

In some cases there is no external opening at all, and that may happen in two ways. I saw a gentleman who had an ulcer at the posterior part of the rectum as broad as a fourpenny piece. Some time afterwards I saw him again, and there was then a considerable discharge from the rectum, but no external opening. I introduced my finger into the rectum, and found that this broad ulcer had made a large cavity, in which matter was lodged, by the rectum. The sinus was so large that the matter had found its way out by the gut, and therefore did not burrow so as to make an external opening. But in other cases there is no external, while there are two internal openings, and they are found in the following manner:—There is a small opening through which the pus and fæces were originally infiltrated into the cellular membrane, and then the matter having collected near the gut, bursts into it, and makes a free opening in the neighbourhood of the first lesion. On examining the patient you find a discharge of pus from the inside of the rectum, and on introducing the finger you find distinctly the opening through which the abscess has burst into the rectum. This is what is commonly called blind fistula. The discharge in these cases is seldom quite constant; for the opening made by the bursting of the abscess into the rectum is not so large but what it sometimes contracts, and there not being a free discharge the matter collects, and you may feel it through the skin near the anus. This is important with regard to the treatment, as I shall explain hereafter. At other times the orifice allows the matter to escape by the rectum, and then the external tumour disappears.

In some cases there is a simple abscess and a simple sinus; but in other instances the disease is very complicated. The matter does not easily get to the surface, and it burrows in different directions; there is a sinus in this direction, and a sinus in that; sometimes it extends even to the middle of the nates, and there may be a sinus on both sides of the rectum. In these cases, where there are several sinuses, and where the disease is rendered complicated from the burrowing of the matter, it sometimes happens that there are two internal openings; but in general, however complicated the case may be, there is only one internal opening, and that communicates directly with one sinus, and indirectly with another. It is of great consequence to bear this in mind as connected with the surgical treatment. Where there are several sinuses, burrowing in different directions, the patient always experiences some degree of inconvenience. The matter lodges in one place, not in another, but wherever it lodges it occasions pain, there is an attack of shivering, and then the matter escapes. It then lodges in another place, there is another attack of shivering, and in these complicated cases the patient is continually suffering local pain and tenderness, and these are combined with constitutional disturbance.

I now come to consider the treatment of these cases. Why is it that the abscess does not heal? It may, as I supposed formerly, partly arise from the unfavourable locality for healing, in consequence of the muscular fibres of the parts being always in motion. The levator muscle and the sphincter ani are constantly drawing the parts asunder, so that they are not allowed to contract, but that is not a sufficient explanation. There is an internal opening to the abscess, and now and then a little bit of fæces or mucus will become infiltrated, and get into the cavity. That which produced the abscess originally is going on still. If you could get the inner orifice to close, the patient would soon recover. This does sometimes take place. I saw a patient who had an abscess by the side of the rectum, and to whom I recommended an operation, but for some reason or other he wished to put it off. He went about for a considerable time with this abscess, and when I saw him again the abscess was closed, and had been closed so long, and on a careful examination the parts seemed so sound, that I had no doubt that the inner orifice had healed spontaneously; the escape of feculent matter was thereby prevented, and all the parts granulated and contracted like an abscess elsewhere. The medicine which we now call confectio. piperis nigri was originally a quack medicine known by the name of Ward's paste. It is composed chiefly of black pepper and elecampane, and it had the reputation of curing fistula. I believe that it sometimes did so. It is very useful in the case of piles, and where there is an ulcer of the rectum unconnected with fistula. The black pepper mixes with the fæces, it passes down the canal, and becomes a stimulant to the mucous membrane. In this point of view it is useful to persons that suffer from disease of the mucous membrane after dysentery, or who have disease of the rectum. As it will cure piles and an ulcer of the rectum, so no doubt it will sometimes cure fistula. If the little ulcerated opening can be made to contract and cicatrize there is no reason why the external abscess should not heal. But you cannot depend on such a mode of treatment as this; it may or it may not happen to cure the patient, and for one instance in which it effects a cure it fails a great number of times. The disease, however, may generally be cured by a very simple operation, and in speaking of the operation we will take the simplest case first. We will assume that there is a fistula just by the side of the sphincter muscle and only one sinus. The first thing to be done is to find the inner opening. I do not say that you will always succeed in finding it—certainly not the first time, but you will rarely fail if you look for it in the right place. Formerly, I often failed, and for this reason,—I did not know where to look for it. I used to think that it was to be found in the upper part of the sinus, but it is never found there if the sinus runs high up. You must search for it immediately above the sphincter muscle. Another circumstance that makes it difficult to find is this:—The common probe being quite round, turns round in the hand; you want a probe of a much broader kind, so that the least motion of the hand turns the point another way. For this operation I use the probe I now show you, made by Philip and Wicker, in St. James's-street. First, it has a

flat handle, and that gives you a perfect command of the instrument; secondly, at the extremity it is like a common probe; but you must have probes of different sizes. There is a groove, so that it is both a probe and a director at the same time, and being made of silver it is perfectly pliable.

Now, to find the inner opening, place the patient over a table to the light, with an assistant to hold the legs. You introduce the fourth finger of the right hand into the rectum, remembering that the opening is close to the sphincter muscle. You will feel with the finger some little irregularity, and that is where the opening is probably situated. You are then to introduce this probe into the external opening with the assistance of the finger in the rectum, using no force, and by a careful manipulation feeling first in one direction, and then in another, at last it will almost alone pass through into the rectum. It must be done gently, and a little practice will enable you to find the inner opening. You ascertain when it has passed through the opening by its coming in contact with the finger. If you do not find the opening the first day put off the operation to another day. Occasionally I have tried two or three times before I could discover the opening, but generally, if you have probes of different sizes, it is easily found. Sometimes the opening is very small, and therefore requires a small probe. When you have found the inner opening, and the probe is in contact with your finger, you bend the end and bring it out at the anus. Thus, the part towards the handle is seen projecting from the outer opening, and the other part from the anus, while the parts which are to be divided lie upon the groove of the director. I generally divide the fistula with a pair of curved knife-edged scissors, for they cut better than a bistoury. A bistoury tears, and you may cut your own finger if you use the sharp edge. Introduce the scissors along the groove of the director, and divide the parts that lie between the inner and the outer orifice. There is scarcely any thing to be divided—not above an inch or an inch and quarter, but you divide the greater part of the sphincter muscle.

Having performed this operation, all you have to do is, to prevent the cut edges growing together. You have made it into a sore, some of the fæces go into the sore, but they do not lie and lodge there, and there is nothing to prevent this fistula which is now made into an open sore granulating and healing. All you have to do is to dress the parts very lightly between the cut edges to prevent them growing together, and that must be continued till the cut edges are skinned over. You may then leave the parts alone, and the healing process will go on.

But suppose that the fistula extends high up by the side of the rectum, above the opening, and this fistula is burrowing, what is then to be done? I used to imagine formerly that it was necessary to lay open the whole sinus into the rectum, but it is a frightful operation to lay open so long a sinus. You do not know what vessels you divide. There is seldom much bleeding in dividing the parts between the inner and the outer opening, but if there be much the pressure of the finger and a bit of lint stops it directly. I remember a case where

I divided a fistula some way up by the side of the gut, and the whole canal was filled with blood. It is true the bleeding stopped, and the patient got well, but still he might have died from hemorrhage. The bleeding goes on insidiously; you do not know how to stop it; it is internal, you cannot take up the vessels, and you cannot make pressure in any efficient manner. But I am now satisfied, and have been for a long time, that the division of a fistula which extends above the inner orifice is quite an unnecessary proceeding. Upwards of twenty years ago, when I was first getting into practice, I had a patient with a fistula, which I divided, or, at least, thought I had done it. But one day, when examining it with a probe, I found a sinus running up by the side of the gut for several inches. It seemed as if one side of the rectum was completely dissected from the neighbouring parts, but there was a good opening at the lower part where I had divided the fistula. Not knowing what to do with the case I called in the late Mr. Cline, and observed to him that if I divided it the whole length the patient might die from loss of blood. He said, "You are quite right, but more than that I do not think it is necessary; I would leave it alone." There was a free opening below; the fæces could not escape so easily now, and get into the cavity above. I adopted his advice, and the patient got well without any trouble. I have since seen other cases of the same kind. Where there has been a large sinus, connected with a fistula, I have laid open the parts between the inner and the outer orifice,—done nothing more,—and the patient has got well. If a very long sinus, and a very large cavity, heal up without being laid open, *à fortiori*, if there be a small sinus, and a small cavity, that will heal up too.

In the next lecture I shall call attention to the treatment of more complicated cases.

LECTURE XXII.

FISTULA IN ANO. (*Continued.*)

I CONCLUDED the last lecture by speaking to you of the mode of performing the operation for fistula in ano where that fistula is of the simplest kind. But I now come to consider what is to be done in a case of fistula attended with some complication.

The external orifice of the fistula is sometimes at a considerable distance from the verge of the anus, perhaps two or three inches, and in some cases it is as far off even as the buttock. You may, if you please, perform the operation in the same manner. You may pass the probe in at the outer orifice along the fistula into the rectum, feel for the end of the probe in the bowel, and then divide the whole. This, however, is a very serious operation, and a very painful one;

flat handle, and that gives you a perfect command of the instrument; secondly, at the extremity it is like a common probe; but you must have probes of different sizes. There is a groove, so that it is both a probe and a director at the same time, and being made of silver it is perfectly pliable.

Now, to find the inner opening, place the patient over a table to the light, with an assistant to hold the legs. You introduce the fourth finger of the right hand into the rectum, remembering that the opening is close to the sphincter muscle. You will feel with the finger some little irregularity, and that is where the opening is probably situated. You are then to introduce this probe into the external opening with the assistance of the finger in the rectum, using no force, and by a careful manipulation feeling first in one direction, and then in another, at last it will almost alone pass through into the rectum. It must be done gently, and a little practice will enable you to find the inner opening. You ascertain when it has passed through the opening by its coming in contact with the finger. If you do not find the opening the first day put off the operation to another day. Occasionally I have tried two or three times before I could discover the opening, but generally, if you have probes of different sizes, it is easily found. Sometimes the opening is very small, and therefore requires a small probe. When you have found the inner opening, and the probe is in contact with your finger, you bend the end and bring it out at the anus. Thus, the part towards the handle is seen projecting from the outer opening, and the other part from the anus, while the parts which are to be divided lie upon the groove of the director. I generally divide the fistula with a pair of curved knife-edged scissors, for they cut better than a bistoury. A bistoury tears, and you may cut your own finger if you use the sharp edge. Introduce the scissors along the groove of the director, and divide the parts that lie between the inner and the outer orifice. There is scarcely any thing to be divided—not above an inch or an inch and quarter, but you divide the greater part of the sphincter muscle.

Having performed this operation, all you have to do is, to prevent the cut edges growing together. You have made it into a sore, some of the fæces go into the sore, but they do not lie and lodge there, and there is nothing to prevent this fistula which is now made into an open sore granulating and healing. All you have to do is to dress the parts very lightly between the cut edges to prevent them growing together, and that must be continued till the cut edges are skinned over. You may then leave the parts alone, and the healing process will go on.

But suppose that the fistula extends high up by the side of the rectum, above the opening, and this fistula is burrowing, what is then to be done? I used to imagine formerly that it was necessary to lay open the whole sinus into the rectum, but it is a frightful operation to lay open so long a sinus. You do not know what vessels you divide. There is seldom much bleeding in dividing the parts between the inner and the outer opening, but if there be much the pressure of the finger and a bit of lint stops it directly. I remember a case where

I divided a fistula some way up by the side of the gut, and the whole canal was filled with blood. It is true the bleeding stopped, and the patient got well, but still he might have died from hemorrhage. The bleeding goes on insidiously; you do not know how to stop it; it is internal, you cannot take up the vessels, and you cannot make pressure in any efficient manner. But I am now satisfied, and have been for a long time, that the division of a fistula which extends above the inner orifice is quite an unnecessary proceeding. Upwards of twenty years ago, when I was first getting into practice, I had a patient with a fistula, which I divided, or, at least, thought I had done it. But one day, when examining it with a probe, I found a sinus running up by the side of the gut for several inches. It seemed as if one side of the rectum was completely dissected from the neighbouring parts, but there was a good opening at the lower part where I had divided the fistula. Not knowing what to do with the case I called in the late Mr. Cline, and observed to him that if I divided it the whole length the patient might die from loss of blood. He said, "You are quite right, but more than that I do not think it is necessary; I would leave it alone." There was a free opening below; the fæces could not escape so easily now, and get into the cavity above. I adopted his advice, and the patient got well without any trouble. I have since seen other cases of the same kind. Where there has been a large sinus, connected with a fistula, I have laid open the parts between the inner and the outer orifice,—done nothing more,—and the patient has got well. If a very long sinus, and a very large cavity, heal up without being laid open, *à fortiori*, if there be a small sinus, and a small cavity, that will heal up too.

In the next lecture I shall call attention to the treatment of more complicated cases.

LECTURE XXII.

FISTULA IN ANO. (*Continued.*)

I CONCLUDED the last lecture by speaking to you of the mode of performing the operation for fistula in ano where that fistula is of the simplest kind. But I now come to consider what is to be done in a case of fistula attended with some complication.

The external orifice of the fistula is sometimes at a considerable distance from the verge of the anus, perhaps two or three inches, and in some cases it is as far off even as the buttock. You may, if you please, perform the operation in the same manner. You may pass the probe in at the outer orifice along the fistula into the rectum, feel for the end of the probe in the bowel, and then divide the whole. This, however, is a very serious operation, and a very painful one;

you may have considerable hemorrhage, and under any circumstances there is a very large surface that is to be healed by granulation. But the fact is this extensive division of parts is really not necessary, and it may be avoided by proceeding in the following manner:—Introduce what I may call the probe-director through the external and internal orifice of the fistula, in the way I have described, and then feel for the probe at some little distance—we will say three quarters of an inch from the anus. Having felt the probe in that situation, which you may generally do with great ease, with a lancet or double-edged scalpel make an opening through the skin and the adipose substance leading down to the groove of the director. You thus make a new external orifice to the fistula; you then withdraw the probe, pass it into the new orifice you have made, through that into the sinus, and then into the rectum. You then bend the probe, bring out the extremity at the anus, and with a pair of knife-edged scissors, divide the parts that lie over the director, and thus you obtain all that is wanted by a very small division of the soft parts. The fistula is prevented healing by the fæces escaping into it from the rectum and lodging in the narrow channel. Without some such cause as this the whole fistula would heal at once. It is true that the external extremity of the fistula remains undivided, but the fæces cannot pass into it, and in a very short time it heals spontaneously. The internal part is made an open sore; which must be dressed from the bottom, and it heals in the usual manner.

The matter, however, may have burrowed and made many sinuses—a sinus in one direction, and a sinus in another. Sometimes these complicated sinuses are confined to one side of the gut; in other cases they are formed on both sides of it. Before you proceed to the performance of an operation in these cases you must examine the patient very carefully, and it is very probable that three or four examinations will be required before you can ascertain the exact state of the parts sufficiently to guide you in the operation. Introduce the forefinger of the left hand into the gut; then examine the different sinuses, and ascertain whether there is one or more internal communications with the rectum. It very often happens that where there are several sinuses external to the gut, communicating with each other, there is one that is the original sinus, and which has an opening into the bowel. But sometimes there may be a double communication, and then your business is, if possible, to ascertain which is the original sinus, and to lay that open in the way I have already explained, while the others very often need not be touched at all. If the original sinus be made an open sore the fæces will not pass into the secondary sinuses, and there will be nothing to prevent them from healing.

I have stated that very often it is unnecessary to open more than a single sinus, but there are exceptions to that rule; for there may be sinuses in which the matter lodges, and from which the matter that is formed does not freely escape. These sinuses require to be laid open, not for the purpose of preventing the fæces lodging in them, but on account of the secretion of the sinus itself, just as sinuses anywhere else, from which matter does not freely escape, may require to be freely opened.

I have already stated that if you conduct your examination carefully, and look for the internal orifice of the fistula in the right place, just immediately above the sphincter muscle, you will scarcely ever fail to find it; that if you do not succeed on the first occasion, you will on the second or third. But sometimes the opening is so small, and the sinus takes such a circuitous course, that even after two or three examinations you cannot find it. This will occur sometimes, not very often, and what is then to be done? Perhaps if you were to delay the operation still longer you might discover it, but the patient grows uneasy and impatient at the cure not being completed, and is anxious for something to be done. You must then do what Mr. Pott recommends to be done on all occasions, and which, though a bad practice on all occasions, is a good one sometimes. An artificial opening must then be made into the gut, and you must use the probe-director, or a common probe-pointed bistoury, just as you please. With the fore-finger of one hand in the rectum, to assist you, you must, with the instrument, whichever you use, perforate the membrane of the gut some way above the sphincter muscle, and then divide the sinus. But this is, after all, a very unsatisfactory way of doing the operation, and you may rest assured that if you make an artificial opening and fail to find the real and original opening, in three cases out of four you will be plagued afterwards. You have made an artificial opening, but the original one remains, and you go on dressing the sore; but there is a little infiltration of fæces and mucus into it that prevents it being healed. When you have to make an artificial opening in the way I have stated I advise you to do something more. Having made the artificial opening, and laid the fistula open into the gut, take a straight probe-pointed bistoury, introduce it into the rectum, turn its cutting edge outward, divide the sphincter muscle, and set that completely at liberty. No large division of parts is necessary for this purpose, but having set the sphincter muscle completely at liberty you will scarcely have any trouble in the healing of the sinus. This is better than merely laying open the sinus, into the gut where you cannot find the internal orifice; but it is not so good as the operation where you can find it, because you have more bleeding, you give the patient more pain, and there is a larger wound to heal. I may, however, take this opportunity of mentioning that, although the bleeding from the division of the sphincter muscle is considerable at the time, yet it is never dangerous, because it is within reach. Probably, you may see the vessel that is divided, and can secure it by a ligature; but if not, a dossil of lint, dipped in a styptic lotion, laid on the part, and kept there by the finger of an assistant for half an hour, will always stop it.

I mentioned in the last lecture two classes of cases in which the fistula has no external orifice. In one of these there is a small internal opening, and the fæces having penetrated the cellular membrane external to the gut, an abscess has been formed which has burst into the rectum by another opening. In these cases, by making pressure

externally, you may generally feel where the matter is lodged. One day the bag is empty, another it is full. Take the opportunity when it is full, and you can feel where it is situated, to make a puncture into it with a lancet, and having so done you reduce it into the state of a common fistula, except that there are two internal openings into it instead of one. You then introduce the probe into the rectum and divide the fistula in the usual manner. You must, if you can, discover both the internal openings, and let them both be included in the incision that you make.

I stated that there was another case in which there was an ulcerated cavity in the neighbourhood of the rectum, having no external communication, and where the orifice was originally not like a pin-hole, as in common cases, but sufficiently large to admit the end of the little finger. The ulcer has gone on until it has made a considerable cavity by the side of the gut, having no external opening; and here you are to proceed in the following manner:—The broad internal opening is always close to the sphincter muscle, and at the back part just opposite to the os coccygis. You must be provided with a probe, bent like the one on the table. The probe is to be passed into the rectum, and then drawn down again, so that the point may enter the ulcerated cavity. The point of the probe is felt under the skin; the skin may be punctured with a lancet, and you then introduce the probe director through the aperture and divide the fistula in the usual manner. [The lecturer illustrated these operations by means of a diagram.]

Now, there is another form of fistula of the rectum that requires very especial notice. I cannot better explain what I mean than by mentioning the following case:—There was a middle-aged lady who had an abscess formed in front of the rectum. I imagine that it arose, in the usual manner, from ulceration of the gut. The abscess burst close by the posterior margin of the vagina, and appeared just like a common fistula. She consulted a surgeon, who inadvertently treated it as such, and laid it open into the gut. But what was the consequence? He divided both the sphincter ani and the sphincter vagina, and the wound never perfectly healed. She was in the condition of a patient with a lacerated perineum, and all the rest of her life was liable to an involuntary discharge of fæces, of course making her life miserable. I saw this case some twenty-five years ago, and it was, as you may suppose, a lesson to me ever afterwards. It is not very often that abscesses of the rectum do burst in this situation; I have only seen a few examples of it, but the case I have mentioned was sufficient to show me that some peculiar mode of treatment was necessary. How is such a case to be treated? I have seen two or three cases of this kind of fistula since, without having an opportunity of following up the treatment, and no such opportunity occurred till last year. A lady consulted me with a fistula communicating with the rectum in front, and opening externally just at the beginning of the vagina. I merely made a free division of the sphincter muscle on both sides so as to set it completely at liberty. I dressed the cut edges of the sphincter muscle, and it was a good while before it

regained its complete usefulness. That was just what I intended. The discharge from the fistula immediately became very much diminished; it continued gradually diminishing, and when I last saw her, which was some few months after the operation, it appeared to me that the fistula was soundly healed. Why is it that the fæces get so readily infiltrated into the internal orifice of the fistula? Because there is an obstruction to their passage occasioned by the sphincter muscle. I divided that muscle, removed that obstruction, and the fæces escaped so easily that they did not get into the internal orifice of the fistula. I was led to adopt this plan of treatment from the course pursued by Mr. Copeland in another case. He says that he was consulted by a lady who had an ulcerated opening between the rectum and the vagina. He divided the sphincter muscle, set it completely at liberty, and after the lapse of some time the recto-vaginal communication was closed, and at last firmly cicatrized.

Having stated how these fistulous sinuses are to be laid open, let me say a few words about the dressing. First of all, if the operation be done in a proper manner, there is very little in general to dress—it is only a narrow sore that remains to be dressed. Do not cram it with lint; all that is necessary is, to put a little lint between the edges to prevent them prematurely healing. The parts about the rectum are very often a little longer in healing, and it may be worth while to dress them with red precipitate ointment. When the parts are beginning to granulate you may hasten their cicatrization, and the formation of new skin, by touching them lightly over with the nitrate of silver. It is very seldom necessary, except in complicated cases, to dress the fistula for any length of time; a few days' dressing is very often quite sufficient. As soon as the cut edges are skinned over, the dressing is hardly necessary, and it will save both you and the patient a good deal of trouble merely to touch the surface of the sore lightly every other day with the nitrate of silver. When the edges are fairly skinned over, the rest will skin over sooner without the dressing than with it. If you cram the part full of lint you occasion the patient a great deal of pain. I am sure that sometimes, from too much lint being crammed in, the matter does not freely escape; it burrows in the cellular membrane, and makes a fresh sinus.

There are some cases in which abscesses occur about the rectum, which may be confounded with that particular disease I have just described, and I shall explain them in order that you may draw the distinction between them. An abscess sometimes forms in an external pile. The patient has an external pile; it inflames and suppurates, and on going to him you find the abscess just on the point of bursting. You open it and let out perhaps a teaspoonful or more of matter, but on passing in a probe it will not go up by the side of the gut. This is a very troublesome sort of abscess, it is very painful, the patient can hardly bear to go to the water-closet, and he has pain in passing the last drops of urine.

The treatment is very simple. You cure it at once radically by snipping off the external pile, abscess and all, with a pair of curved scissors.

The same thing will sometimes happen with an internal pile. The patient has an internal pile, inflammation takes place in it, an abscess forms and bursts externally, and you can pass a probe into the abscess in the inside of the pile. Here, also, the best way is, if the pile be small, to snip it off with a pair of scissors, or if it be not small to tie it with a silk thread round the base, and destroy it by ligature. I may here mention an error into which you will be liable to fall if you be not on your guard against it. When you introduce a probe into an abscess formed in an internal pile it very easily breaks down the slender wall of the abscess, and runs into the cellular substance under the mucous membrane. The cellular tissue offers so little resistance to the probe that it may pass in any number of inches between the mucous membrane and the muscular tunic without your being aware of the circumstance. I remember a case many years ago where a surgeon of great eminence in this town laid open what he thought was a sinus of two or three inches in length into the rectum. I am satisfied, from what I remember of the case and have since seen, that it was an abscess formed in an internal pile, and that what he supposed to be a sinus was neither more nor less than a space he had made himself by running the probe into the loose cellular texture.

It is necessary, in the very great majority of cases, to lay the kind of sinuses to which I have alluded completely open into the rectum; and I presume that it is from the analogy to fistula here that some surgeons have been led to think that this operation was necessary for all kinds of fistulous sinuses. I remember some very good surgeons in this town who used to think it was requisite to open what is termed a fistula in perineo in this manner. There can be no greater error. A fistula in perineo is the same as a fistula in ano, except that it communicates with the urethra behind a stricture, whereas a fistula in ano communicates with the rectum above the sphincter muscle. The fistula in perineo is the result of some of the urine passing in from the urethra, and to lay it open will do no good, for it will not prevent the escape of urine going on. But this may be accomplished by dilating the stricture, and, in nineteen cases out of twenty, all that you have to do is, to dilate the stricture. Generally, by the time the stricture is dilated, the urine, finding a readier passage forward than it does through the ulcerated opening, it will not pass into the latter, and the fistula is usually healed by the time the stricture is dilated. If it be not completely healed by that time you have only to keep the stricture dilated for a considerable period by the introduction of an instrument every day, or every other day, and the fistula in perineo will at last heal. If it be a large opening it will take some months to heal, but still it heals spontaneously. There is only one kind of case in which it is necessary to lay open a fistula in perineo, and that is, where there is a sinus in the perineum into which the urine escapes, but which is so situated that neither the urine nor the matter secreted in the sinus can find egress. If there be a fistula in perineo under these circumstances it may require to be opened.

There are some fistulous sinuses that exist in the groin in connection with disease in the glands of the groin. Surgeons formerly supposed that these required to be laid open like a fistula in ano. They do require to be opened where matter lodges in them and cannot escape, or, at any rate, a counter-opening will be necessary; for there is no disposition to heal unless the matter escapes as fast as it is secreted; but the mere laying open of the fistula will not cause it to heal, it will only prevent it extending. What hinders the fistula in the groin from healing? The diseased gland at the bottom of it. If you wish the fistula to heal you must destroy the diseased gland, or bring it into a healthy condition. Sometimes it may be necessary to dissect out the gland or to destroy it by a powerful escharotic; but in the greater number of cases, if you attend to the general health, the diseased gland recovers itself; and so soon, and no sooner, will the sinus in the groin heal.

The same observation applies to fistulæ that are connected with dead bone. A fistulous sinus leading down to dead bone does not heal because there is dead bone in the bottom; but if the dead bone comes away then the fistula will heal. It is needless to lay open the fistula to inject stimulating liquors into it, or to do any thing till the dead bone has been removed. All that it is worth while to do is, if matter lodges in it to make a counter-opening by which it may escape.

LECTURE XXIII.

ON FATTY OR STEATOMATOUS TUMOURS.

There are different kinds of fatty tumours, but the most common is the following:—The fat resembles ordinary fat, except that it is rather of a more delicate and of a looser texture, and of lighter colour. It is composed of lobules with very thin membranes between them; and externally there is a thin membranous bag in which the whole mass is contained. This bag has a very loose adhesion to the parts in which it is imbedded, but the adeps which it embraces adheres pretty firmly to it.

These tumours, for the most part, form under the integuments in some part where there is naturally adipose structure. You never find them where there is no adeps originally; as, for instance, in the scrotum, the eyelids, or the internal organs. But wherever natural adipose structure exists there this unnatural morbid growth of adipose substance may take place. The tumour is very often not detected when it is of small size. In some instances it remains stationary, but for the most part, being once formed, it gradually increases in size. It generally begins, the patient knows not why or wherefore; but it occasionally seems to originate in some slight injury of the parts in which it is formed. For example, a gentleman was straining to raise

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These tumours, for the most part, form under the integuments in some part where there is naturally adipose structure. You never find them where there is no adeps originally; as, for instance, in the scrotum, the eyelids, or the internal organs. But wherever natural adipose structure exists there this unnatural morbid growth of adipose substance may take place. The tumour is very often not detected when it is of small size. In some instances it remains stationary, but for the most part, being once formed, it gradually increases in size. It generally begins, the patient knows not why or wherefore; but it occasionally seems to originate in some slight injury of the parts in which it is formed. For example, a gentleman was straining to raise

his arm as high as he could, and he felt a sort of snap in the shoulder, and soon after that a fatty tumour appeared over the deltoid muscle. A lady was making an effort with her arm; something snapped, as she thought, in a part of the shoulder; soon afterwards she consulted me, and I discovered a small adipose tumour.

The diagnosis of a fatty tumour under the skin is generally sufficiently simple. There is a peculiar sensation communicated by the tumour to the fingers, which it is difficult to describe in words, but which, when once felt, you will readily recognize afterwards. Sometimes the tumour is elastic, so that you might almost be led to suspect that it contained fluid, but a little practice will, for the most part, enable you to distinguish better. The tumour is generally pretty well defined, it is not productive of pain, it is not at all tender, and gives the patient no inconvenience, except when it attains a large size, and then it is merely troublesome from its bulk. Sometimes, however, the tumour is not situated in the fat immediately under the skin, but is in some more deep-seated situation. This renders the diagnosis more difficult. I remember a lady who had a tumour at the posterior part of the shoulder, and there were various opinions respecting its nature. No one seemed to be quite positive on the subject. On performing the operation for its removal, the trapezius muscle was found lying over it, some fibres of which being divided, out started a fatty tumour. A lady had a tumour of the breast (I am now speaking of what happened when I was almost a student); she was the wife of a medical man, and she had the opinions of four or five of the leading surgeons of that day. One thought that it was fungus hæmatodes, another believed it to be something else, and another could not say what it was. At last it was decided to cut down on the tumour, and then it was found to be a great mass of fat. It was situated under the gland of the breast, which, being of large size, concealed the tumour completely, and being, as it were, lifted up by it, was made to appear a great deal larger than it was.

When a fatty tumour has a deep-seated origin it will sometimes make its way out from under the muscle, a small portion presenting itself externally, while the rest remains concealed. You are led to think there is a very small tumour, but when you cut down upon it you find it to be a large one. This happened to me last week. A patient consulted me concerning a tumour below the axilla. It seemed to be a small fatty tumour, about the size of half an orange, but I could not get my fingers behind it. It was evident that I could not trace its origin, and when I cut down upon it I found it an enormous tumour proceeding from the axilla. It extended far back, apparently into the space between the scapula and the ribs. In fact it was impossible to dissect out the whole of it, and I was forced to tie a ligature in the middle, and cut off the greater part, leaving the rest.

As a fatty tumour increases in size the skin becomes dilated in proportion. When it is of large size a sort of thick fascia is formed over it—such a fascia as is situated over a large old hydrocele or hernia. In different parts of the fascia there are circular spaces, into which the finger will sink as if it were into the substance of the

tumour. The skin over a fatty tumour very rarely inflames and ulcerates. One might suppose that the pressure of the tumour would produce this effect, but it is not so. I have, however, known inflammation to take place in the substance of the tumour, and an abscess to form in its centre. A very remarkable example of this occurred to me in this hospital. An elderly man was brought in with an enormous fatty tumour on the back weighing many pounds. It had existed a number of years, and hung like a wallet behind. A year or two before he came in inflammation had taken place in the tumour, and an abscess had formed and burst externally. The abscess never healed, but continued to discharge profusely both matter and a sort of oil floating in it. It is worth while for me to mention what happened afterwards in this case. I dissected off the tumour, which was easily done, for it had not a very broad origin, and it was a very slight operation. The wound healed very readily, but when it was nearly closed the patient became very ill. I forget the exact symptoms, but I know that we had none of us any doubt that they arose from the sudden cessation of the profuse discharge of matter and grease from the interior of the tumour. These symptoms, however, subsided, and the patient recovered.

We know of no internal medicine, nor of any local application, that will disperse these tumours, and the only thing to be done is to remove them by the knife. This may be done when the tumour is quite small. I do not, however, generally recommend the operation at this period, first, because the tumour may never increase, and as long as it is small it is of no consequence; and, secondly, because the operation is really more easy when the tumour has attained a certain size. Still, it is better not to let the tumour go to any *very* large size; and for this reason, lest the pressure of the skin should cause it to contract adhesions to the neighbouring parts. Where such adhesions have taken place, the operation is rendered difficult, and you cannot be certain that you do not leave some small portion of it, which may be the nucleus of a future growth. As soon, then, as the tumour becomes large enough to be troublesome from its bulk, then you may dissect it out, and this is a simple operation if you know how to do it, and very difficult otherwise. Make a free incision of the skin, not upon the tumour but into it, cutting fairly into its substance. Do not spare the incision through the skin, but let it extend from one end to the other. Then lay aside your knife, and you will find that with your fingers you can easily separate the cyst that contains the adipose matter from the neighbouring textures, pulling out one lobe after another till at last the tumour remains attached only at one corner, that is at the point at which the vessels run in and out. You have no bleeding in any other part of the operation, but in this last part of it you will generally find one or two arteries which you must secure by ligature. When the tumour is situated under a muscle, the operation is to be performed in the same way, with this exception—that besides laying open the skin, you must freely divide the muscle, cutting across the fibres.

There is another kind of fatty tumour which occurs not very unfre-

quently, but which, so far as I know, is not described in books. It is a deposit of fat, the tumour not being well defined, and there being no distinct boundary to it, so that you cannot say where the natural adipose structure ends, and where the morbid growth begins. I will mention to you one of several cases which I have seen, and which will explain sufficiently what I know of the matter. A man came to this hospital some seventeen or eighteen years ago, with a very odd appearance—an enormous double chin, hanging nearly down to the sternum, and an immense swelling at the back part of the neck—two great tumours as big as oranges sticking out, one behind each ear. The patient stated that these tumours had begun to form three or four years before, and had been gradually increasing in size. They gave him no pain, but they made him miserable, and in fact had ruined him. The poor fellow was a gentleman's servant, and having such a strange grotesque appearance nobody would hire him. I gave him half a drachm of liquor potassæ three times a day, and gradually increased the dose to a drachm. This was taken in small beer. About a month after he began to take it the tumours were sensibly diminished in size. He went on taking the alkali a considerable time, and the tumours continued decreasing. It was just then that iodine began to have a sort of reputation, much beyond what it deserved, for the cure of morbid growths, and I gave him the tincture of iodine. It was curious that while he took the tincture of iodine he lost flesh generally, but the tumours began to grow again. Finding this to be the case, I left off the iodine, and gave him the liquor potassæ a second time. He took an immense quantity altogether, and left the hospital very much improved, being directed to take the medicine for some time longer, off and on. I had lost sight of him for some time, when I happened to be requested to visit a patient in Mortimer-street. I did not observe the servant that opened the door, but as I came down he stopped me in the hall, and said that he wished to thank me for what I had done for him. To my surprise it was this very man. He had gone on taking the caustic alkali for a considerable time, and you may suppose how much he was improved by his being able to get a situation as footman. There were some remains still of the tumours, but nothing that any one would have observed. I have seen some other cases of the same kind, and where I have had the opportunity of giving liquor potassæ it seemed to be of great service. But I have not tried it in every case, and I have been informed that in some other cases it has been tried to a great extent without the same good result.

These tumours feel like fat, but there is no distinct boundary, and they are not so soft and elastic as common fatty tumours. This deposit of fat may take place in any part of the body, but I have seen it more frequently in the neck than elsewhere.

There is another kind of fatty tumour, which also, so far as I know, is not described by writers. A patient comes to you having tumours in different parts of the body, as if there were absorbent glands under the skin. You will find several in the arm, several in the trunk, and perhaps a great number of them altogether. They generally give no

pain, they grow to a certain point, and these do not get larger, but others form somewhere else. They occur in persons apparently healthy in other respects, and are not connected, so far as I have seen, with any other disease. I used to doubt very much what was the nature of these tumours, till at last there being one rather larger than usual in a patient who had several of them, I dissected it out, and it proved to be a fatty tumour; but the fat was of more solid consistence than that belonging to the ordinary fatty tumours, which causes them to give a different feeling to the fingers. They are equally well-defined on the margin. Any one of these tumours that grows to an unusual size may be dissected out without any harm, but there being a great number of them, it would be absurd to think of dissecting them all out. Can any thing be done in the way of medicine? I have given these patients the liquor potassæ in large doses, and certainly in two or three cases with very great benefit. The tumours in one case nearly or quite disappeared under this remedy. I suppose that in those, as well as in the other cases of which I have just spoken, the liquor potassæ acts in this manner; the greasy part of the tumour combines with the alkali, is taken into the circulation, and is thus carried off. It was upon this hypothesis, at any rate, that I was led to give this alkali. Whether it be, or be not, the right explanation, I will not say, but of this I am certain, that the remedy is often a very efficient one. But may the liquor potassæ be taken with safety in such large doses? Indeed it may, if you dilute it sufficiently. You cannot take even half a drachm in two ounces of liquid without its being inconvenient to the stomach, but you may take a drachm and a half in a large quantity of liquid two or three times daily without any harm. The best liquid in which to take liquor potassæ on this and on many other occasions, is fresh small beer. It seems to me to act better in small beer than when it is given in other ways, and the beer does not disagree with the stomach, because the alkali combines with and neutralizes the vinegar which it contains. It is the latter that disagrees with weak stomachs. The alkali and the vinegar together make a diuretic salt, and I suspect that this is advantageous; besides that the alkali is less ungrateful to the taste when taken in small beer than in any other way. However, there are some persons who really cannot take small beer, even with the alkali; and others, with whom small beer generally disagrees, can hardly be persuaded that an alkali alters its quality. If there be any reason for not giving it in beer, it may be given in milk and water, or clove-tea, or ginger-tea; but then it should be exhibited in smaller doses, because none of the alkali will be neutralized as it is by the acid of the beer. To do real good the alkali must be taken in large doses, and for a long time together—not for weeks, but for months. A patient may take it on and off for a great length of time without any mischievous effects.

There is a very remarkable kind of fatty tumour that sometimes occurs, though it is a very rare disease indeed. It is of rather firmer consistency than an ordinary fatty tumour, and perhaps there are two or three or more in different parts of the body. When you cut

down on it, you find that it is composed of pretty solid fat, and that it is covered with a reflected membrane just as perfect as the peritoneum or the pleura, or any of the reflected membranes of original formation. There is one layer of membrane covering the tumour itself, and then another which forms a loose bag round it; and there is a space between the two membranes filled with a halitus, so that they do not adhere. These tumours are troublesome to remove, because you must remove not merely the tumour itself, but the reflected membrane. How you are to distinguish these cases from other tumours I cannot tell; you can only make out the nature of the case when you have cut down on the tumour.

There is a tumour that occurs in the female breast, which Sir Astley Cooper has called the chronic mammary tumour. It is not a very good name, but no other has been given to it. This tumour is of a peculiar structure, in general lobulated; and when you examine one lobule, you find it is made up of smaller lobules, adhering to each other by loose cellular texture. What is the peculiar appearance which it presents under the microscope I do not know, but by the naked eye it is easily distinguished from malignant and other tumours of the breast. It occurs for the most part in young women, and there is reason to believe that sometimes it disappears spontaneously. I was called to see a young lady some years ago, who had a tumour on one side of the breast; and I thought that the disease was of this description. I recommended her, as it was of some size, to have it removed by an operation. I cut down upon the tumour, and dissected it out, or rather extracted it, which was done very easily in the way which I will mention presently. At the time of the operation it seemed to be not exactly the common chronic mammary tumour, though very like it; but when I examined it afterwards, I found it chiefly composed of fatty substance, but lobulated like a chronic mammary tumour. The wound healed, and there was never any return of the disease. This called my attention to the subject, and since then I have seen other cases, that satisfied me that this chronic mammary tumour has some actual relationship to the fatty tumour, the structure being probably modified by the particular organization of the part in which it is imbedded.

In the case which I have just mentioned, the character of the fatty tumour predominated; but, from the structure of other tumours, it appears as if the two diseases run into one another; and even where the characters of the two tumours are most distinctly marked, there is this point of resemblance between them—the adhesion of them to the neighbouring parts is just of the same kind, and they must be removed in the same manner, namely, by dividing the skin, and turning them out with the fingers, there being generally only one point of the tumour at which there is much adhesion, and that is, where the vessels pass in and out. Then I met with this case, which affords a further proof of the relationship between these two classes of tumours. There was a lady who had an enormous tumour of the breast. I could not say that it felt different from the natural breast, but it seemed as if the breast were grown to a monstrous size. I

called in Sir Astley Cooper, it being a doubtful case, and the patient being a person of considerable consequence; and he agreed with me in thinking that it was more like hypertrophy of the breast than any th ng else (for there is such a disease as hypertrophy, that is, an increase of the natural structure of the breast, without any actual change of structure). There was no hurry about it, and we tried pressure and some other remedies without any benefit. The tumour, however, continued to grow, the patient became tired of carrying about the load, and we recommended her to have the breast removed. Sir Astley Cooper was with me at the operation, and we set about it, believing that I should remove the whole breast. But when I came to cut down upon it, I found that the breast itself lay perfectly sound in front, while the tumour lay at the posterior part, between the breast and the pectoral muscle. I dissected out one portion of the tumour, and it had just the appearance of a chronic mammary tumour. Then, as I went on, I came to a mass of fat, which I drew out in the same manner; and then I came to another mass of chronic mammary tumour, but the whole connected together. The entire mass weighed probably two or three pounds. The breast itself was left perfectly sound. When we examined the tumour we found it made up of both structures; at one part there was common fatty tumour, and at another chronic mammary tumour, the one being blended with the other, so that they could not be separated. The patient did perfectly well.

I have said that the skin over a fatty tumour does not readily ulcerate, but that matter may form in the tumour, and then that the skin may become ulcerated secondarily. But Sir Astley Cooper used to say, that he had no doubt a fatty tumour would sometimes alter its structure, take on malignant action, and become a malignant tumour. Whether he had any dissections to prove that I do not know; but I have no doubt that he had seen instances in the living person which sufficiently justified the opinion; and I think the case I am about to mention proves that he was correct. A farmer from the country came to me with what appeared a fatty tumour on the back. It was as big as your two fists put together, and it had existed for a great length of time. There seemed to be no doubt that it was a fatty tumour, yet it was a little more firm in consistence, than fatty tumours usually are. I dissected out the greater part of the tumour; and on examining it afterwards, I found that it was composed of a fatty substance, rather more condensed than usual, but that here and there throughout its substance there was a morbid growth, apparently belonging to the class of medullary or fungoid disease. It is reasonable to suppose that if the tumour had been allowed to remain, it would have ulcerated and run the course of other malignant tumours.

I have thought it worth while to bring this subject of adipose tumours before you, because I think a good many of the facts which I have mentioned, though of course known to practical surgeons, are not to be found in books, and that it will be useful for you to be taught them, and not to be left to find them out altogether for yourselves.

LECTURE XXIV.

ON SERO-CYSTIC TUMOURS OF THE BREAST.

The disease of which I propose to treat on the present occasion, is an affection of the female breast. It is one of great interest in various ways, and among others in this, that in its more advanced stages it is liable to be confounded with carcinoma, although it is not really of a malignant nature. I should not have been able to trace its exact history if I had trusted altogether to my hospital experience. In private practice it is of frequent occurrence. Yet I have not met with any description of it in books corresponding to what I have myself observed of its actual progress. You will presently see how this is easily to be explained by the disease assuming a wholly new character as it proceeds, so that if you were to look at two cases of it, one in an early, and the other in a more advanced stage, without having witnessed the intermediate changes which have taken place, you would be scarcely able to recognize their identity. Let me not, however, be misunderstood as representing that no notice whatever has been taken of it by surgical writers. The account which Sir Astley Cooper has given of the hydatid breast has been taken principally from cases of this disease, and there are also some allusions to it in the Treatise on Diseases of the Breast, lately published by M. Velpeau.

The first perceptible indication of the disease is a globular tumour imbedded in the glandular structure of the breast, and to a certain extent movable underneath the skin. Sometimes there is only one such tumour; at other times there are two or three, or many more. The examination of the breast in the living person does not enable you to determine the exact number which exists, as it is only where they have attained a certain magnitude that they are perceptible through the skin. In most instances the disease is confined to one breast, though it is by no means very uncommon for both breasts to be similarly affected.

The globular form which the tumour invariably assumes in the first instance is a sufficient proof that it is formed of fluid collected in a cyst, and of course pressing equally in every direction. If you puncture the tumour with a grooved needle, the fluid may be evacuated so as completely to empty the cyst, and the perfect subsidence of it afterwards proves how little space the cyst itself occupies. The fluid is always serous. When the tumour is small it seems to be serum, unmixed with any thing else. In a more advanced stage of the disease, some colouring matter is generally blended with it, and it may be green, or brown, or so dark-coloured as to be almost black. The quantity of fluid of course varies. In dissection, I have found the cyst to be so small as to contain scarcely a single drop.

But it is sometimes capable of containing several ounces. In two cases in each of which I had the opportunity of examining a breast affected with this disease, I found small cysts, composed of a thin membrane, and containing serum, pervading the whole of the glandular structure, the intermediate parts presenting a perfectly healthy and natural appearance, and I could discover nothing more. I am, however, led to suspect that the cysts are originally formed by a dilatation of the lactiferous tubes. In one of the preparations now on the table you will perceive a bristle introduced into the orifice of one of these tubes opening on the nipple, which has passed into a cyst immediately below; and it is not uncommon to find that by pressure on the tumour, the fluid may be made to escape by the nipple, even so as to expel the whole of it.

To complete this history of the disease, as it first shows itself, I may add that the general health is unaffected, and that the patient complains of no pain, unless it be that, in some instances, there are those disagreeable nervous sensations which are apt to arise whenever the attention is anxiously directed to any one part of the body. I have never known the disease to occur previously to the age of puberty, nor after the middle period of life: and, if I am not much mistaken, it is more common in single than in married women.

There are not a few cases in which no morbid changes take place beyond that which I have already described; the cysts remaining unaltered, or only slowly increasing in size during the remainder of the patient's life. But in other cases the tumours lose their globular form, and a solid substance is deposited in the breast, connecting different cysts with each other in one large mass of disease. This process may be going on for many successive years without inducing pain or much inconvenience, except what belongs to the bulk of the tumour. But the period at last arrives when other changes take place, the disease assuming a more formidable and dangerous character. The skin, in some one part, more tense and thin than elsewhere, becomes inflamed and ulcerates; and an intractable and bleeding ulcer is the consequence. Then one of the cysts, more distended than the rest, gives way, discharging its serous contents. Perhaps the opening heals, then again gives way; and this may recur several times, until at last a fungous growth protrudes through the opening. And here the question arises, what is the exact nature of these changes, which, by a slow gradual operation, at last convert a disease so small and simple in its origin, into one so extensive and complicated? This I shall next endeavour to explain; and a series of preparations on the table, with the histories of the cases belonging to them, will enable me to do so.

The first of these is a membranous cyst, which I removed from the breast of a private patient. It is of the size of a large walnut; and you will observe that about one-fourth part of its cavity is occupied by an irregularly shaped excrescence attached to one portion of its internal surface.

Several years ago Mr. Green and myself were present, when Mr. Freeman, of Spring Gardens, removed the breast of a female with a

similar tumour imbedded in it. The tumour was of about the same size as that which I have just shown you; and in my notes of the case I find it stated, that "the cyst contained serum, but that about one-third part of its cavity was occupied by an excrescence which came from one part of its inner surface. The excrescence had the appearance of fibrin which had become vascular."

The history of the patient whose case has furnished us with the next preparation, and the accompanying drawing, is highly interesting, and illustrates many circumstances connected with this disease.

This lady consulted me in the month of October, 1837, respecting a tumour of the breast, which might be compared as to size to a large nutmeg. It was of a globular shape, and evidently contained fluid. I punctured it with a grooved needle, and a yellow serum escaped. There were no other indications of disease. Afterwards I mad a free opening into the cyst with a lancet, and, the whole of the fluid having been evacuated, I introduced a piece of lint, with a view to produce inflammation and the formation of granulations on its inner surface, which might obliterate its cavity. An abundant suppuration and a good deal of inconvenience followed this trifling operation. At the end of about two months, although the abscess was not properly closed, the patient believing herself to be nearly well, left London of her own accord. I heard nothing of her from this time until, after the lapse of fifteen months, she again placed herself under my care. In the situation of the cyst which I had laid open there was now a considerable solid tumour, a portion of which, about half the size of an orange, projected through an opening in the skin, forming an irregularly-shaped fungus. There seemed to be no other remedy than that of the removal of the breast by an operation, to which the patient willingly consented; and from which she recovered favourably.

On examining the tumour in its recent state some remains of the original membranous cyst, containing a small quantity of serum, were found at its basis. A large quantity of solid substance projected as an excrescence from the inner surface of the cyst, assuming a peculiar plicated or fimbriated appearance, and a portion of this excrescence protruding through the skin, formed the external fungus. You will see these appearances distinctly visible in the preparation, although not so plainly as before the parts were immersed in alcohol, and they are well represented in this drawing, which is made with Mr. Perry's usual accuracy. The structure of the morbid growth seems to be of the simplest kind. I can compare it to nothing better than fibrin imperfectly organized. Its existence does not seem to be limited to the inside of the cyst, a considerable mass being on the outside, in immediate contact with the gland of the breast. Previously to the operation the remaining part of the breast appeared to be in a healthy condition; but on dissection afterwards I found imbedded in it a great number of membranous cysts, of various sizes, from that of a pea to that of a horse-bean. These cysts contained a transparent yellow serum, and were evidently of the same nature

with the larger cyst which I had formerly punctured, and in which the fungus had originated afterwards.

The preparation which I now show you leads me to the history of a patient, who is still under the care of Mr. Keate, in this Hospital. Fifteen months ago, being then an out-patient, she had a tumour of the left breast, above the nipple, of the size of a walnut. It was globular and movable. Mr. Cutler punctured it with a grooved needle, and ascertained that it contained serum. Soon afterwards it was found that a fluid, similar to that which had escaped by the puncture, was discharged by the nipple. From this time the tumour gradually increased in size. Six weeks ago Mr. Keate repeated the puncture with a needle, giving exit to a large quantity of yellow serum. The tumour, in consequence, was much reduced in size, but it soon enlarged again, so as to exceed its former dimensions. On the 21st of last December, Mr. Keate made an incision into it, and the cyst was now so capacious that not less than half a pint of serum was evacuated by the wound. The serum was now tinged with blood, and a good deal of hemorrhage followed the operation. In the course of a few days a large dark-coloured fungus was seen projecting through the wound. Under these circumstances, on the second of the present month, Mr. Keate amputated the breast, and you may here see the morbid appearances which it presents.

The tumour consists of a large membranous cyst, which might have been capable of containing twelve ounces of fluid, if the greater part of its cavity had not been occupied by a great number of excrescences attached to its inner surface. These excrescences vary in size, the smallest being not bigger than a pea, while one of them is of the size of a small orange. They are covered by a thin membrane, which appears to be continuous with, and a reflection of the inner layer of the cyst. When cut into, these excrescences present the appearance of a considerable variety of structure. Some of them may be compared to recently coagulated albumen not yet organized: others, to imperfectly organized fibrin: some of them have an apparent resemblance to fatty tumours, although I do not find that they actually contain any oily matter, and one of them might, on the first view of it, be almost mistaken for medullary disease.

The tumour which is displayed in the next preparation illustrates a still more advanced stage of the disease. I removed it from the breast of a private patient in the month of November, 1836. It had existed for many years, gradually, but slowly, increasing in size. You perceive that at the time of its removal the tumour was not larger than a small orange, and that it was of an irregular shape. Near the base of the nipple is a membranous cyst, which contained two or three drachms of very dark-coloured serum. Some smaller cysts, which also contained serum, are seen in the neighbourhood, and a bristle introduced at one of the ducts of the nipple has entered one of the cysts by a smaller circular aperture. The seat of the tumour, on a superficial view of it, appears to be one uniform mass of solid substance: but on a more close inspection you find it to consist of a congeries of membranous cysts, the cavities of which are completely filled with

fibrinous matter. In many of the cysts, on examination with a probe, I found this fibrinous matter to have an attachment to one part of the inner surface lying in contact with the lining membrane elsewhere, but having no actual adhesion to it.

We can scarcely doubt that if in this case the operation had been deferred until a later period, the growths of fibrinous matter, by which the cysts were occupied, would have contracted universal adhesions to the membrane with which they lay in contact, and that the whole, with the exception of those cysts which still contained serum, would have been identified in one solid mass of substance, in which the original cellular or cystic structure would have entirely disappeared. Of this last change, the preparation which I now show you, seems to furnish an example. The patient from whom this specimen was taken was under my care in the year 1818. I have no notes of the early history of the case; but the disease had probably been of long duration, as, at the time of my being consulted, the breast had attained an enormous size, being not less than seven pounds in weight. She was a middle-aged person, otherwise in good health, and the skin and the axillary glands were free from disease. Under these circumstances the diseased breast was amputated. The wound healed favourably, and I heard of the patient being alive and well several years afterwards. If you examine the cut surface of the tumour, or rather of that portion of it which is displayed in the preparation, you will see that the greater part of it is one uniform solid mass, of which it is difficult to describe the structure in words, further than by saying, that in some parts it has an indistinct laminated appearance. There are, however, in one part of it, several membranous cysts of various dimensions, which, when first cut into, were found containing serum. One of those is distinguished from the rest by its greater size, being capable of containing several ounces of fluid, but being also occupied by a large excrescence attached to one part of its inner surface, and projecting into its cavity. This excrescence is of an irregular shape, very similar in appearance to some of those which you have seen in the other preparations. In its recent state it seemed to consist of distinct masses of recently coagulated albumen, semi-pellucid, some of a light yellow, others approaching to a purple colour, and altogether bearing no small resemblance to a bunch of white and purple grapes. These peculiar appearances of course, have been destroyed by the immersion in alcohol.

Having explained to you these facts in detail, with a view to impress the subject more completely on your minds, I shall endeavour to trace, in a few words, the pathological history which they seem to establish, and which, not only as a matter of science, but in a practical point of view, it is so important for you to understand. It appears, then, to be as follows:—

First: a greater or less number of membranous cysts are generated in the breast, containing serum. The latter is at first of a light yellow colour, and transparent, but afterwards becomes of a darker colour, and opaque. There is reason to believe that these cysts are formed by a dilatation of portions of some of the lactiferous tubes.

Secondly: morbid growths or excrescences are generated from the inner surface of one or more of these cysts, projecting into their cavities. These excrescences seem to consist of albumen or fibrin, which, after some time, (if not immediately,) becomes organized. They are covered by a thin delicate membrane, which seems to be reflected over them from the inner surface of the cyst; but whether they are originally formed between two layers of the membrane of the cyst, or whether they are at first mere deposits of fibrin or albumen on the inner surface of the cyst, a thin membrane being formed on their surface afterwards, remains to be determined by future observations.

Thirdly: there is some reason for believing that a similar growth of fibrinous substance may take place from the external surface of the cysts connecting different cysts with each other; but this point may perhaps require to be illustrated by further investigations.

Fourthly: under certain circumstances the cysts become completely filled up by the morbid growths, so that their cavities are obliterated, the tumour being thus converted into a solid mass, in which, however, the remains of the cysts are perceptible; and this is the prelude to a still further change, in which the greater part of the cysts have wholly disappeared, a solid mass of an indistinctly laminated texture occupying their place.

Fifthly: if one of the membranous cysts be artificially laid open, or if it burst from over distension with serum, the fibrinous excrescence from its inner surface being no longer restrained by the pressure of the skin, increases in size, and protrudes externally in the form of a fungus, giving to the tumour a new and more formidable character.

In this last stage of the disease, it is evident that spreading ulceration, sloughing, and hemorrhage, the usual results of an ulcer occurring in a diseased structure, must ensue, and that no remedy is likely to be of any service to the patient, except the removal of the affected parts by a surgical operation.

And this leads us to the concluding and most important part of these inquiries. In considering the treatment of these cases, it is convenient to distinguish those in which the disease is still in its earliest stage, presenting itself in the form of a membranous cyst, or cysts, containing serum, from those in which the growth of a solid fibrinous substance has become superadded to this simple original structure.

In the first order of cases we may venture to evacuate the fluid contents of the cyst by penetrating it with a grooved needle. No inconvenience is ever the result of this trifling operation; and it is often useful by assisting us in our diagnosis, and also by enabling us to determine whether any growth of solid matter, in connection with the cyst, has yet taken place. But it is not productive of any permanent benefit, as the fluid is always regenerated in the course of two or three days. I have no experience which would lead me to recommend any further or more considerable operation than this. It is needless to remove what appears to be a solitary cyst, as it is always highly probable that there are other cysts in other parts of the breast co-existent with it, which are not yet sufficiently developed to be

perceptible through the skin; or otherwise, that such cysts will be formed afterwards if they do not exist already. As to the removal of the entire breast, it is, under these circumstances, an unjustifiable proceeding, unless it be in a few cases in which the cyst or cysts have attained so large a size as to be inconvenient from their bulk. The disease, in its early stage causes no suffering, and may remain for years, or for the whole of the patient's life, without advancing farther, and under these circumstances, no harm can possibly arise from delay. Besides: if I am not greatly mistaken, there is a simple and safe mode of treatment which may often be employed with great advantage, and which is not open to those objections to which any severe operation is always liable.

Some years ago, a lady consulted me concerning a small tumour of the breast, near the nipple, and apparently containing fluid. Not at that time knowing anything better, I recommended that it should be removed by the knife. The day was fixed for the operation, but, in the meantime, some domestic circumstance occurred which made it necessary that it should be postponed. Under these circumstances I proposed to the patient that she should make the experiment of applying a stimulating embrocation to the surface of the skin. This accordingly was done, and the result was, that the tumour disappeared. Some time afterwards, another lady consulted me, having a globular tumour of one breast, larger than a pigeon's egg. I punctured it with a grooved needle, and a considerable quantity of serum was drawn off. In a few days, the fluid being re-produced, the tumour, which had wholly disappeared, was as large as ever. I now applied the same treatment as in the former case; and in the course of some weeks the whole of the fluid had become absorbed, and nothing was perceptible, except a slight thickening, apparently formed by the collapsed membrane of the cyst. The thickening disappeared gradually, and when I last saw the patient, three or four years after the time which I have mentioned, there had been no recurrence of the disease. Since these cases occurred, I have had recourse to the same method of treatment in many instances. In some of them the result has been, that the tumour or tumours have entirely disappeared; in others, that without disappearing altogether, they have become very much reduced in size; and it is only in a few instances in which the treatment was not very rigidly pursued, that it has been productive of no manifest advantage.

The application which I have generally made use of on these occasions is the following:—℞.—Spiritûs camphorati, Spiritûs tenuioris, ää ℥iiiss; Liquoris plumbi diacetatis, ℥j. Fiat embrocatio.

I have directed the patient to soak a piece of flannel in this embrocation, and to apply it so as to cover that part of the breast in which the tumour is situated, renewing the application six or eight times in the day and night until the skin becomes inflamed; then to omit the application for two or three days, but to resume the use of it as soon as the inflammation has subsided. The period of time during which it is necessary to pursue this method of treatment varies in different cases. In some, all that can be desired is accomplished in the course

of three or four weeks; in others, it must be continued, with occasional intermissions for some months. Other stimulating applications may be occasionally substituted for that which I have just mentioned. Several blisters may be applied in succession; each of them being kept open for a few days with the savine cerate; or a solution of ℥j of iodine in ℥j of alcohol may be applied to the skin once or twice daily, by means of a large camel's-hair brush. On the whole, however, I am led to believe, that the embrocation is more efficient than anything else.

But these remedies are of no avail when the growth of solid substance is begun. In this more advanced period of the disease, no good is to be expected except from the removal of the entire breast; and such an operation may be had recourse to with every prospect of success.

The disease seems to be entirely local. It belongs to the breast, and to nothing else. It does not contaminate either the skin or the lymphatic glands; it is not complicated with any corresponding disease of the viscera; and all the experience which I have had justifies the conclusion, that if care be taken that no portion of the breast is allowed to remain, there is no danger of its recurrence.

A careful observer will find little difficulty in distinguishing cases of this disease from those of the other diseases to which the breast is subject. It is, however, desirable, with a view to a more ready and accurate diagnosis, that we should consider what are the diseases with which it is most liable to be confounded. The principal of these are as follows:—

First: a thin membranous cyst, containing a transparent watery fluid, without coagulable matter, is occasionally found in the breast, which may be compared to the membranous cysts, containing pure water, which are sometimes met with in connection with the liver; and of which I have published some cases in one of the medical journals;* and to the encysted hydrocele of the spermatic cord or testicle. This disease is probably rare, as only two examples of it have fallen under my observation. In one of them the cyst was extracted by an operation; in the other the nature of the fluid having been ascertained by means of a puncture with a grooved needle, the tumour afterwards disappeared under the use of a stimulating embrocation.

Secondly: a cavity is sometimes formed in the breast, containing one or more genuine hydatids. Here there is a single fluctuating tumour, which gradually increases to a large size. If it be freely opened, the hydatids escape, and the cavity in which they were lodged becomes an abscess, which slowly closes and heals.

Thirdly: in a more advanced stage of the disease, it is not unfrequently mistaken for carcinoma; and I have no doubt that a large proportion of the cases in which it has been supposed that an operation has effected a permanent cure of the last-mentioned disease, have been in reality of this description.

* See London Medical Gazette, vol. i. p. 344, and vol. xv. p. 25.

I have hitherto confined myself to the description of the origin, progress, and treatment of this disease of the breast, without venturing to give it a name.

It is, however, necessary that we should have the means of distinguishing it in conversation and in writing; and I would suggest "the sero-cystic tumour of the breast" as being an appropriate appellation —preferable, at all events, to a mere arbitrary term; inasmuch as it expresses with sufficient precision the character which the tumour possesses in its origin.

LECTURE XXV.

SCIRRHUS OF THE BREAST.

If a scirrhous tumour of the female breast be left to take its course, it gradually increases in extent; it contaminates the neighbouring textures; it finally ulcerates, and in the great majority of cases, the patient's life is terminated in three or four years from the commencement of the disease. Not only is life terminated thus early, but death is preceded by a very painful state of the ulcer. The ulcer is disposed to bleed and to slough, and the patient's life is rendered miserable. There is not a much worse way of leaving the world than that of being destroyed by an ulcerated scirrhus of the breast.

Looking at these facts alone, you would say there is no doubt that the proper thing to be done is to remove the disease by an operation. But there is another order of facts which must be taken into account. In the large proportion of cases in which the operation is performed, the patient is still not alive two or three years afterwards; and, in a great number of cases, instead of the operation stopping the disease, it actually seems to hasten its progress. But, besides this, the operation in itself is not in every case free from danger.

Now these different orders of facts have led different surgeons, accordingly as they have looked at one or the other, to arrive at opposite conclusions as to the propriety of an operation. I have known some very excellent surgeons, among whom were the late Mr. Cline, and Sir Everard Home, both men of great experience, who would scarcely ever consent to the operation for the removal of a scirrhous tumour of the breast, under any circumstances whatever. But then, I have known other surgeons, also experienced men, who were in favour of the operation, perhaps, in the majority of cases. And not only has there been this variety of opinion between different individuals, but I have found the opinion of the same individual to differ at different periods of his life. A very distinguished surgeon once said to me that he thought he would never perform this operation again, and yet that very surgeon, three or four years afterwards, strongly recommended the operation in a case in which I thought it would

fail. This discordance of opinion only shows the difficulty with which the subject is beset, and if this difficulty has stood in the way of men of great experience in their profession, it may well stand in your way, who are only beginning your career. It appears to me, therefore, that it may be of advantage to you if I present some observations on the subject, and endeavour, as far as I can, to clear away the difficulty respecting the expediency and inexpediency of the operation.

This, then, constitutes the subject of the present lecture:—Under what circumstances is the operation for the removal of a scirrhous tumour of the breast proper, and under what circumstances is it improper?

It should, however, be observed, in the first instance, that while much depends upon the nature of the case, yet something depends upon yourselves as to the mode of performing the operation. If there be a scirrhous tumour imbedded in the gland of the breast, and you remove the tumour, together with the part of the breast in which it is situated, leaving the remainder of the breast, according to my experience the disease is certain to return; and this corresponds to a rule which I think applies to all cases of malignant disease—that is, that you have no security against the return of the disease unless you remove the whole of the organ in which it is seated. For instance, if there be fungus hæmatodes of the bone of the leg, the patient may have some chance if you amputate the thigh above the knee, but none if you cut through the tibia below the knee. If there be malignant disease of the femur, you have very little chance at all, unless you think it expedient to take out the thigh-bone at the hip-joint. I say, therefore, in cases of scirrhous tumour of the breast, if you perform the operation at all, where the tumour is imbedded in the breast, you must remove the whole of the organ. You may imagine that this is a thing very easy to be done, but you will not find it so in reality, for in amputating the breast, in a thin person, you will be very apt, if you are not extremely careful, to leave a small slice of the gland of the breast adhering to the skin, and I have no doubt that this small portion may, in some cases, form the nidus of future disease. The colour of the gland of the breast varies little from that of the surrounding adeps, the hemorrhage causes confusion, and you must be careful in the dissection to keep the knife near the skin, not near the breast. But, in addition to this, in every case, when you have taken out the tumour, you should examine the surface, and see whether every part you have removed is covered by healthy adeps. If it be not, look on the middle of the flap of the skin, and see whether any small portion of the breast has been allowed to remain there.

So far, then, the success of the operation may depend mainly on what you do; but now let us see what are the circumstances that are independent of any thing that you do, and which may induce you to think that there is no chance of the operation leading to an ultimate cure; and what are the circumstances that should lead you to hope that a permanent cure may be effected.

Scirrhous tumours of the breast may be divided into two classes;

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Scirrhous tumours of the breast may be divided into two classes;

one, where there is a conversion of the gland of the breast itself into scirrhous structure, there being no well-defined margin; the other, where the scirrhous tumour is imbedded in healthy structure, as if it were altogether a new growth, there being a distinct boundary to it.

In the first order of cases, not only does an operation never succeed in making a permanent cure, but it rather hastens the progress of the disease, and the patient generally dies in two or three years, if not before, of effusion of fluid into the cavity of the chest.

Where the skin is contaminated there is no chance of the operation making an ultimate and permanent cure; and it may be contaminated in various ways. Scirrhous tubercles form in the skin, here and there, at some distance round the tumour, while the intermediate portions of skin appear to be healthy, and then an operation will never lead to a cure; for you cannot remove all the contaminated skin. Where the skin is contaminated in this way, the progress of the disease is generally very rapid, and the patient dies in a short time from effusion within the chest. Sometimes the contamination of the skin develops itself in another manner. The skin becomes thickened and brawny, the pores are enlarged, as if you looked at them through a magnifying-glass, and you cannot pinch it up as you can healthy skin. This is also a very bad form of the disease. I have, however, performed an operation under these circumstances in two or three cases; the disease has always returned in the cicatrix directly, and the operation has appeared to hasten rather than to retard the fatal result. It does not matter to how small an extent the skin appears to be contaminated; if any portion of it is thus affected, the seeds of disease are in the neighbourhood, and although your knife may divide skin apparently healthy, yet it is not so in reality.

One effect of a scirrhous tumour of the breast, in a great number of cases, is to cause contraction of the lactiferous tubes which pass from different parts of the breast to the nipple, and this contraction gives rise to a drawing in or retraction of the nipple. I believe that this retraction of the nipple is to be regarded as very unfavourable to the ultimate success of an operation; for I suspect that the disease in these cases has always extended into the skin of the neighbourhood, and if you examine the skin in the neighbourhood of the nipple very carefully, you will generally find manifest indications of disease in it.

In many cases of scirrhus of the breast the skin is drawn over the tumour, and on looking at the patient, there is a sort of dimple over the tumour. Where this dimple is seen you may be almost sure that there is a scirrhous tumour beneath it, and when you examine it, you may feel it with the finger. The presence of this dimple is a very great objection to the operation, and there is little or no chance of a permanent cure. What is this indentation of the skin? I have dissected the parts, and I will tell you how it is produced. There is a small elongation of the disease which passes up from the scirrhous tumour, through the adeps into the skin. There is a filament, as it were, of the disease, varying from a quarter to half an inch in length,

extending from the scirrhous tumour to the skin above it, and the presence of the dimple indicates that the disease is not confined to the breast, but that the skin is already contaminated.

As the disease advances it contaminates the glands in the axilla. If the breast be inflamed, the glands in the axilla may be enlarged, just as glands may be enlarged from a boil or any other inflammation in the neighbourhood; but when there are large indurated glands in the breast, you may be sure that there is the same disease in the axilla—that the glands in the axilla are contaminated, and that there is no ultimate cure to be expected from an operation. You may say remove the diseased glands from the axilla; I have done this myself, and I have seen it done by others, but I will tell you what always takes place. Perhaps there appears to be only one enlarged gland in the axilla, you attempt to remove it, but when you have got into the axilla you find that there are other glands contaminated in the same manner, though of too small a size to be perceived before.

I need hardly state that if the scirrhous tumour adheres to the parts below, to the pectoral muscle, or to the ribs, and the skin is ulcerated, there is no chance of a permanent cure from the operation.

You will sometimes find patients who, while they have a scirrhous tumour in the breast, have indications of some other form of malignant disease in other organs. One patient may have signs of malignant disease of the liver, another of the lungs, and another of the uterus. Of course, if there be any suspicion of the same mischief going on in internal organs, you will know that no permanent cure is to be expected by the removal of the diseased breast.

You must also take into account the state of the patient's health, her age, and her condition in other respects. If, for instance, an old woman labours under scirrhus of the breast, which is in a state of quiescence, you would never think of amputating the breast, because she may die first—the disease may out-last her.

Now, having taken away these cases, you will find, in practice, that there are very few left in which you will think it right to propose an operation.

What are the cases, then, in which an operation for the removal of the breast is proper? Where the skin is perfectly sound; where the nipple is not retracted; where there is no diseased gland in the axilla; where there is no sign of internal mischief; where there is no adhesion of the breast to the parts below; and where the patient is not very much advanced in life, I should say that there is a reasonable chance of an operation making a cure. I do not intend to say that in all the excepted cases there will be a permanent cure—far from it; but there will be in some instances, and the chance of it may be sufficient to warrant you in recommending the patient to submit to the operation. I have the satisfaction of knowing that several persons on whom I have operated under these circumstances are now alive and well, but who would certainly have been dead long since had I not had recourse to it. As long since as 1832 I removed a breast affected with scirrhous tumour, and the lady was alive and well last year. Since the operation she has married and borne children. Last year

I was called to see a lady on whom I performed the operation as long ago as 1830, and there she was, still alive and well.

But besides such cases as I have last described, there are others in which the operation for a scirrhous tumour connected with the breast may be proper. There is sometimes formed on the surface of the breast a hard tumour, which feels like scirrhus; on cutting into it it looks like scirrhus, and I can give it no other name. It appears to be unconnected with the breast, but when you come to remove it you find that it is attached to the surface of the breast, just at one narrow corner. I have removed three tumours of this kind, leaving the breast uncut, except where I separated the tumours from it, and in each of these three cases the patient was alive and well some time afterwards. I do not know that in any one of these cases there was really a return of the disease.

Scirrhous tumours sometimes take place in the nipple, and I believe they are to be distinguished from similar tumours in the breast itself, and that there is a much greater chance of a permanent cure where they originate in the nipple than where they have their origin in the breast. A lady with a scirrhous tumour of the nipple consulted several surgeons regarding it, and as the disease was quiet they all recommended that it should be let alone. After some time she came to London, and placed herself under the care of the late Mr. Rose, of this hospital. I saw her with him. The scirrhous tumour had been going on for some years, confined to the nipple, without coming to any harm, but it was now extending. We agreed that the operation should be performed, and Mr. Rose removed the breast. The breast appeared sound and the nipple alone diseased. The patient recovered, and was alive and well many years afterwards. A lady consulted me concerning what I must call a scirrhous tumour of the nipple, for it was hard, and presented the usual characteristics of scirrhus. It had ulcerated, but the breast seemed sound. She was a large elderly woman, with a very large breast and a great deal of adeps. The removal of the breast would have been a frightful operation, and it is more than probable that her constitution would not have borne it. She was suffering great pain from the disease, and I applied chloride of zinc, and afterwards the caustic potassa, till I destroyed what appeared the whole of the disease of the nipple. This occurred three or four years ago, the wound healed, and the patient is alive and well at this moment.

The two last orders of cases are sufficiently distinguished from scirrhous tumours imbedded in the breast itself.

But here another question arises. Is there no other reason for performing the operation for the removal of a scirrhous tumour of the breast than that of making a permanent cure? May it not be advisable to perform it sometimes in order to give the patient a respite, and to relieve her from present suffering? Undoubtedly it is, and I will mention some cases illustrative of this observation. A lady, about forty years of age, had a scirrhous tumour of the breast, and there was a cluster of diseased glands in the axilla; she came to me, and the skin over the tumour appeared to be on the point of

ulceration, so that the disease was proceeding to great mischief. I informed her that I was afraid the operation would not make a permanent cure, and that I could not recommend it. She inquired whether I had anything better to offer her, and I could not say that I had. She went away, but in two or three weeks came again, and said that she had consulted two or three other surgeons, whom she named, and found that they were all of the same opinion, but that she had come to beg a favour, which was, that in spite of that, and to satisfy her, I would remove the breast. I asked what were her reasons, and she said she was in these circumstances: that she had a daughter, an only child, eighteen years of age; that she knew she could not live long, but that it was a great object to her daughter that she should live to be her friend and adviser two years longer. It was for that reason, and that only, that she wished to take the chance of the operation. There was no withstanding such an appeal as this, and I removed the breast, but never thought of touching the glands in the axilla. There was no distinct return of the disease in the cicatrix, and the glands in the axilla did not much enlarge; but at the end of two years she was seized with symptoms of disease of the chest, effusion of fluid into the pleuræ, and she died. I may avail myself of this opportunity of mentioning that this is the most common way in which scirrhous tumours terminate life. Miliary tubercles, about the size of millet-seeds, form in the lungs, and then there is effusion of fluid in the pleuræ. A lady came to me with scirrhous tumour of the breast. Both the tumour and the breast were small, and I should have recommended the operation, but there were two or three hard and large glands in the axilla. I said to her, "You are not suffering much, I cannot recommend the operation; let the disease alone." A year afterwards she came to London again, and the tumour had now ulcerated, and the glands much increased. The ulcer in the tumour produced excessive suffering, and she was miserable. I did not remove it with a knife, but I used chloride of zinc and destroyed it. The sore healed, and some seven or eight months afterwards there was a tubercle formed in the cicatrix, which again ulcerated, and I destroyed that in the same way. She was thus enabled to go on with great comfort. After enduring the torture of scirrhus of the breast, she went on suffering nothing except at the time the chloride of zinc was applied, for a year and a half, but at the end of that time disease was established in the lungs, effusion took place into the pleuræ, and she died. A lady had a large malignant tumour in the breast; it was not exactly scirrhus, but approaching to it in its character. I did not think that an operation would lead to a permanent cure. By-and-by she came to me again, and now the tumour was ulcerated, and was very much enlarged. The skin had ulcerated, the ulcer was horribly painful, and her life was truly miserable. I said to her, "I am afraid you will not get an ultimate and permanent cure, but suffering as you do, it is worth while to have the breast removed in order to relieve your present sufferings." It was a large tumour, which was one objection which I had to the operation. The operation was performed, and there

was a good deal of bleeding. However she recovered, and continued well upwards of three years. She had then some abdominal disease, and a tumour could be felt in the belly, which I concluded was of the same character as that in the breast. When I last heard of her she was supposed to be dying, and I presume that she is now dead; but she was relieved from great suffering, and lived three years longer than she would have done had not the operation been performed. I may mention another case. A lady came to town with a large tumour in one breast. There was a fungus protruding, and in the centre of the fungus an opening, through which a probe could pass to the bottom of the tumour, and there was an enlarged gland in the axilla. Sir Astley Cooper saw her with me, and she was suffering a great deal from the ulcerated tumour. We agreed that she should have the breast removed, not that we expected a permanent cure, but to relieve her present sufferings. The breast was removed, the wound healed, and she had no return of the disease there, but a year afterwards her physician in the country wrote to say that she had symptoms of some malignant disease going on in the chest, and she died of effusion into the pleuræ. There was another lady, with a small scirrhous tumour of the breast, which was very painful. She consulted me respecting it. I said that the operation would not make a permanent cure, but as she was suffering miserably she might as well have it removed. I removed it, and she was in comfort for many months.

There may, then, be cases in which you are justified in performing an operation for the removal of a scirrhous tumour of the breast, not with the expectation of effecting a permanent cure, but to obtain respite and relief to prevent sufferings. But here you must use some discrimination, for if the skin be thoroughly diseased I do not believe that in one case you will do any good; the disease will return in the cicatrix so soon that the patient will derive no advantage whatever from the operation.

There is another circumstance to be taken into consideration when you are called upon to give an opinion as to the expediency or inexpediency of an operation. Is there any danger in the operation itself? It is commonly said that this is not a dangerous operation, but I can appeal to the experience of all surgeons who have had much to do with the operation, whether they have not had persons die from it,—whether it is always free from danger. I know it is not. I have lost patients after the operation, and every surgeon, I know, has had the same misfortune. Here, I think, that something depends on the mode in which you perform the operation, and manage the patient both before and afterwards; and a great deal, also, depends upon circumstances not under your control.

The circumstances that are under your control are these. First, you should take care that there is as little hemorrhage as possible at the time of the operation. Never give credit to those who stand up at any operation, and say that the patient has lost no more blood than will do him good. Hemorrhage during an operation is a great evil, and is one of the chief causes of failure, not that the patient dies

directly of hemorrhage, but indirectly. It lays the foundation for erysipelatous and venous inflammation and other mischief some time afterwards. In addition to this take care not to keep the patient very low before the operation. What we used to call preparing a patient for an operation, by low diet on all occasions, was very injurious. The patient need not be stuffed and crammed before an operation; he should have his bowels emptied, but as to repeated purging and low diet, that is wrong both before and after any operation. An operation is a shock to the system, making a great demand upon the vital powers, and if you withhold the sustenance and stimulus to which the patient is accustomed, the constitution probably will not be able to bear the shock.

So far the success of the operation is to a certain extent under your control, but then there are circumstances not under your control that are unfavourable. For example, in a large fat woman, with an enormous breast, the operation is frightful; there is a large extent of surface, and there must be great hemorrhage notwithstanding all your care. An old person will not sustain the operation like one less advanced in life. The operation is always attended with a certain degree of danger in a patient who, in other respects, is of delicate constitution. Those women whom you meet with in private practice, who have a small pulse, cold hands and feet, and are liable to attacks of hysteria, are always unfavourable for an operation, and especially one that is attended with a moderate loss of blood. In such women as these you must avoid an operation. But where the breast is small, where the patient is otherwise healthy, and not much advanced in life, and where you are careful not to starve the patient, either before or after the operation, and that there shall be as little blood lost as possible, there the danger of the operation is comparatively trifling.

I have thus spoken of the operation for the removal of a scirrhous tumour of the breast, but this organ is liable to other malignant diseases. The observations that I have made apply to the one case as well as the other, but I think that where malignant disease of the breast has the form of fungus hæmatodes the chance of ultimate success is even less than where it has assumed the form of scirrhus. Fungus hæmatodes is a worse form of malignant disease than scirrhus, and in the few cases which I have seen of it in the breast, where the tumour has been removed by operation, the patient has always died within a short time afterwards from some disease of the lungs and effusion into the pleuræ. But, after all, I believe that malignant disease is essentially of the same character whether it assumes the form of scirrhus, or fungus hæmatodes, or pancreatic sarcoma. Whatever the name given to them by pathologists may be, I believe that malignant diseases are all nearly related one to another, and that the remarks I have made respecting one are applicable to the rest.

I will illustrate this last observation, which, I think, it is of importance in practice you should not forget, by mentioning some cases. A woman had a scirrhous tumour of the breast, attended with that

brawny condition of the skin which I described as indicating a very bad form of the disease. There was a conversion of the glands into scirrhous structure, not a distinct tumour of the breast. She had also signs of disease of the liver and a discharge from the uterus. The woman died, and on examining the breast there was a well-marked scirrhous tumour; in the liver there was an equally well-marked tumour of fungus hæmatodes or medullary disease; and in the uterus that peculiar excrescence to which the late Dr. John Clarke gave the name of cauliflower excrescence of the uterus, and which he describes as a malignant disease. These three diseases, all of which are malignant, and to which different names have been given by pathologists, were associated in the same individual, and the preparations are now in the museum. But I have seen the same disease occur in succession, and I will mention a case in point. When I was a young man I went with Sir Everard Home to perform a private operation. A lady from the country had a hard tumour, apparently in the abdominal muscles, which he removed, and when we came home and examined it, we found that a portion of the peritoneum adhered to it, and that it was a well-marked case of scirrhous tumour. The wound healed very well, but some time afterwards another tumour formed in the cicatrix, and began to enlarge. She came to London again, and put herself under Sir Everard Home. The tumour was now larger than the first he removed. He operated a second time, but this tumour had none of the characteristic structure of scirrhus. I can only describe it by saying it was like the fibrin of the blood, without colour; laminated something like the buffy surface of a coagulum of blood drawn during inflammation and very slightly organized. The wound healed, but after a time another tumour formed in the cicatrix, and she again came to London. It was not thought worth while to remove this, it increased in size, occupied a great part of the belly, and she died. It devolved on me to examine the body, and the tumour now was entirely different in appearance from either of those which had been removed. It was a regular brain-like mass, a medullary tumour, or a tumour of fungus hæmatodes. In the one case three different kinds of tumour existed in the same individual at the same time; in the other three different kinds of tumour showed themselves in succession. So you will sometimes remove a tumour from the breast in various parts of which you have a different structure.

There is a circumstance that ought to have been mentioned in an earlier part of the lecture, but which I accidentally omitted, and which is always to be taken into account whenever you have any doubt as to the expediency of performing an operation. It is very true that a scirrhous malignant tumour of the breast will, if left to itself, generally terminate the patient's life in three or four years, but very often it lasts much longer. I remember a lady of fashion who had a scirrhous tumour of the breast; she mingled in society, and nobody knew any thing about it for several years; I believe ten or fifteen. I remember another lady who had a scirrhous tumour of the breast for twenty-five years, and she died at last, not from disease of the breast, but from effusion into the cavity of the chest. If you are in doubt about the expediency of an operation, and the disease be in an indolent state, the recollection of such cases as I have just mentioned should be sufficient to incline you to reject the operation. The chances of a patient living long with such a disease are not sufficient to make you throw away the chance of an operation where it is likely to be attended with advantage; but it is sufficient to make you decline an operation when other circumstances would lead you to doubt its propriety.

Care should be taken to distinguish scirrhous and other malignant tumours of the breast from those of a non-malignant character. I consider it unnecessary to call your attention to the diagnosis of different tumours, but I am anxious to impress upon your minds that you must be careful to learn this for yourselves from other lectures. When a practitioner tells me that he has been particularly successful in the operation for scirrhous tumours of the breast, I am always satisfied that there has been a want of accuracy in the diagnosis. I remember a gentleman stating that he had performed this operation ten times, and that the disease had not returned in a single instance. No very experienced surgeon would have made that statement, but I subsequently saw a tumour which this gentleman was going to remove, and it was nothing more than a common chronic abscess of the breast which he had denominated scirrhus.

LECTURE XXVI.

ON THE ADMINISTRATION OF MERCURY IN SYPHILIS.

I SHALL now call your attention to the administration of mercury in cases of syphilis. I shall not enter into detail either as to the mode of its exhibition or the cases in which recourse should be had to it; but I purpose to make some general observations, which, at this time, when so much difference of opinion prevails as to the use of mercury, and there is so much random practice in its employment, may be serviceable to you in the beginning of your profession.

Mercury was used in cases of syphilis very soon after the disease was first recognized in Europe. I believe that from within three or four years after the siege of Naples, where it was supposed that it first broke out, through good report and through evil report, in spite of the too strong prejudices of some in its favour, and of others against its use, mercury has maintained its general reputation in the profession up to this day. At different periods, however, other remedies have been proposed for the cure of venereal disease. The late Sir Wm. Fordyce wrote a pamphlet for the purpose of proving that it was to be cured by sarsaparilla. An army surgeon, Mr. Grant, wrote a pamphlet in favour of opium; another practitioner has cured

brawny condition of the skin which I described as indicating a very bad form of the disease. There was a conversion of the glands into scirrhous structure, not a distinct tumour of the breast. She had also signs of disease of the liver and a discharge from the uterus. The woman died, and on examining the breast there was a well-marked scirrhous tumour; in the liver there was an equally well-marked tumour of fungus hæmatodes or medullary disease; and in the uterus that peculiar excrescence to which the late Dr. John Clarke gave the name of cauliflower excrescence of the uterus, and which he describes as a malignant disease. These three diseases, all of which are malignant, and to which different names have been given by pathologists, were associated in the same individual, and the preparations are now in the museum. But I have seen the same disease occur in succession, and I will mention a case in point. When I was a young man I went with Sir Everard Home to perform a private operation. A lady from the country had a hard tumour, apparently in the abdominal muscles, which he removed, and when we came home and examined it, we found that a portion of the peritoneum adhered to it, and that it was a well-marked case of scirrhous tumour. The wound healed very well, but some time afterwards another tumour formed in the cicatrix, and began to enlarge. She came to London again, and put herself under Sir Everard Home. The tumour was now larger than the first he removed. He operated a second time, but this tumour had none of the characteristic structure of scirrhus. I can only describe it by saying it was like the fibrin of the blood, without colour; laminated something like the buffy surface of a coagulum of blood drawn during inflammation and very slightly organized. The wound healed, but after a time another tumour formed in the cicatrix, and she again came to London. It was not thought worth while to remove this, it increased in size, occupied a great part of the belly, and she died. It devolved on me to examine the body, and the tumour now was entirely different in appearance from either of those which had been removed. It was a regular brain-like mass, a medullary tumour, or a tumour of fungus hæmatodes. In the one case three different kinds of tumour existed in the same individual at the same time; in the other three different kinds of tumour showed themselves in succession. So you will sometimes remove a tumour from the breast in various parts of which you have a different structure.

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it by ammonia, and others have spoken highly of nitro-muriatic acid. Many other remedies have been proposed as a substitute for mercury, which it is not necessary for me to enumerate. In hot climates—Spain, Portugal, the West Indies, and the islands of the Pacific Ocean, syphilis was said to be cured without the aid of a particle of this remedy. But in opposition to what I have just mentioned there was, in the beginning of this century, a prevailing notion that mercury was a specific for syphilis, and that it was never cured without it. The late Mr. Abernethy, in his work on what he terms pseudo-syphilis, lays it down as a rule that syphilis is uniformly progressive if mercury be not administered, and he said of every disease that came before him in which the symptoms improved without the aid of mercury, "this cannot be syphilis." He gave no reason for this extraordinary assumption—it was a complete *petitio principii*—a begging of the question, and this illogical conclusion, at which he had arrived, was sufficient to destroy the value of this part of his works. Not long after this opinion had been published by him, and was maintained generally throughout the profession, a friend of mine, the late Mr. Rose, who subsequently became surgeon to this hospital, instituted a series of experiments on the subject of the treatment of this disease. He had ample opportunities for carrying these on; for be was surgeon to one of the regiments of Guards, and soldiers associating with the lower orders of prostitutes, I need hardly say are very liable to become affected with syphilis. For one or two years he treated every soldier that came into the regimental hospital, suffering under any form of syphilis, without mercury. I saw these cases, and every now and then watched their progress with him. Every sore upon the organs of generation was cured under his management without the employment of this agent. It is true that many of these sores were not venereal, but many of them were of that character; and the hardness which was left behind disappeared without resort to mercury. Many of these patients never had secondary symptoms which may be attributed to the sores not having been venereal; but in some cases, where secondary symptoms appeared, they were slight, and others severe, exhibiting nearly the usual character, but whatever they were they yielded without this agent. In two or three cases where there was inflammation of the iris, and mercury was necessary in order to save the eye, he employed it. Mr. Rose, therefore, came to the conclusion, which these cases seemed to justify, that the disease was one which would get well even if mercury were not used. Other army surgeons repeated these experiments, and arrived at the same result, and I believe that the disease is now treated in the army to a considerable extent in this manner.

Now, these observations led a certain part of our profession to a view of the subject entirely different from that which they before entertained; and some began to contend that mercury did a great deal of harm, and was in itself a worse disease than the one it was intended to cure. With respect, however, to recovery from syphilis without the aid of mercury, I do not believe that you can apply a rule, drawn from the observation of what occurs in soldiers, to society

at large. We find that the effects of disease in all cases depend very much on the kind of constitution that has to sustain it. Students from the country, on coming here, have frequently expressed their astonishment at the difference in recovery from compound fracture in the hospital and in those places in the country where they have seen it. But here the occurrence takes place in one kind of constitution, and there in another. When the cholera visited London it destroyed 3000 out of more than 1,500,000 inhabitants; in Sunderland it carried off a large proportion of the population; and in Paris I think the mortality was about one in thirty. Here the cholera did not destroy the affluent classes, but those who were ill-fed, ill-clothed, and were breathing a poisonous atmosphere, and they sank under it with great rapidity. So I apprehend it to be with syphilis. Soldiers are men with strong constitutions, and are in good health, otherwise they would not be received in the army. They are not much advanced in life; they are sent to the regimental hospital, and are there kept constantly under the eye of the surgeon, dieted as he pleases, and their general health is attended to in every respect. They are not allowed to be exposed to atmospheric changes of the weather, and, in short, from their constitution and the situation in which they are placed, they may be supposed to have the power of throwing off morbid poisons which would not be thrown off by others. Experience and practice will, I think, fully confirm these observations. I know that in this hospital I have tried to treat syphilitic patients without mercury with very little success indeed, and that in private practice the attempt would prove altogether a failure. Sir Wm. Wimpress, who was surgeon-major to the Coldstream Guards, but who has now retired from service, saw a great deal of syphilitic practice, and he told me that he could manage the cases of privates in this manner, but not of officers. When Mr. Rose entered into private practice he thought that he could apply the same rule there which he had carried out among the soldiers, but he found that he could not, and he was compelled, like other surgeons, to give mercury. In cases where he endeavoured to avoid its exhibition he found that he was continually beset with difficulties.

With regard to the other point I mentioned,—the opinion that mercury very often tends to aggravate the disease instead of doing good,—I know that its injudicious use will do harm, but I am satisfied that that is not the result when it is wisely administered. It has been said that there is no disease of the bones where mercury is not given. I know that in patients who are treated by mercury there is a greater chance of disease of the bones than there was in Mr. Rose's patients, to whom it was not exhibited; and I know that when given for liver complaints and for diseased testicle it may produce nodes. But, admitting this to be true, I am quite sure that syphilis will run on till it produces nodes, by which I mean disease of the bones, even where no mercury has ever been given. I will state a case in point. A gentleman had a chancre which no one doubted to be venereal; he took no mercury and it healed up. I do not remember exactly what symptoms followed, but when I saw him, in consultation with Mr. Rose, a couple

of years afterwards, he had extensive disease of the bones of the nose, which was still advancing; we agreed that the best thing we could do was to put him under the influence of mercury, of which he had never taken a grain, and try whether or not it would stop the disease. He was to be furnished with lodgings in London, for the purpose of going through a mercurial course, but he had a fit of epilepsy, and then another, and that was followed by a third, after which he became maniacal and died. I do not know that there was any post-mortem examination, but neither Mr. Rose nor myself doubted that the disease had crept up the ethmoid cells, attacked the ethmoid bone, and affected the brain and its membranes. I saw another case treated without mercury. A patient had a primary sore, of which he got well, but a few months afterwards there was pain of the limbs, which were considered neuralgic, and by and by there was a node on the skin and another on the elbow. He had never had any disease prior to the chancre, and we could not but suppose that the virus had entered the system, and the secondary symptoms being passed over, had gone at once to the bones. The conclusion of the case was very remarkable; the patient got entirely well with sarsaparilla, no mercury being given.

I am sure that experience proves to me, and it will to you, that we find no remedy having the same power to extinguish venereal disease as mercury, but then it must be not only judiciously administered at the time, but care must be taken that it is only employed in proper cases; it may do great harm if it be improperly used. There is nothing remarkable in this fact. With the exception of sarsaparilla, I do not know of any medicine that will do great good that may not act as a poison. I saw a gentleman very nearly killed by an over-dose of quinine; the same circumstance has occurred from iodide of potassium, and many persons have been destroyed by arsenic. You are not to suppose that you are to administer mercury at random in all cases, but the general rule is that in cases of syphilis it is to be exhibited, and I shall endeavour to point out briefly, not the cases in which you may give it, but the exceptions to the rule.

First of all, there are persons of a certain delicate constitution, of a scrofulous disposition, and who are disposed to phthisis. You would not give mercury to a man of this kind until you were quite sure that it was absolutely essential; nevertheless there are persons of a scrofulous tendency who are best treated by this means. If mercury be an evil, syphilis is a still greater one. In scrofulous persons local diseases are especially developed after the system has been affected by a morbid poison. If they are disposed to phthisis they will have tubercles in the lungs after scarlatina, measles and small-pox; and it is just the same after syphilis. You find enlargement of the glands of the neck take place whenever the system is disturbed by syphilitic virus, and here mercury is not to be exhibited unless you are sure that it is wanted. But if there be syphilis it is better to give it than let that disease take its course; it must, however, be administered with great caution, in moderate doses, and the patient must be carefully watched all the time.

Persons who appear to be in strong and vigorous health are not always good subjects for mercury. Many persons of this description have been living irregularly, drinking a great quantity of wine, and mercury is very likely to disagree with them and produce great mischief. True it is that the poison of syphilis will do the same; it will often produce frightful symptoms and the most intractable diseases; but it is better to put off the use of mercury for some time until you can improve the constitution. If mercury be exhibited under such circumstances you have two evils to encounter, but by withholding it you have only one. If you wait, put the patient on a better system of diet, make him live a more regular life, and attend to the general health in all respects; you may then administer mercury with advantage, and probably cure the case.

There are some persons in whom, for reasons we cannot explain, mercury always acts as a poison. They certainly are few in number, but you cannot tell beforehand who they are, and therefore every person should be carefully watched to whom you administer mercury. Where there is a great deal of inflammation in the neighbourhood of a primary sore it is scarcely ever right to have recourse to mercury in the first instance; for the probability is that it will produce sloughing. You must combat the disease by bleeding, purging, and other means; and it is better to patch up the sore as well as you can, and let the disease go on until it has produced secondary symptoms, than to give mercury to a patient under these circumstances. In cases of phagedenic and sloughing chancre, where the condition of the chancre depends on the patient's constitution, mercury, if given in the first instance, will aggravate the disease, and make it spread more rapidly than it would otherwise do. But there are cases in which the phagedena depends on the intense action of the venereal poison, as I shall hereafter explain, and in that case mercury may be exhibited.

You will sometimes find that in the case of secondary symptoms mercury, instead of acting upon them and curing them, disturbs the general health; the symptoms increase, and the more you give the worse they become. This arises from the patient being in a bad state of constitution, which state of constitution may depend on causes neither under your control nor that of the patient, but on the patient having taken mercury in an injudicious manner. Under these circumstances you must not continue this agent, but leave it off and he may then recover; nevertheless you may require to revert to it at last. In order to illustrate this observation I will mention a case. A man was brought into this hospital with sore throat, and a phagedenic eruption, having the character of syphilitic eruption, in different parts of the body, in a state of painful ulceration. He looked exceedingly ill, and I found that he had been taking mercury in large quantities, under a private practitioner, for five months. His gums were extremely sore when he came here, and the more mercury was pushed the worse he became; I therefore left it off, and gave sarsaparilla, and in a few months, the eruption disappearing, he left the hospital. But after the lapse of a few months

he came in again with sore throat and ulceration, having taken no mercury in the interval. I gave sarsaparilla a second time, and with the same beneficial effects, but the eruption did not disappear so rapidly as in the first instance. In the course of three or four months he again came in, and the ulceration was again spreading, accompanied with sore throat. I resorted to sarsaparilla a third time, and the symptoms went away, but more slowly than on either of the previous occasions. Towards the conclusion of the time that he was in the hospital he laboured under inflammation of the iris, for which I gave him oxymuriate of mercury, and he got well. Three or four months after this the disease again broke out, the ulceration reappeared and spread, and the sore throat returned. He now went into the Lock Hospital, under the care of Mr. Blair. This was fourteen months after he first came to St. George's; he had taken no mercury during that time, except for the iritis, and Mr. Blair now very properly put him under a course of mercurial inunction, and I believe he was permanently cured. If I had done this when he first came here I should probably have killed him. I might mention a great many other cases to illustrate these observations.

Now, I have said that in the great majority of cases mercury is the best remedy you can employ for the cure of syphilis, but then care must be taken that it is properly and judiciously administered. There are different ways of exhibiting mercury; it may be given internally by pills; it may be used in the form of ointment, or by fumigation. The mercurial preparations that may be given internally are various,—blue-pill, mercury with chalk, calomel combined with opium, Plummer's-pill, iodide of mercury, bichloride of mercury, and some other forms.

I have often given mercury internally in the shape of pills. When you want to affect the system rapidly, as in iritis, pills are preferable, because the mercury affects the system sooner. A patient labouring under iritis is in danger of going blind, and you must remove it as soon as you can. You effect this much sooner by giving calomel and opium than by using mercurial inunction, and in slight cases the disease may be cured by mercury administered internally. There are a good many patients so circumstanced that they cannot take it in any other manner; at other times you are indifferent about the mode of administration; and in some cases you are compelled to give it internally against your inclination. Thus, upon the whole, there are a good many cases in which mercury will be exhibited internally.

But if you inquire which is the best way of giving mercury in cases of syphilis where the symptoms are not of the very mildest character, I must say that mercurial inunction is infinitely to be preferred to mercury taken by the mouth. Mercurial inunction, however, is dirty, laborious, and troublesome, and it makes the case public to the family in which the man lives. For these reasons it will be objectionable to the patient; but it has this advantage, it is much less liable to gripe and purge, and it cures the disease a great deal better. It does not damage the constitution half so much as mercury taken by the mouth; nay, I will go so far as to say that,

except in the very slightest cases, you really cannot depend upon any other means than inunction. You may very often patch up the disease by giving mercury internally, but it will return again and again, and you may cure it at last by a good course of mercurial ointment. But especial care must be taken that this is properly applied. If it be left to a patient he will rub it in for five minutes or so, whereas it requires to be rubbed in before the fire for three-quarters of an hour ere it enters; but by and by the friction may be continued for a shorter period. Where the symptoms are not of the mildest character it is desirable that the patient should, if possible, be confined to the house. Mr. Pearson observed, long since, that going into the fresh air would undo the effect of mercury, and I never will be responsible for thoroughly eradicating the disease where the patient is at all exposed to cold, and where he does not lead a most careful and regular life.

In all cases where you employ mercury you have two objects in view,—first, to cure the present symptoms, and secondly, to prevent their return. It appears to me that at the present day a great number of practitioners keep the first object only in view, and lose sight of the second. I have repeatedly seen persons who have taken mercury for chancre; it has healed in a fortnight, but a hard base has been left, and then in nine cases out of ten there have been secondary symptoms. If it be taken for a primary sore the patient should never leave it off until the hard cicatrix has disappeared. You must exhibit it until the sore has healed, and for some time afterwards; and the same plan must be pursued with reference to the secondary symptoms, or they will return. When the eruption has disappeared from the body it must be used as a prophylactic, to prevent the return of the disease, for probably another month.

I should say that if a patient be confined to the house, or only allowed to go out a little once or twice a day, and if he be made to rub in mercury, and continues it for some time after the symptoms have subsided, the case being carefully watched, you will, in most instances, make a real and permanent cure of the disease. This is not the way in which it is administered by many practitioners now, but it is the mode in which it was done formerly. You must not suppose that we have made an advance in all departments of surgery; on the contrary, I am sure that in some we have gone back. I am satisfied that the mercurial treatment of syphilis as employed by the late Mr. Pearson during a great part of his life, was as nearly perfect as possible, and it was much more successful than the less careful treatment of modern practitioners. Mr. Pearson was surgeon to the Lock Hospital, and having no general hospital to which to attend, the powers of his mind were very much devoted to this disease and to its treatment; and the practice which I have now recommended was that which he adopted. I had an opportunity of meeting him a great deal when I was first entering into practice, and I am satisfied that his mode of treatment was eminently successful. In his work on "Materia Medica," there is an article on syphilis, in which there are many excellent observations on mercury, treating

the subject in detail in a way in which it is not my intention to do at present; but I refer you to that article as being well worthy of perusal.

Wherever you can, in the treatment of syphilis, make the patient take mercury in the form of unction if possible. It is the best plan to pursue in all cases, although it is not necessary in all cases; but where the symptoms are severe, and a long course is required, it is the safest mode of proceeding.

I will avail myself of this opportunity of stating the class of cases in which you may employ mercurial inunction with the greatest advantage. Children, when born, sometimes labour under syphilis, the father or mother having been affected with it—perhaps the father and not the mother. The child at birth looks thin, and is of small size, and instead of thriving it becomes still thinner. At the end of three weeks it is covered by a nasty scaly eruption; there is a sort of aphthæ in the mouth, and chaps about the lips and anus. I have tried different ways of treating such cases. I have given the child gray powder internally, and given mercury to the wet-nurse. But mercury exhibited to a child by the mouth generally gripes and purges, seldom doing any good; and given to the wet-nurse it does not answer very well, and certainly is a very cruel practice. The mode in which I have treated such cases for some years past has been this,—I have spread mercurial ointment, made in the proportion of a drachm to an ounce, over a flannel roller, and bound it round the child once a day. The child kicks about, and the cuticle being thin the mercury is absorbed. It does not either gripe or purge, nor does it make the gums sore, but it cures the disease. I have adopted this practice in a great many cases with the most signal success. Very few children recover in whom mercury is given internally, but I have not seen a case where this method of treatment has failed.

Mercurial inunction may be used in certain cases in which, were mercury taken internally, it would do absolute harm. For example, a gentleman had a nasty phagedenic sore upon the penis; it could not be said that he was in ill health before, and therefore there was some reason to believe that the disease was spreading from the intensity of the venereal poison. He had taken calomel and opium until the gums were sore, and he was decidedly worse under it. The disease destroyed a great part of the glans, and evinced no disposition whatever to stop. It resisted all modes of treatment until he was put on a course of mercurial inunction; its progress was then arrested directly, and the sore healed with great rapidity. I have seen several instances of the same character.

Another mode of administering mercury is by fumigation, and this may be applied either locally to a part, or generally to the whole body. The patient is to sit in an apparatus like that used for sulphur-baths, but instead of sulphur being thrown on a hot iron, black oxide of mercury is to be used. The patient may be affected very speedily by allowing him to hold his head inside the bath for two or three minutes, so that he may imbibe the mercurial vapour. I have employed this with success in several cases where it was my object to affect the system as quickly as possible, but I have found that Mr.

Pearson's objection to it is well founded, namely, that it is difficult to regulate the action of the mercury. You may affect the system too much or too little, and you may be taken by surprise by the patient's gums becoming all at once excessively sore. With reference to the effect of mercury on the system generally, I believe it is always better that the gums should be made a little sore, and that there should be some degree of salivation. You cannot depend upon it when employed in syphilis unless these effects are produced.

But, as I have already said, there may be cases in which mercury may not be proper at all, and in which there are reasons for doing without it if you can. In some individuals in private practice, as well as among soldiers, the affection will be thrown off by the patient's own constitution. In a great many instances slight symptoms will disappear merely by the improvement of the general health. A gentleman had a well-marked venereal eruption. He was in London, and was about to take mercury. He was called to go into the country, and I ordered him to let the mercury alone for the present. He had not been in the country air long before all the symptoms left him. Cases like these are recorded in Mr. Abernethy's book, and they led him to say that they were not cases of syphilis. After a patient has passed through a mercurial course it is not sufficient to tell him that his disease is at an end. It is very important that he should be kept in good health. If, after the disease appears to be eradicated, the health is broken down, the disease may return at a considerable distance of time. After a mercurial course it is well to put the patient through a course of sarsaparilla, to remove the debilitating effects of the mercury itself from the constitution. I will mention a case to show how much depends on the state of the general health. A gentleman had secondary symptoms, and I put him through a course of mercurial inunction for ten weeks. He was confined to the house and most carefully attended to, and took mercury for some weeks after the eruption had disappeared. He seemed to be quite well, and went abroad and continued so; but at the end of a year, being in Lisbon, he went out, got his clothes wet, and took cold. This was followed by a severe attack of erysipelas, and a Portuguese doctor very indiscreetly bled him to a large extent, and an enormous abscess formed. His health became completely broken down, and he had now a return of the venereal disease, the symptoms being worse than they were before. When his health had improved a surgeon in Lisbon put him under another course of mercury, and cured him.

In cases where the symptoms are aggravated by the use of mercury they may be removed by sarsaparilla; in other instances they will subside under the use of iodide of potassium. It is now very much the custom to administer the latter in cases of syphilis. No doubt it is an excellent remedy in some cases, and it comes in to your aid extremely well where you have reasons for not giving mercury; but if you ask me whether you can rely upon iodide of potassium as well as upon mercury, I say, No. You may remove slight symptoms by giving it for a time, and severe symptoms by

exhibiting larger doses; but in the latter case, so far as I have seen, it does not make a permanent cure, for the symptoms return again. As a prophylactic it is not to be compared with mercury.

I have spoken of the necessity of administering mercury, not only till the symptoms are relieved, but for a considerable time afterwards. You may inquire whether a long course of mercury will not injure the constitution more than a short one. Undoubtedly it will, but that is the very reason why you should give a long course at first. I will explain myself. If you exhibit a short course the disease is sure to return; you administer a second course, and the disease returns again, and thus you have repeated courses. Not only is the system weakened by the disease, but whenever it returns it assumes a more formidable character. But if you put the patient through a long course in the first instance, the frequent recurrence to the use of mercury will be unnecessary. A patient who takes mercury for a month will probably never require it again; but if he takes it only for a fortnight he has secondary symptoms, and then he will require to take it for four weeks, so that that which is a short course at first becomes a long one in the end.

LECTURE XXVII.

LOCAL NERVOUS AFFECTIONS.

A MIDDLE-AGED lady, who had been exposed during a considerable period of time to the operation of causes of great mental anxiety, complained of a constant and severe pain, which she referred to a spot, about three or four inches in diameter, in the situation of the false ribs of the left side. Besides this she was subject to fits, apparently connected with hysteria, and was otherwise in a very impaired state of health. Under these circumstances she died, and on examining the body after death, particular attention was paid to the side to which the pain had been referred. No morbid appearances could be detected in it; there was neither inflammation, nor thickening, nor adhesion, nor any morbid change of structure, nor the slightest deviation of any kind from the natural condition of the part.

Now such a case as this is by no means uncommon. It is only one of many which might be adduced in proof of this proposition, namely, that the natural sensations of a part may be increased, diminished, or otherwise perverted, although no disease exists in it which our senses are able to detect either before or after death.

There are other cases which may be regarded as corresponding to those to which I have just alluded, except that the nerves of motion are affected instead of those of sensation. Here there is an involuntary contraction or spasm of a particular set of muscles, or certain muscles lose their power of action altogether, and become paralytic;

and yet, if an opportunity occurs of examining the parts after death, the most minute dissection can demonstrate nothing in them different from what there would have been if the spasm or paralysis never had existed.

Nor are these facts difficult of explanation. Every part, to which a nervous filament can be traced, may be said to have its corresponding point in the brain or spinal marrow, and an impression made either at its origin, or anywhere in the course of the trunk of a nerve, will produce effects which are rendered manifest where the nerve terminates, at that extremity of it which is most distant from the brain.

These local nervous affections are of very frequent occurrence. In one shape or another you will meet with them at every turn of your future practice, and a knowledge of them is of the greatest importance, both to the physician and surgeon. Without it, you will be continually mistaking the real seat of a disease: your attention will be directed to a wrong object, and, following the symptoms, you will be in danger of overlooking the cause on which they depend. The investigation, however, is not unattended with difficulty, and it will often require all your professional sagacity and skill to trace the phenomena, which occur in these cases, to their true origin.

If you accidentally strike the inside of your elbow against a projecting body, the corner of a table for example, you feel a peculiar tingling sensation, not where the blow is inflicted, but where the ulnar nerve, which has been struck, terminates on the inside of the hand, and especially in the little finger. In like manner, an accidental pressure made for a few minutes on the popliteal or sciatic nerve, will cause that peculiar tingling sensation in the foot which is commonly described by saying that the foot is asleep, and which continues for some time after the pressure has been taken away. Guided by the light of these facts, and of others analogous to them, the first question which you will ask yourselves when you are consulted in these cases, will be, whether there is any cause of irritation affecting the trunk of the nerve above, sufficient to account for the symptoms which are met with in the part to which its ultimate fibres are distributed?

A man was admitted into St. George's Hospital in the year 1808, complaining of a severe pain in the inside of his knee. The joint was carefully examined, but no marks of disease could be detected in it. In the thigh, however, there was an aneurism of the femoral artery, of the size of a small orange. This last disease had scarcely attracted the patient's notice. He said that he should be very well if it were not for the pain in the knee, and it was not until some trouble had been taken to explain to him the nature of his case, that he could be made to understand that the tumour was of any importance. Soon after the man's admission, Sir Everard Home (then Mr. Home) applied a ligature round the femoral artery, in the upper part of the thigh. On the instant of the artery being secured the tumour ceased to pulsate, and the pain in the knee ceased also. Some untoward circumstances occurred, and the patient died about four or five days

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after the operation was performed. On inspecting the limb after death, the aneurism was found reduced to one-half of its former size; some branches of the anterior crural nerve, which passed over it, and which must have been kept on the stretch previous to the operation, were found to terminate in the part to which the pain had been referred, on the inside of the knee; and thus the cause of the pain was sufficiently explained. It was, in fact, a nervous pain, existing where there was no disease, in consequence of pressure on the nerves above.

A gentleman, in the year 1816, began to suffer from a gnawing pain in the left leg, referred to the course of the peroneal nerve from the foot to the knee. The pain by degrees became very severe, occupying at the same time a larger portion of the limb. The limb itself presented no appearance of disease. The patient consulted various surgeons, myself among the number. The disease went by the name of neuralgia, but the cause of it could not be discovered, and the remedies recommended were of no avail. After having lost sight of him for a considerable time, I was again sent for to see him in the year 1824. He was now dying with dropsy of the belly, and anasarca of the lower limbs. On examining the abdomen it was observed, as the fluid which it contained receded under the pressure of the hand, that there was a large solid tumour attached to the left side of the lumbar vertebræ, and extending into the pelvis. It was evident that this tumour must have pressed on the origin of the sciatic nerve, and thus it afforded a sufficient explanation of the pain which for so many years had been referred to some of its branches.

A case analogous to this is recorded by Dr. Denmark, in one of the volumes of the Medico-Chirurgical Transactions. A sailor received a wound from a musket ball in the arm: the wound healed, but the patient complained of an agonizing pain, beginning in the extremities of the thumb and fingers (except the little one), and extending up the forearm. His sufferings were such that he willingly submitted to the amputation of the limb, and the operation gave him complete relief. On dissecting the amputated limb, a small portion of lead, which seemed to have been detached from the ball when it had struck against the bone, was found imbedded in the fibres of the median nerve.

In each of these cases the cause of irritation was detected in the trunk of the nerve belonging to the part to which the symptoms were referred. But similar effects are produced where the actual seat of the disease is in that more essential part of the nervous system in which the nerve itself originates; that is, in the brain or spinal marrow. Thus caries of the dorsal vertebræ irritating the spinal marrow, produces pains and muscular spasms of the lower limbs; and the same disease affecting the superior cervical vertebræ, produces corresponding symptoms in the upper limbs.

A gentleman complained of severe pains referred to one side of the abdomen. After having been fixed for some time in one situation, it attacked another. No disease could be detected in the part apparently affected, and the pains were therefore regarded as nervous. It was observed at the same time that his powers of articulation were

affected, and that he spoke in an indistinct and drawling manner. This seemed to indicate that there was some disease in the brain, and the suspicion was confirmed soon afterwards, by the occurrence of epileptic fits, from which the patient continued to suffer during the few remaining years of his life.

I mention this case because I believe that a particular example will serve to impress the fact, which it illustrates, on your minds better than a mere general observation, and not because there is anything in it in any way remarkable or singular. You will, indeed, when engaged in practice, find nothing more common than this; that a patient consults you, who labours under some disease in the brain, but in whom a particular symptom, referred perhaps to a distant part of the body, is so severe, or so distressing, that he regards this as the original disease; and it is only after a diligent cross-examination that you are enabled to detect the existence of those other symptoms which serve to explain the real nature of the case. In many of these cases the cause of irritation seems to operate always on the same part of the sensorium, and there is little or no variety in the local indications by which it is rendered manifest. At other times it has no determined seat; it may affect at first one portion of the brain, to which a certain function belongs, and it may then affect another portion, whose function is entirely different, and the symptoms vary accordingly.

A gentleman laboured under a most severe pain, referred to the left side of the face; to which those whom he consulted gave the name of tic douloureux. While under the influence of this pain he was suddenly seized with a pain in the calf of the left leg, having precisely the same character with that which he had before experienced in the face. When the pain in the leg attacked him, that in the face did not subside altogether, but it abated so much that he suffered little or no inconvenience from it. At the end of a few days, as the pain left the leg, it returned with its usual severity in the face.

A lady became affected with a spasmodic affection of the sterno-cleido mastoideus muscle, producing what is commonly called a spasmodic wry-neck. This symptom continued unabated for a year, and then suddenly left her; but as the spasm in the muscle ceased, she fell into a state of mental depression amounting to insanity; and in this she continued during the whole of the second year. At the end of this period she recovered from the disordered condition of her mind, and the spasm of the muscle returned, continuing from that period up to the time of my being consulted, three or four years afterwards. I was consulted by another lady, in whom a neuralgic affection of the spine alternated with insanity.

When a calculus passes along the ureter from the kidney into the bladder, it frequently occasions a severe pain in the testicle of the same side. The most probable explanation of this sympathetic affection of the testicle is as follows: many of the nerves of the testicle derive their origin from the renal plexus, which also supplies the kidney, and which is formed by branches of the great sympathetic nerve. The irritating cause, namely, the calculus, operates in the

first instance on the nerves of the kidney, through which its influence is transmitted to the renal plexus; and from thence it is, as it were, reflected to the nerves of the testicle.

The symptoms which occurred in the following case may be accounted for on the same principle. A gentleman laboured under a scrofulous disease of the hip, producing caries of the bones and suppuration within the joint. The following symptoms existed in addition to those which the same disease usually produces. The smallest motion of the thigh induced an attack of excruciating pain, amounting to agony, attended with violent spasmodic contraction of the muscles which move the thigh. The limb was jerked in the most remarkable manner for several minutes, and the volition of the patient had no control over these distressing and extraordinary movements. After some time a tumour began to present itself externally on the anterior part of the limb, raising the femoral artery which lay pulsating on its surface. Combined with the disease of the hip-joint there were scrofulous tubercles and abscesses of the lungs, and of this last-mentioned disease he died, the attacks of pain and spasm having subsided for six or eight weeks before this event took place. Having the opportunity of doing so, I did not fail to examine the diseased hip and the parts connected with it with the greatest care. The bones composing it were soft, so that they were readily divided with a scalpel; the cancelli contained a yellow cheesy matter; and the cartilages had been destroyed by ulceration. The tumour was formed by an abscess situated among the muscles of the thigh on the anterior part below the hip-joint, but communicating with it. Two lymphatic glands enlarged to the size of large walnuts, were found situated beneath the skin on the anterior part of the thigh, below the outer extremity of Poupart's ligament. It so happened that a considerable branch of the lumbar nerves lay over each of these enlarged glands, being thus kept stretched and tense in the same manner as the strings of a violin are stretched over the bridge of the instrument. These nerves had the same origin with those which supply the muscles on the anterior and inner part of the thigh, and the peculiar circumstances under which they were placed seem to afford a sufficient explanation of the peculiar symptoms, under which the patient laboured. Nor is the view of the case different if we refer the symptoms to the pressure of the abscess, since this affected the nerves partially, whereas the convulsive action of the muscles was general, and the psoas magnus muscle, which was situated above the abscess, was not less liable to spasm than those which were situated below.

In cases similar to that which I have just mentioned, where nerves have a common origin, it is easy to suppose that an impression made upon one nerve should be communicated to those parts which are supplied by the other. But an impression made on one part of the body will often produce a nervous affection elsewhere, at a distance from the original seat of the disease, and where no such obvious explanation of the fact presents itself. A disease in the liver produces a pain in the right shoulder; a disease in the heart produces a pain in the back.

A gentleman awoke in the middle of the night, labouring under a severe pain in one foot; at the same time that some other sensations to which he was not unaccustomed, indicated the existence of an unusual quantity of acid in the stomach. To relieve the latter he swallowed a large dose of an alkaline medicine. Immediately on the acid in the stomach having been thus neutralized, the pain in the foot left him.

The late Dr. Wollaston was accustomed to relate the following history:—He ate some ice-cream after dinner, which his stomach seemed to be incapable of digesting. Some time afterwards, when he had left the dinner-table to go to the drawing-room, he found himself lame from a violent pain in one ankle. Suddenly he became sick; the ice-cream was rejected from the stomach; and this was followed by an instantaneous relief of the pain in the foot.

A gentleman consulted me concerning a pain in one instep. The pain was severe, causing lameness, so that he walked with difficulty; but there was neither swelling, nor, except the pain, any mark of inflammation. I prescribed some remedies, which, however, were of no avail. One morning he called on me, still suffering from the pain in the foot, and so lame that he could not get out of his carriage, and walk into the house without the assistance of his servant. Now, however, he complained of another symptom: he had a difficulty of making water, and a purulent discharge from the urethra. He had laboured under a stricture of the urethra for many years, and had occasionally used bougies. Of late the stricture had caused more inconvenience than usual; but he had abstained from mentioning it, thinking that it would be better that he should (if possible) be relieved of the pain in the foot before any treatment was adopted on account of the stricture. Under these circumstances I introduced a bougie, which penetrated the stricture and entered the bladder. Immediately on the bougie having been used, the pain in the foot abated; and in less than a quarter of an hour he left the house free from pain, and walking without the slightest difficulty. This happened some years ago, but I have seen the patient at intervals ever since; and, from a most careful observation of his case, he and I are both satisfied that the pain in the foot is connected with the disease in the urethra, and we have never found anything to relieve it except the introduction of the bougie.

A lady consulted me concerning a pain to which she had been for some time subject, beginning in the left ankle, and extending along the instep towards the little toe, and also into the sole of the foot. The pain was described as being very severe. It was unattended by swelling or redness of the skin, but the foot was tender. She laboured also under internal piles, which protruded when she was at the water-closet, at the same time that she lost from them sometimes a large and sometimes a smaller quantity of blood. On a more particular inquiry, I learned that she was free from pain in the foot in the morning; that the pain attacked her as soon as the first evacuation of the bowels had occasioned a protrusion of the piles; that it was especially induced by an evacuation of hard feces;

and that if she passed a day without any evacuation at all the pain in the foot never troubled her. Having taken all these facts into consideration, I prescribed her the daily use of a lavement of cold water; that she should take the Ward's paste (*confectio piperis composita*), three times daily, and some lenitive electuary at bed-time. After having persevered in this plan for the space of six weeks, she called on me again. The piles had now ceased to bleed, and in other respects gave her scarcely any inconvenience. The pain in the foot had entirely left her. She observed that in proportion as the symptoms produced by the piles had abated, the pain in the foot had abated also.

Now in such cases as these, you will at once perceive that there is no direct communication between the nerves of the parts affected that will afford a reasonable explanation of the occurrence of the sympathetic pain; and you will naturally inquire, how then is the sympathetic pain produced? To this question I would answer, that in all probability it is in the brain itself that the communication is made, the impression being first transmitted to the sensorium, and from thence reflected to the nerves of the part which is secondarily affected. If you dissect the brain according to Reil's method, having first hardened it by maceration in alcohol, you will find it splitting into fibres, passing in various directions, many of which may be demonstrated as connecting even the most distant convolutions of the cerebrum with each other: and if, with the limited knowledge which we at present possess, we venture to speculate on this obscure but interesting subject, we may easily be led to suppose that an impression on one part of the body should, by means of these communicating fibres, produce a disordered sensation in another part. It is not more improbable that this should happen than it is that the whole fabric of the nervous system should sympathize with an affection of a particular nerve, as is the case in traumatic tetanus, and on many other occasions of which the experience of surgeons will furnish numerous instances. I shall mention here one remarkable example of the kind which fell under my observation. An officer in the army received a wound (in action) from a musket-ball in the leg. The wound healed, but the ball remained lodged in the flesh, in some deep-seated situation where it could not be felt externally, and gave the patient no inconvenience. After some time the ball changed its place, so that it became perceptible to the touch; but in its new position it occasioned symptoms such as had never existed previously. There were convulsive twitches of the muscles of the limb, occurring at irregular periods, and sometimes followed by a fit, in which there were general convulsions, as in epilepsy. At this time (if I may judge from the patient's own account) the ball might have been readily extracted. Unfortunately the opportunity was neglected, and soon afterwards the ball again shifted its place. Probably it went back to the situation it had originally occupied; at any rate the spasms of the muscles were relieved, and there was no recurrence of the epileptic fits. I presume that these latter symptoms were the consequence of the ball, when it had left its original position, pressing on some nervous filament in such a manner as that a peculiar irritation was excited in it, and transmitted to the brain.

As these nervous affections may occur under such different circumstances, and may arise from such different causes, you will not be surprised to find that they assume a great variety of characters, so that it is impossible for me to do more than give you a general notion of what you will observe respecting them in the course of your professional practice; your own experience will enable you hereafter to supply the deficiencies of my description.

One remarkable feature of these diseases, whether they present themselves in the form of nervous pains or muscular spasms, is that they seem to be suspended during sleep. A patient suffering from the pains of tic douloureux in the face, may, for a time, be prevented falling asleep, but if once asleep, his sleep is likely to be sound and uninterrupted for many hours. In like manner, when a patient is affected with the spasmodic wry neck, the muscle which is the seat of the spasm, probably the sterno-cleido-mastoideus, becomes relaxed, and remains so while sleep continues, perhaps during the whole night. I do not assert that there are absolutely no exceptions to this rule, but I am much mistaken if the exceptions are not comparatively rare. Even during his waking hours, the sufferings of the patient are seldom constant. Nervous pains especially are intermittent, occurring in paroxysms, and then either subsiding altogether, or becoming very much abated. The time of such irregular intermissions varies from a few minutes to several hours, or even to several days. The patient then says that the pain comes on by spasms, and even medical men are apt to hold the same language. This, however, is not a very correct application of the term spasm. Spasm means contraction, and the use of it ought to be restricted to involuntary contractions of the muscles. In applying it to nervous pains as well as to muscular contractions, you confound together symptoms which, although they may arise from the same causes, are in themselves dissimilar, and you lead yourselves and others into error. Even where there are no absolute intermissions, the intensity of the symptoms varies at different times, according to the state of the general health, the state of mind, and various other circumstances.

Nervous pains vary not only in degree, but in kind. They are sometimes described as dull and wearying, at other times, and more frequently, as sharp, darting or stabbing. A gentleman, who laboured under no other symptoms of disease, lost the sense of touch in one arm, and forearm and hand, so that the whole limb was benumbed, and in the place of the natural sensations, experienced a sense of heat and burning, recurring at irregular intervals. Nervous pains may, in the first instance, be readily distinguished from those produced by inflammation by the absence of throbbing, by their not being increased by pressure; by there being no evident turgescence of the small vessels. But there is more difficulty in the diagnosis afterwards. As the commonest event may prove a source of annoyance to an irritable mind, so will nerves, which have been kept for some time in a state of irritation, transmit every impression that is

made on them, to the brain, with a disagreeable or painful sensation superadded to it: in other words the part affected will be tender to the touch. And more than this: the tenderness may be followed by increased vascularity; by a slight degree of swelling; by actual inflammation. I do not mean to assert that any very active inflammation will be established, such as will end in suppuration and abscess, or ulcer; it will be moderate in degree, but it will be inflammation nevertheless, and marked by the usual symptoms. In a patient, who had laboured for some time under pain in the testicle, depending on a calculus passing down the ureter into the bladder, the testicle became tender and considerably swollen. In a gentleman, who suffered for a great length of time from what was regarded as a most severe *tic douloureux* in the face, at first the parts to which the pain was referred retained their natural appearance, but ultimately they became swollen, from an effusion of serum into the cellular texture, and so exquisitely tender that they would not bear the slightest touch.

I have said that nervous pains are subject to irregular intermissions. But in some instances the intermissions are regular, and the returns of the pain are periodical, like those of an ague or intermitting fever. I have known such intermitting and periodical nervous pains to alternate with ague. In fact, the two diseases depend on the same state of the general system; and quinine, or arsenic, which would cure the intermitting fever, will also cure the intermitting pain. Here the character which the pain assumes, leads to an important rule of practice; but in other cases, as far as my own experience has yet gone, it teaches us but little as to the origin of the disease, or the remedies by which it is to be cured. What I am now about to mention renders it probable that the kind of pain depends (at the least) as much on the particular structure of the part, to which it is referred, as on the particular cause which produces it. It has been stated by Sir Henry Halford, that the tic douloureux in the face arises from the irritation of the nerves, occasioned by a portion of dead or carious bone, and I have no doubt that it is so in some instances. I have seen one, if not two cases, which confirm Sir Henry Halford's observation. But I also can entertain no doubt that it may arise from other causes. In one case, which I saw with Mr. Green and Mr. Freeman, the existence of epileptic fits, a ptosis of one eyelid, and some other symptoms, led us to believe that the pain in the face was the consequence of some disease in the brain. The patient died and the appearances on dissection afforded ample proof of the correctness of the opinion which we had been led to form during the patient's lifetime. In other instances it appears to be merely the consequence of a disordered condition of the digestive organs. But I am not aware that in these different cases there is any essential difference in the symptoms of the disease, or that it is possible for us, judging merely from the kind of pain, to pronounce that it arises from this or that cause, or that it is to be cured by this or that remedy.

Although there is no part of the body which may not, at one time or another, be the seat of these nervous affections, it would appear

that some parts are more liable to them than others. They are met with less frequently in the viscera, which are supplied by the great sympathetic nerves, than in other parts. Nervous pains are more severe, and perhaps, on the whole, more common, in those parts which receive their nerves from the fifth pair, as the face, the eye, the tongue, than in any other individual part. Muscular spasms are common in the muscles of the neck, especially in the sterno-cleido-mastoideus. I am inclined to believe, also, that they occur more frequently in the upper limb than in the lower. It is not uncommon to see one hand and arm in a state of constant tremulous motion, there being no other indication of disease. I have seen several cases in which a muscular spasm of the upper limb has shown itself in the following manner. The patient experiences no inconvenience from it until he uses the limb; for example, until he sits down to write. Then, when he has gone so far as to have written a few letters, some of the muscles act involuntarily, and jerk the hand in a direction contrary to that which was intended; so that instead of completing the word which was begun, the pen makes a long scratch on the paper.

A lady complained of pain in the head, and her mouth was drawn to one side; and hence she was supposed to suffer from paralysis of the muscles of one side of the face. However, when I was consulted respecting her, I observed that there were nearly constant twitches of the cheek and eyelids on that side to which the mouth was drawn; and on more minute examination, I was satisfied that the distortion of the mouth arose, not from the muscles on one side of the face being paralytic, but from those on the opposite side being in a state of spasm. The case precisely resembled that of a patient with spasmodic wry neck, except that the disease influenced a different set of muscles, namely, those supplied by the fascial nerve, or the *portio dura* of the seventh pair.

Perhaps there are no muscles in the body which are, on the whole, more liable to have their actions deranged under the influence of nervous disorders, than those of the pharynx and œsophagus. In not a few of those cases, which have been confounded together under the general appellation of stricture of the œsophagus, the disease is either a spasmodic, or a partial paralytic affection of these parts, and the patient is to be cured, not by the introduction of bougies into the œsophagus, but by other means.

A lady consulted me concerning symptoms which were ascribed to a stricture of the œsophagus. She was unable to swallow the smallest morsel of solid food, so that she was compelled to subsist entirely on liquids, and even these she swallowed with great difficulty. These symptoms had been coming on for upwards of three years. I introduced a full-sized œsophagus bougie, which entered the stomach without meeting the slightest impediment. From this and other circumstances I was led to conclude that the difficulty of deglutition was merely a symptom of some other disease. The lady's face was bleached, as if she had suffered from repeated attacks of hemorrhage, and her feet were in some degree œdematous. On inquiry I

found that she had long laboured under internal piles, from which had taken place repeated discharges of blood. To this last disease then I directed my chief attention, prescribing a cold lavement to be injected every morning; and at the same time a solution of the sulphate of iron, and sulphate of quinine, to be taken three times daily, by the mouth. When this plan had been persevered in for three weeks the piles were much relieved; they no longer protruded externally; there had been no recurrence of hemorrhage; her cheeks were less pale; and she swallowed with comparative facility. At the end of six weeks more the piles occasioned very little inconvenience; she had lost no more blood; her general health was much improved; and there was so little difficulty of deglutition that I had no hesitation in recommending that, after her return to the country, she should swallow a bolus of Ward's paste three times daily, with a view to the cure of the hemorrhoidal disease.

The pathological history of these local nervous affections constitutes in itself a most curious and interesting object of research; but it has another, and still stronger claim on your attention. Your patient wishes to be cured; he has of course no other reason for consulting you. Now you may supply yourselves with a list of what are called nervous remedies; prescribing, for example, the carbonate of iron first, changing this for the extract of belladonna, and that for something else; trusting that accident will at last enable you to hit on the right expedient; but you will do little good by the adoption of such a loose and empirical method of practice. If you would cure your patient, you must study each individual case that comes before you, pathologically; endeavour to trace the symptoms to their true origin; and if you can succeed in doing so, you will, in many instances, learn at the same time in what manner a cure is to be effected; while in others, in which the disease does not admit of a cure, you will learn this also: you will be enabled to avoid tormenting your patient with useless remedies; and at any rate you will be satisfied you can do as much for him as your neighbours.

It is not to be supposed that in these cases any permanent benefit can arise from applications made to the part to which the symptoms are referred, the cause on which they depend being elsewhere; and the first thing that you have to attend to in the treatment is, that you do not fall into the error of regarding the symptoms as constituting the original disease. A patient applies to you complaining of a pain in the testicle; but the testicle appears to have its natural structure, and (except the pain) bears no marks of inflammation. You inquire further, and find that the pain is not constant; that it is especially induced by exercise, and that it subsides when the patient is in the horizontal posture. Examine the groin after he has taken a long walk, and you will perhaps find an incipient hernia; a small portion of bowel just attempting to protrude through the abdominal ring. You apply a truss, which supports the hernia, and cures the pain in the testicle. If you had been careless in your investigation of the case, and had applied leeches and lotions to the testicle, you would, to say the least, have plagued your patient to no purpose.

Another person applies to you concerning a spasmodic wry neck. If you at once conclude that the disease is where it shows itself, and divide the tendon of the sterno-cleido-mastoideus muscle, what is the consequence? The patient undergoes a certain quantity of pain in the operation, and to no purpose; for before the wound is completely cicatrized, the divided tendon has again become fixed by adhesion to the neighbouring textures, and the contraction of the muscle, and the twisting of the neck, are as bad as ever. I shall relate a case in which a patient underwent a severe and painful operation to no purpose, in consequence of such a want of discrimination on the part of the surgeon. A sailor had received a severe wound in the ham, I believe, from a musket ball. The wound healed, but not until after a considerable time, and the patient was left with a contracted leg, and suffering from a most agonizing pain in the foot. This state of things having existed for a considerable time, and no benefit having been derived from any of the remedies employed, the poor fellow wished to lose the foot. The surgeon, under whose care he was, therefore, amputated the leg. But, unfortunately, he amputated it, not above the knee and above the injury of the nerve, but below the knee and below the injury. I scarcely need tell you the result. The pain continued as severe as ever, and it was not relieved until amputation had been performed a second time higher up in the limb.

It is, however, reasonable to conclude, that few among you will be guilty of a mistake so palpable as this. But in many instances, as I have already expressed to you, the diagnosis is really difficult, and it will require a very minute observation, and much exercise of judgment for you to understand the real nature of the case, so as to be enabled to determine where the primary disease is situated, and in what it consists. You must take into the account not only the present circumstances, but the former history; and your observations, instead of being limited to the particular symptoms concerning which you are consulted, must extend to the state of the animal functions generally; and where more light is wanted, you must be satisfied to wait and watch the further progress of the disease, and the effects produced on it by the remedies employed.

If the original disease operates immediately on the nerves of the affected part, producing in it pain, or muscular spasm or paralysis, you will have first to consider how far it is within the reach of topical remedies. If a tumour presses on a nerve, or if some foreign body, as a musket ball, or a piece of dead bone, irritates its surface, or is entangled in its substance, perhaps the tumour or the foreign body may be removed by a surgical operation, or the tumour may be reduced by other means. If this cannot be accomplished, or if the nerve itself be altered in structure, either from disease or injury, it will become a matter for consideration, whether the limb should be amputated, or whether the nerve should be divided. It is only under these circumstances that any advantage can be expected to arise from the division of the nerve. In ordinary cases of neuralgia, where the disease on which it depends is in the brain, or in some other distant part of the body,

or where it is connected with some derangement of the general health, it is evident that such an operation cannot be recommended on any sound principle, and it need be a matter of no surprise that where it is performed it should so generally fail. Where nothing better can be done, and a cure is not within your reach, a palliative treatment may be productive of some advantage, and you may endeavour to mitigate the patient's sufferings by the use of the local vapour bath, or by the application of the opium, or hemlock, or what is still better, the belladonna plaster.

In other cases the success of your practice must mainly depend on these circumstances: whether you are able to discover the primary seat of the disease, and whether, if it be discovered, it is of such a nature as to be under the influence of remedies. If you refer to what I have said in former parts of the present lecture, you will find that I have anticipated much of what belongs to this part of our inquiries. I shall not trouble you by needless repetitions. There are some points, however, on which I feel it my duty to make some additional remarks.

The mucous membrane of the stomach and intestines presents a very extended surface, on which a multitude of nervous filaments are distributed, maintaining an extensive sympathy between these organs and the rest of the system. This membrane is subject to various causes of irritation, to which nervous affections showing themselves even in distant parts of the body may not unfrequently be traced. Hence it is that these diseases are in some instances relieved, or cured, by an adherence to a well-regulated diet, by the exhibition of purgatives, of what are called alterative medicines, and of others which tend to improve the disordered secretions of the stomach and liver.

In a great number of instances nervous pains are manifestly connected with a disposition to gout, and the colchicum, combined with other remedies, will contribute to their cure.

I have already adverted to cases in which various pains assume an intermitting and periodical character, having a manifest relation to cases of intermitting fever. According to my experience there is no part of the body in which such pains may not occur, and when they occur daily, or on the alternate days, they are always relieved by the exhibition of the sulphate of quinine, or of the cinchona, combined with arsenic. But large doses of these medicines are sometimes required. A respectable medical practitioner consulted me, believing that he laboured under a disease of the spine. He complained of pain, which he referred to the inferior dorsal vertebræ, and which was so severe that he could, as he said, scarcely endure it. On inquiry, I learned that the pain attacked him always at a particular period of the night; that it lasted for a certain number of hours, and that he was free from pain, or nearly so, in the intervals. I recommended that he should take the sulphate of quinine procured at Apothecaries' Hall. He took as much as fifteen or sixteen grains daily without any decided amendment: but I was so satisfied of the efficacy of the remedy in such a case, that I advised him to increase

the dose still further. At last he took half a drachm of the sulphate of quinine daily, and this effected his cure.

Nervous affections of the same kind not unfrequently show themselves in other ways. Still they are cured by the same remedies. It would be an endless task for me to describe all the varieties of this disease which you will meet with in practice; and I shall content myself with furnishing the following examples.

In my lecture on the diseases of the urinary organs I have noticed the case of a gentleman, who had long laboured under a stricture of the urethra; but from which, introducing a bougie occasionally for himself, he suffered little. At last he became affected with a periodical retention of the urine, recurring at a certain hour every night. The retention continued for some hours, and then subsided. The introduction of the catheter gave him relief at the time by emptying the bladder, but it did not remove the spasm, and if the urine was secreted rapidly afterwards, a second introduction of it was required. After this state of things had continued for some time, I prescribed for him two grains of the sulphate of quinine to be taken every six hours. On the first night after he began to take it the retention recurred, but he had no attack afterwards.

A lady about sixty years of age complained of a most distressing sensation of thirst, beginning about ten o'clock in the forenoon, continuing for five hours, and recurring daily. A slight degree of chilliness preceded the attack; and while it lasted, although the sense of thirst was such as to produce absolute misery, there was no perceptible dryness of the mouth and fauces, and the secretion of urine was natural. These symptoms had existed for several weeks. The patient appeared to labour under no other disease: she had, however, begun to lose flesh, and her complexion was sallow. The same symptoms had attacked her four years ago. At that time they continued for six months, leaving her thin and debilitated. I prescribed for her three grains of the sulphate of quinine to be taken three times daily. I have not seen her since; but at the end of four days I received a note to the following effect:—"Mrs. ————, the thirsty lady, has the pleasure to say that she is very much better; and she is much obliged to Mr. Brodie for his advice. She returns to the country to-morrow."

A lady suffered from a neuralgic affection of the face. Her medical attendant prescribed a preparation of valerian, and the pain in the face subsided; but immediately afterwards she began to experience a pain in one foot. This pain recurred in the early part of every evening. After a short time it was followed by redness of the skin, and tumefaction of the subjacent parts near the bases of the toes. These marks of inflammation continued to increase for some hours, and then subsided, leaving the foot of its natural appearance and free from pain. This state of things, at the time of my being consulted, had existed with little variation for several months. She was advised to take the sulphate of quinine. On the following evening the attack was less severe than formerly, and in the course of three or four days the symptoms had entirely subsided.

In this case the inflammation of the foot was manifestly the consequence of the intermitting neuralgia. In that which follows, the inflammation of the leg formed the most prominent feature of the disease; yet from its resemblance to the last we can scarcely doubt that it ought to be considered as belonging to the class of nervous affections.

A lady laboured under an inflammation of her leg. The whole leg was swollen from the toes to the knee, the skin being red, painful and tender. These symptoms had existed for several weeks; the usual remedies had been employed, and no amendment had taken place; yet the inflammation did not proceed further, and there were no signs of suppuration. At last I observed that the symptoms varied considerably; that sometimes the redness, pain, and swelling had nearly subsided, that at other times they were as strongly marked as ever; and that these variations always took place on the alternate days. She was now directed to take the sulphate of quinine. The effect was immediate, and a few days completed the cure.

In those cases in which the local nervous affection depends on an organic disease of the brain, or spinal marrow, it is evident that the patient has no chance of actual cure. Other nervous symptoms show themselves in succession, such as a stumbling walk, a drawling speech, epileptic fits, derangement of the intellect, and at last a stroke of apoplexy occurs as the immediate prelude of death. But here months or years may elapse before the disease reaches its fatal termination; and in the meantime you attain an important end, if you can relieve the local symptoms. Now where these appear in the form of muscular spasms or paralysis, according to my experience, remedies are of little avail. The spasms may subside spontaneously, but they are not to be relieved by art. It is different, however, with respect to nervous pains; and for these, local applications of hemlock or belladonna, stimulating liniments combined with laudanum, and even blisters, may be employed with advantage, removing the pain, perhaps for a time, perhaps permanently, although the disease on which the pain depends is slowly but progressively advancing.

Another very extensive class of local nervous affections remains to be investigated. To these I shall call your attention in the next lecture.

LECTURE XXVIII.

VARIOUS FORMS OF LOCAL HYSTERICAL AFFECTIONS.

When I was formerly engaged in the study of the diseases of the joints, having, at the period to which I refer, few opportunities of investigating the subject except in my hospital practice, I occasionally met with cases, in which a particular joint was affected with pain, and a great degree of morbid sensibility, attended occasionally with some degree of tumefaction of the soft parts, although the characteristic symptoms of the ordinary diseases to which these organs are liable were wanting, and the usual consequences of abscess and destruction of the joint did not ensue. For a long time these cases occasioned me great perplexity, and it was not until after I had published the first edition of my Treatise on the Diseases of the Joints that the occurrence of the case, which I am about to describe, first led me to suspect the real origin of the symptoms, which I had not comprehended formerly.

I was consulted concerning a young lady who complained of severe pain and a morbid tenderness of the knee, in the first instance attended with no perceptible enlargement of the joint. The remedies which, with such knowledge as I then possessed, I was led to recommend, gave her no relief; and after some time a slight degree of tumefaction took place, depending, as it seemed, either on a fullness of the small vessels, or on an effusion of lymph or serum into the subcutaneous cellular texture. She had been in this state for a considerable time, when she was seized with a succession of violent paroxysms of hysteria, which terminated in an hysterical affection of the brain; so that she lay in a state approaching to that of coma, with dilatation of the pupils of the eyes. She was now attended by the late Dr. Babington and myself. I do not undertake to say whether the disease yielded to the remedies employed, or reached its natural termination; but from one or other of these causes, the patient recovered of the last-mentioned symptoms, and from that time she never complained of her knee.

Not long afterwards another young lady was brought to me, labouring under what had been supposed to be a scrofulous disease of the wrist. The resemblance of this case to that of the last-mentioned patient led me to doubt the correctness of this opinion, and the results proved my doubts not to be without foundation. She also was seized with a succession of violent paroxysms of hysteria; and when, after the lapse of many days, she had recovered from them, the disease of the wrist had vanished.

It seemed impossible to doubt that in each of these cases there was some connection between the local symptoms and the constitutional disease under which the patient laboured; and a great number

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Not long afterwards another young lady was brought to me, labouring under what had been supposed to be a scrofulous disease of the wrist. The resemblance of this case to that of the last-mentioned patient led me to doubt the correctness of this opinion, and the results proved my doubts not to be without foundation. She also was seized with a succession of violent paroxysms of hysteria; and when, after the lapse of many days, she had recovered from them, the disease of the wrist had vanished.

It seemed impossible to doubt that in each of these cases there was some connection between the local symptoms and the constitutional disease under which the patient laboured; and a great number

of other cases, which fell under my observation afterwards, confirmed me in the opinion: that where there is that state of the general system, whatever it may be, which produces the phenomena of hysteria, it is not uncommon for a particular joint to be affected with pain and morbid sensibility, such as may lead a superficial observer to believe that it is the seat of some serious local disease, although no such disease in reality exists.

In the second and subsequent editions of my Treatise on the Diseases of the Joints, I have given some account of these local hysterical affections. I trust that what I have there stated may have been not wholly unacceptable to those who are engaged in the practice of our art; but the subject is one of great interest both to the scientific pathologist and to the practical surgeon, and believing that I can furnish you with some information respecting it, beyond that which is to be found in these publications, I am led to call your attention to it on the present occasion.

I have already mentioned, that when my opportunities of studying these diseases were limited to what I saw in the wards of the hospital, these affections of the joints fell occasionally under my observation. Since I have been engaged in a large private practice, they have presented themselves, I may say, without exaggeration, almost daily. This is easily explained: "*Fœminarum enim paucissimæ*," says the sagacious and observing Sydenham, speaking of hysteria, "*ab omni horum adfectuum specie prorsus liberæ sunt, si istas excipias quæ laboribus adsuetæ duram vitam trahunt.*" The liability to hysteria is, in fact, among females, one of the severest penalties of high civilization. It is among those who enjoy what are supposed to be the advantages of affluence and an easy life that we are to look for cases of this description, not among those who, fulfilling the edict of the Deity, "eat their bread in the sweat of their face." I do not hesitate to declare that among the higher classes of society, at least four-fifths of the female patients, who are commonly supposed to labour under diseases of the joints, labour under hysteria, and nothing else.

Frequently the symptoms are referred to the hip-joint. They then have a considerable resemblance to those of diseases in the bones or cartilages, yet a minute examination of the case will rarely leave you in doubt as to your diagnosis.

There is pain in the hip and knee, which is aggravated by pressure and the motion of the limb, and the patient often lies fixed in one position on the bed or sofa. You will say, "are not these indications of a diseased hip-joint?" But observe further. The pain is not in general fixed in any one part: it belongs to the whole limb. The patient winces, and sometimes screams, when you make pressure on the hip, but she does the same if you make pressure on the ilium, or on the side as high as the false ribs, or on the thigh, or even on the leg, as low as the ankle; and everywhere the morbid sensibility is chiefly in the integuments. If you pinch the skin, lifting it at the same time off the subjacent parts, the patient complains more than when you forcibly squeeze the head of the thigh-bone

into the socket of the acetabulum. As her attention is more directed to the examination, so the pain, which she suffers from it, is aggravated; and if her mind be occupied in conversation, she will scarcely complain of that, which would have occasioned torture otherwise. Then there is no wasting of the *glutæi* muscles, and no flattened appearance of the nates; and the aspect of the patient is different from that which you would expect to find if the bones and cartilages of a joint were in a state of ulceration. Neither are there those peculiar and painful startings of the limb at night, attended often with frightful dreams which mark the existence of this last disease. The pain will sometimes prevent the patient falling asleep, but, if once asleep, she sleeps soundly for many successive hours; and this state of things may continue for weeks, or months, or even for years, without leading to abscess, or any further ill consequences. There may be a suspicion of abscess (I have known this in a great number of instances), but the suspicion is never realized. Sometimes there is a general tumefaction of the thigh and nates, the consequence either of a turgid state of the small vessels, or of an effusion into the cellular texture (I suppose of the former, as the parts do not *pit*, or remain indented after pressure); but this is entirely different from the swelling of an abscess. In a few rare instances there is a more defined and circumscribed swelling, but still it is altogether different from that of abscess. There is no perceptible fluctuation, and I can compare it to nothing better than a wheal of urticaria of unusual magnitude. A careful examination will always enable you to distinguish these swellings from abscess. For the satisfaction of others, I have sometimes made a puncture with a grooved needle, or some other convenient instrument, the introduction of which would have detected matter, if matter had existed.

I have said that, in these cases, there is no wasting of the glutæi muscles, and no flattened appearance of the nates. It is, however, not uncommon to find much alteration in the figure of the parts, of another kind; namely, a bulging of the pelvis posteriorly, at the same time that it is elevated, on the side of the disease, so as to make an acute, instead of a right angle, with the column of the vertebræ. Of course, under these circumstances, the limb is apparently shortened, and when the patient stands erect, the heel does not come in contact with the ground. A superficial observer may be led to believe that there is an actual dislocation of the hip; and, indeed, it requires a careful examination to enable the surgeon to understand that all this strange distortion is but the result of the predominant action of certain muscles, and of a long-continued indulgence in an unnatural position.

When the symptoms are referred to the knee, they bear a near resemblance to those which have been just described. There is great tenderness of the joint; but the patient suffers more from pinching the skin than from pressure, and the morbid sensibility extends for some distance up the thigh, and down the leg, perhaps as low as the foot and ankle. She suffers less from an examination when the attention is fixed on other matters than when it is directed to the

affected parts; and she does not usually complain when pressure is made on the heel, so as to press the articulating surface of the tibia against that of the femur, provided that care be taken at the same time to produce no motion of the joint. In most instances the leg is kept extended on the thigh, whereas, in cases of real disease in the knee-joint, it is usually a little bent. The symptoms may continue in this case, also, without any material alteration for an indefinite time; for weeks, or months, even for years, the joint retaining its natural size and figure: but occasionally a slight degree of tumefaction is observable especially on the anterior part, over, and on each side of, the ligament of the patella. This tumefaction is not to be confounded with a general enlargement of the joint, by which surgeons are frequently perplexed and misled, the result not of the disease, but of the remedies employed. I refer to cases which have been misunderstood, and mismanaged by the application of blisters, issues, and a succession of various counter-irritants.

What I have now stated may be sufficient to enable you to understand the nature of the symptoms which you may expect to find where these hysterical affections occur in the other joints of the extremities. The following observations are equally applicable to all these cases, and while they are necessary to complete the history, will be found of use in enabling you to form a correct diagnosis.

The patients thus affected are, for the most part, not much above the age of puberty.

In many instances they labour under some irregularity with respect to menstruation; while in others this function is in no respect different from what it is under circumstances of perfect health.

Those who labour under habitual coldness of the hands, have a weak small pulse, and afford other indications of a feeble circulation, are more liable than others to suffer in this manner; yet occasionally we find these symptoms existing in combination with a florid countenance and a sufficient development of animal heat.

In some instances the joint to which the symptoms are referred, and even the whole limb, is affected with a remarkable alternation of heat and cold. Thus in the morning the limb may be cold, and of a pale or purple colour, as if there were scarcely any circulation of blood in it; while towards the afternoon it becomes warm, and in the evening is actually hot to the touch, with the vessels turgid and the skin shining. This state of things is often a source of serious alarm to the patient, and even to the medical attendant, but I never knew it to be followed by any ill consequences.

The majority of the patients thus affected exhibit other proofs of their liability to hysteria. Sometimes they have been subject to the usual paroxysms of hysteria, which have ceased on the local symptoms showing themselves; and a recurrence of the former has been followed by an abatement of the latter, or by complete recovery from them.

Not unfrequently the origin of these symptoms may be traced to a severe illness, which has left the patient in a state of great physical exhaustion; at other times they are as clearly to be attributed to

some moral cause having a depressing influence on the constitution. In like manner the agency of moral causes, especially of those which compel the patient to make much physical exertion, often leads to her recovery. But we must not be led by this last-mentioned circumstance to adopt the harsh conclusion, that these symptoms exist only in those who are of a fanciful and wayward disposition. Young women of the highest moral qualities, and of the strongest understanding, are not exempt from these maladies; but it must at the same time be acknowledged that a cure is more easily attained in them than it is in others.

Although there are none of those painful and involuntary startings of the limbs which occur in combination with caries of the joints, spasmodic actions of the muscles of the limbs are not uncommon in the cases of which I am now speaking. In some instances convulsive motions of the limbs are produced, by pinching, or even by lightly touching the integuments. These bear no very distant resemblance to the movements of chorea; and it is worthy of notice, that they do not occur if it can be managed, at the same time, that the attention of the patient should be otherwise directed. I have also known them to take place independently of any manifest exciting cause. In some cases which have fallen under my observation, the limb was at irregular periods violently agitated, so as almost to throw the patient off her couch.

In these cases there is always a sense of weakness in the limb, which for obvious reasons becomes aggravated in proportion as the muscles have been for a longer time in a state of inaction. While the pain and morbid sensibility of the joint are gradually subsiding, this sense of weakness increases, until at last it is the predominant symptom. Under these circumstances the patient often says, "I have no pain, but I cannot walk, because the limb is so weak." Weakness of the muscles, however, is not the only circumstance which interferes with the speedy recovery of the use of the limb in these cases. The tunics of the small blood-vessels, when the limb has been long kept in the horizontal posture, seem to partake of the condition of the muscles; and when the foot is first put to the ground, the skin assumes, in consequence, a red colour, sometimes amounting to a purple hue, as dark as that which, when limited to a particular spot, is often the precursor of a vesication.

The symptoms which have been described for the most part come on gradually. In the majority of cases they subside gradually also; but sometimes it is otherwise, and they vanish all at once without any evident cause. For example: in the year 1834 I was consulted respecting a young lady labouring under a well-marked hysterical affection, simulating disease of the hip-joint. As she was not a resident in London, I had no opportunity of watching the progress of the case, but I have lately received the following account of it from Dr. Mortimer, the surgeon of Haslar Hospital:—Her symptoms had continued nearly unaltered for nearly two years, when one night, on turning herself in bed, she said that she had a feeling as if

something had given way in her hip, and from that moment she was quite well.

Another young lady was brought to London for my opinion in October, 1833. She also was supposed to labour under a disease of the hip-joint. After a careful examination of her case, I was satisfied that it was one of hysterical affection, and that there was no actual disease of the joint. I recommended her to leave her couch, to which she had been confined, and to take exercise, especially on horseback. Being a sensible and well-disposed person, she followed this advice, in spite, I doubt not, of a good deal of inconvenience in the first instance. After the lapse of a year, I received from her father the following statement respecting her:—"In pursuance of your advice, she began to use the limb more freely, but with little alteration as to pain and lameness until about six weeks ago, when, by a fall of the donkey on which she was riding, she was thrown over the animal's head, standing on the foot of the lame limb, with her weight upon it. She felt immediately what she describes as a sudden snap, as if something near the joint had given way. This was attended with a violent acute pain, which, however, lasted only a short time. She was replaced on the donkey, and rode home, a distance of four miles. To her great surprise the former habitual pain of the limb had entirely discontinued, and there has been no return of it since. She was able to walk up and down stairs without difficulty or pain, and now walks a considerable distance, using the one leg as freely and as well as the other. Her general health is improving rapidly, although she is still weak. There has been no hysterical fit since the accident; in short, the cure has been complete." However, the cure was not permanent. Three months afterwards the complaint recurred, having the same character as formerly, except that it was not now combined, as it had been in the previous attack, with other hysterical symptoms. She was at this time on the continent, and I have not heard the result of the case.

I have hitherto described these cases as if the symptoms were peculiar to the female sex; but it is not so in reality; and I have known several (though by comparison certainly rare) instances of males being affected in the same manner. I employ the term hysteria because it is in common use, and because it would be inconvenient to change it for another; but the etymology of it is undoubtedly calculated to lead to a great misapprehension with respect to the pathology of that disease. It belongs not to the uterus, but to the nervous system; and there is no one who is much engaged either in medical or in surgical practice, who will not be able to bear testimony to the accuracy of Sydenham's observation on this subject:—"*Quinimmo non pauci ex iis viris qui vitam degentes solitarum, chartis solent impallescere eodem morbo tentantur.*"

Hysterical affections, in which the symptoms are referred to the spine, are of very frequent occurrence. Such cases are, in many instances, mistaken for those of ulceration of the intervertebral cartilages and bodies of the vertebræ; and in consequence of this unfortunate impression on the minds of the medical attendants, I have known not a few, but very numerous, instances of young ladies being condemned to the horizontal posture, and even to the torture of caustic issues and setons, for several successive years, in whom air and exercise, and cheerful occupations, would probably have produced a cure in the course of a few months.

In these cases the patient complains of pain and tenderness of the back, to which one or more of the following symptoms may be superadded, tending very much to mislead the medical or surgical attendant:—Pains in the limbs, especially in the lower limbs; a sense of constriction of the chest; involuntary spasms of the muscles, sometimes induced by change of position, at other times recurring without any very evident cause; a sense of weakness in the lower limbs, so that they are scarcely capable of supporting the weight of the body; and even actual paralysis; difficulty of voiding the urine. When the patient first complains of pain in the back, it must be acknowledged that there is some difficulty in forming a positive diagnosis; but the difficulty vanishes afterwards, so that none but a superficial observer can have any doubt as to the real nature of the disease. The pain in the back is seldom confined to a single spot, but it extends to different regions of the spine, and it not unfrequently shifts its place from one part to another. The tenderness of the spine is peculiar. The morbid sensibility is chiefly in the skin, and the patient, for the most part, flinches more when the skin is even slightly pinched, than when pressure is made on the vertebræ themselves. The pain is, in the majority of cases, more severe than in those of real vertebral disease; and the spasms of the muscles have a near resemblance to those of chorea. Where there is paralysis, or a tendency to paralysis, it is quite different from what is observed in cases of pressure on the spinal cord or brain; and I may take this opportunity of observing, with respect to hysterical paralysis generally, that it has this peculiarity: *it is not that the muscles are incapable of obeying the act of volition, but that the function of volition is not exercised.* The accuracy of this observation will, if I am not much mistaken, be acknowledged by all those who are at the pains of studying these cases with the attention which they so well deserve; and the importance of it in medical and surgical practice is sufficiently obvious. There are still other circumstances which may assist us in forming our judgment; such as the general aspect of the patient, and her condition in other respects; her time of life; the state of the menstruation; and especially the liability to the more common hysterical affection.

Patients with a weak pulse, and cold hands and feet, are, on the whole, more liable to suffer in this manner than other persons. But this is almost a needless repetition. It would be sufficient for me to refer to what I have already stated in speaking of hysterical affections simulating diseases of the joints of the extremities.

I have frequently known surgeons to apply a hot sponge to the spine, believing that if the patient complained of pain on the application, this was a proof of the existence of caries. My own expe-

rience leads me to believe that a patient who labours under a nervous pain of the back will complain of the hot sponge even more than one in whom real disease exists. I mention this trifling matter, that you may avoid being misled by it in your diagnosis.

What I have already described are only a part of the local hysterical affections which fall under the observation of the surgeon, and an acquaintance with which is necessary, to enable him to practice his art with credit to himself, and advantage to the public.

Hysterical retention of urine is of such frequent occurrence, that any particular description of it would seem to be superfluous. An observation, which has been already made, is equally applicable to this as to other forms of hysterical paralysis. The muscles are not incapable of obeying the act of volition, but the volition itself is not exercised. So it is, at least, in the first instance; but if the patient has allowed the bladder to remain for a great length of time in a state of extreme distention, actual paralysis may ensue, and she may then strive in vain to empty the bladder, without the aid of the catheter. In these, and in other cases in which the bladder has been long extremely distended, the mucous membrane becomes affected with chronic inflammation, secreting the usual adhesive mucus; and even worse consequences may ensue than these. In a case, to which I have had occasion to refer in my lectures on the Diseases of the Urinary Organs, hysterical retention of urine having been for a long time neglected, at last forty ounces of urine were drawn off by the catheter. In the *post-mortem* examination, the bladder was found of a very large size, of a dark and almost black colour: there were only slight vestiges of its natural structure left, the musclar fibres being very much wasted, and the internal membrane presenting the appearance of a very thin film, which was readily separated from the parts below. The dark colour of the bladder did not seem to arise from mortification, there being no fetor, nor, with the exception of the black colour, any indication of it.

Females who labour under hysterical retention of urine, if left to themselves, usually recover in the course of a short space of time; sometimes almost suddenly; but if the catheter be employed, their recovery may be protracted for an indefinite period. We may lay it down as a general rule, that in these cases the catheter should not be had recourse to: and the only exceptions to it are in those extreme cases in which actual paralysis has taken place, and the bladder is likely to become diseased, if not artificially relieved.

Hysterical *aphonia*, or loss of voice, allowance being made for the different functions of the affected parts, corresponds very nearly to the hysterical retention of urine. It takes place suddenly, continues often for many months, even for one or two years; and then disappears as suddenly as it began. A patient thus affected may, when under the influence of strong moral excitement, find herself speaking in her natural voice, when, for some time before, she had spoken only in a whisper. Her recovery may be permanent, or she may relapse into her former condition. This symptom is not unfrequently met with in the male sex, especially in those of the clerical

profession, probably because they often lead very sedentary lives, and also because in their profession they are called upon to speak in public in a tone raised above the ordinary standard.

A tympanitic distention of the intestines is not an uncommon symptom in young women who are affected with hysteria; and, when existing to a great extent, is frequently mistaken for ovarian dropsy. The majority of cases in which the patient has been supposed to be cured of ovarian dropsy, by the agency of iodine and other remedies, have been, I doubt not, of this description. Yet the diagnosis is not difficult. The absence of fluid is distinguished by the absence of fluctuation; and the sound produced by percussion sufficiently indicates the cause of the distention. When the tumour is of a large size, there is pain in the abdomen, and the respiration is rendered difficult in consequence of the impediment which exists to the descent of the diaphragm. If the uneasiness be such as to induce the practitioner to direct the use of the warm bath, and the tympanitic distention be great, the effect is remarkable. Instead of sinking in the bath, as under ordinary circumstances, the patient floats in the water. If an elastic gum tube be cautiously introduced, so as to reach the upper part of the rectum, and pressure be made on the surface of the abdomen, the air may, in some instances, be made to escape through the tube, until the abdomen is reduced almost to its natural dimensions; but it becomes re-accumulated in the course of a few hours. A stimulating injection, made with the *confectio rutæ*, will sometimes produce the same result.

Young women are subject to an affection of the breast, corresponding to the hysterical affections of the joints, and indicated by very similar symptoms. These cases have been noticed by Sir A. Cooper, in his Observations on the Diseases of the Breast. The patient complains of pain in the breast, and shrinks on pressure being made with the fingers, or even on the skin being slightly pinched. Not unfrequently the examination of the part produces twitches and motions of the body, bearing no small resemblance to those of chorea; yet, if it can be dexterously managed, while the examination is being made, that the patient's attention should be otherwise engaged, not only these motions do not occur, but she may seem scarcely sensible of pain. The morbid sensibility is not confined to the breast, but extends to the axilla, and down the arm. No distinct tumour is perceptible in the breast, but when the disease has been of long continuance, the whole organ becomes slightly enlarged, probably in consequence of an increased determination of blood to the small vessels; yet there is no redness of the skin, and indeed the skin is even paler than natural, with a somewhat glossy appearance of its surface.

These cases are to be distinguished from those of a rare kind of irritable tumour of the breast, of which a representation is to be found among the plates annexed to Sir Astley Cooper's work. I conceive that they ought also to be distinguished from those which may occur at any time of life, and in women who have no particular disposition to hysteria. In the cases to which I now allude, the pain and tender-

ness are much less than in the true hysterical affection of the breast, and it will be almost invariably found that the patient has witnessed the miseries of some friend or acquaintance who has suffered from carcinoma. No part of the body will bear that rigid scrutiny to which the breast is subjected under these circumstances. Close attention will discover in any, even in the most healthy organ, sensations which had been previously overlooked; and constant anxiety on the subject may magnify such sensations into pain. In these last-mentioned cases a strong assurance that no disease exists will make the patient happy, and remove the pain; but no such assurance will be adequate to the cure of a genuine hysterical affection.

Hysterical tympanitis is always attended with a more or less constipated state of the bowels. But obstinate constipation of the bowels is a frequent occurrence in hysterical patients, independently of any considerable degree of tympanitis; and I have known many instances in which a case of this kind has been mistaken for one of stricture in the upper part of the rectum. The surgeon here sometimes misleads himself by taking it for granted that a very long bougie may be introduced into the rectum, if there be no actual contraction; not recollecting that the naturally tortuous course of the bowel is often sufficient to prevent a bougie being passed more than a few inches, even in a healthy rectum. But the statement of the patient tends to mislead him also; for she describes herself as going to the water-closet, and yet being unable to eject the contents of the bowels. I will not say that it is so in all cases, but I am satisfied that, in some instances, if you cross-examine the patient, you will find reason to believe that the hysterical constipation of the bowels is of the same nature with the hysterical retention of urine. The effort of volition is not exercised except when the accumulation of feces has become excessive. Hysterical difficulty of deglutition, which is sometimes mistaken for stricture of the œsophagus, is probably an affection of the same kind; there being no actual spasm, but a defective action of the voluntary muscles, by means of which deglutition is performed.

Symptoms resembling those of tetanus occasionally occur in patients who are under the influence of hysteria; sometimes assuming the form of trismus, at other times that of *opisthotonos*. A case of *locked jaw*, cured by the injection of oil of turpentine into the rectum, and published by Dr. Philips (then residing at Andover), in the sixth volume of the Medico-Chirurgical Transactions, is manifestly one of this description.

In a great number of instances, local hysterical symptoms appear to be connected with some accidental injury; generally a very slight one; and they are then especially liable to be misunderstood, and mistaken for something very different from what they really are.

For example: a woman is bled in the arm. She complains, perhaps, of severe pain at the time; but this subsides, and the wound heals, as under ordinary circumstances. Then she complains of pain again, extending down the forearm to the hand, up the arm to the axilla and shoulder, and even to the side of the neck, and sometimes down the side of the chest also: the extent and degree of pain varying in different cases. You examine the cicatrix, but can discover nothing unusual in it; but the patient flinches when it is touched. She very commonly complains of the surgeon, saying that she was badly bled, or bled with a blunt lancet, or a foul lancet, or that a nerve was pricked which ought not to have been touched; while the real origin of her symptoms may be traced to the peculiar state of her own nervous system. If you investigate the case further, you will always find that she has been liable to various nervous symptoms previously to those which are attributed to her being bled; and when these last disappear, nervous symptoms of some other kind show themselves.

In another case, the patient has received a blow on the head. In order to avert the consequences which such an injury may be expected to produce, she is bled repeatedly, takes aperient medicines, and is kept on a low diet. When her physical powers are thus reduced, she complains of pain in the head even more than she did in the first instance: but the pain is of a different character, and is usually attended with other symptoms, such as do not belong to inflammation. Thus she has a sense of dizziness, or a feeling as if water was trickling over her head. Then the countenance is blanched, the skin is cool, and the pulse is probably small and quick, and weak. If under these circumstances, the surgeon, mistaking the nature of the case, continues to abstract blood, and to keep the patient on a low diet, all these symptoms become aggravated; other symptoms of a more decidedly hysterical character show themselves, and no improvement takes place until a more judicious treatment is adopted. In another case, which is of no unfrequent occurrence, a young woman pricks her finger, or perhaps the finger is merely pinched. Soon afterwards she complains of pain extending from the finger upwards, along the hand and forearm. This probably is followed by a convulsive action of the muscles of the arm, or by a continued contraction of the flexor muscles on the anterior part of the arm, so that the forearm is kept permanently bent; at least while the patient is awake, for the spasm is generally relaxed during sleep.

But the symptoms which, in hysterical patients, are attributed to a local injury, often proceed much further than what I have hitherto described. For example:

A young lady, eleven or twelve years of age, pricked the fore-finger of her left hand with the point of a pair of scissors. This was immediately followed by pain in the course of the median nerve, and on the following day the forearm was fixed by muscular contraction at a right angle with the arm. After a few days, all the muscles of the hand and forearm were affected with violent spasms, producing strange convulsive movements of the hand and forearm. These were attended with sickness and vomiting, so that for two days whatever was received into the stomach was immediately rejected from it. By degrees the other limbs became affected in the same manner, and it was impossible for the patient to walk, or even to stand. Sometimes the diaphragm was affected so as almost to threaten suffocation. At other times the jaw was closed by a contraction of the

masseter muscle, or she lay in a state of opisthotonos. Occasionally there was a violent pain in the head, which was described as having the same character as that of the finger which had been pricked; and these symptoms continued (sometimes one order of them, sometimes another being predominant) until recovery took place under the circumstances which I shall have occasion to notice hereafter.

With a view to the further illustration of this part of the subject, I shall mention another case. A female, about thirty years of age, was admitted into St. George's Hospital, on account of a simple fracture of both bones of the forearm. There was nothing unusual in the fracture, but she complained of an extreme degree of pain in the injured part. By degrees the pain extended up the arm to the axilla; then to the same side of the neck and head. The smallest motion of the limb, even the lifting the forearm off the pillow on which it lay, occasioned violent pain and convulsive agitation of the limb, which were soon followed by what might be termed a state of hysterical syncope, in which the patient lay apparently insensible to external impressions for several minutes. The fracture united as under ordinary circumstances; but the nervous symptoms continued for many weeks, then subsiding gradually. It is worthy of notice (and this circumstance confirms the opinion, that symptoms of this kind belong more to the constitution than to the actual injury), that about two years before the occurrence of this last accident, this individual had met with a slight injury of the ankle, for which she was attended by Mr. Fuller, of Piccadilly; and that a train of nervous symptoms at that time supervened, nearly similar to those with which she was afterwards affected in the hospital. It is also worthy of notice, that on both occasions she had occasionally a spitting of blood, probably furnished by the mucous membrane of the pharynx or trachea, as there was no reason, either at the time or afterwards, to suspect the existence of disease in the lungs.

I have seen several cases of a singular affection of the hand and wrist, which manifestly belongs to the class of cases of which we are now treating. It occurs in females who have a disposition to hysteria, especially those who have suffered from mental anxiety and over-exertion, and is usually, but not constantly, referred to a sprain, or some other slight accident. The patient complains of pain in the back of the hand and wrist, trifling at first, but gradually becoming more severe. In many instances, after some time has elapsed, there is a diffused swelling of the soft parts, extending a short distance up the lower extremity of the forearm; and downwards as low as the fingers. This swelling is not attended with redness of the skin; and having lasted for a few weeks, it subsides, while the pain remains, constant in its character, aggravated by every motion of the limb, and always more severe in proportion as the patient's attention is in a greater degree directed to it. To prevent the motion, which she so much dreads, the patient keeps her hand in one position, and the consequence is that the joints become comparatively stiff, the hand at the same time having a very characteristic appearance, the skin being smooth and shining, and appearing to adhere more closely

than is usual to the parts beneath. This state of things may continue for three months, for six months, or even for one or two years; the symptoms then gradually subsiding, without leading to any further ill consequences. The result, however, is not always so fortunate. I attended a lady who laboured under the symptoms which I have just described, with the late Dr. Luke. She left London on a visit to the continent, without any amendment having taken place. I saw her again after the lapse of four or five years; the muscles of the forearm were at this time wasted and paralytic; the whole hand was shriveled and useless; the fingers permanently contracted towards the palm of the hand; the nails thin and scabrous.

I shall conclude the present lecture by a brief notice of some cases, which will serve to illustrate further the variety of singular local symptoms which may arise as a consequence of hysteria, and which may fall under your observation as practitioners in surgery.

I was consulted concerning a young lady, eighteen years of age, under the following circumstances. She was liable to fits of incessant sneezing, attended with a most abundant flow of watery fluid from the nostrils. This sometimes alternated with a nervous cough; while at other times she suffered from that sensation in the throat which is usually described under the name of *globus hystericus*. Not unfrequently she was affected with ordinary paroxysms of hysteria. She had a feeble circulation and cold hands and feet, and her menstruation was irregular and deficient; in other respects she was in good health. There was no evident disease in the nostrils.

A married lady, thirty-seven years of age, was affected with similar fits of sneezing, attended also with a copious watery discharge from the nostrils. These symptoms attacked her once in a week, and in each of these attacks she sneezed not less than one hundred times; the watery fluid dropping from the nostrils so as to wet a pocket-handkerchief completely through. About the same time she began to experience a disagreeable sensation in the face and palate, not amounting to pain, but which she described to be such as might be produced by a worm creeping in her flesh. These latter symptoms gradually became more distressing, while the fits of sneezing became less frequent. At the time of my being consulted, three years after the commencement of the disease, the fits of sneezing did not occur oftener than once in a month, but she complained of an aching pain, with a sense of pulsation in the roof of the mouth, the teeth, and tongue, occurring chiefly during the night, and being then very severe. There were no perceptible marks either of inflammation, or of other disease, in the parts to which the pain was referred.

An unmarried lady, thirty-two years of age, consulted me on account of her being liable to some very distressing paroxysms, in which she experienced a difficulty of respiration, attended with a sense of constriction of the chest, and great general excitement and agitation. These paroxysms often continued for ten or fifteen minutes, recurring at irregular intervals; sometimes without any evident cause; while at other times they might be traced to some sudden emotion of the mind. So far the case did not differ from many other

cases of hysteria; but the peculiarity of it, and the circumstance which led to my being consulted, were as follows:—There was a particular spot near the ensiform cartilage, which she believed to be in some way or another connected with her complaint. Nothing could be discovered in this part different from what is usual, by the most strict examination; but the pressure of the finger on it never failed to induce one of the paroxysms which I have just described. When these paroxysms were most severe, they were always attended with an abundant flow of limpid urine. These symptoms had existed in a greater or less degree for ten or twelve years, and had supervened on a state of exhaustion, occasioned by an attack of typhus fever.

A young married lady, who was liable to ordinary attacks of hysteria, complained of a tender spot on the anterior part of the abdomen, a little below the ensiform cartilage. The slightest pressure of the finger on it caused excessive pain, and was followed by violent agitation of the whole person, bearing a more near resemblance to the convulsive motions of *chorea* than to anything else, and continuing for several minutes.

LECTURE XXIX.

PATHOLOGY OF HYSTERIA.—TREATMENT OF LOCAL HYSTERICAL AFFECTIONS.

Although the examples of local hysterical affections which I have adduced in the two preceding lectures form only a part of those which you will meet with in practice, they are probably sufficient to answer the purpose of rendering you less liable than you would have been otherwise, to fall into the very common error of confounding cases of this description with those of real local disease. This is the principal object which I have had in view, in directing your attention to this subject; but it is one of much interest, and I am unwilling that you should leave it without proceeding somewhat further in the inquiries to which it leads. In the present lecture, then, I propose to offer some observations on the pathology of these cases, and on the treatment which should be employed for their relief.

Probably the following question has already presented itself to your minds. Is there any sufficient evidence that symptoms so various and dissimilar as some of those which have been described, depend on one and the same cause? Are there good grounds for the hypothesis that a pain in the knee in one case, retention of urine in a second, tympanitis in a third, are only different manifestations of one and the same disease, and that they are connected with the same state of system as that which gives rise to the common fits of hysteria? The same question may arise if you refer to Sydenham's observations on hysteria, in which he has endeavoured to point out

the symptoms which may mislead the medical, as I (following him *haud passibus æquis*) have now endeavoured to point out those which may mislead the surgical practitioner. To this it may be answered, that there is scarcely a single case, such as I have endeavoured to describe, in which, if you have the opportunity of studying its history and progress, you will not find abundant proof of the patient having suffered, in a greater or less degree, from the ordinary and acknowledged symptoms of hysteria; the two orders of symptoms sometimes existing simultaneously; at other times, and more frequently alternating with each other; and thus even a limited experience will enable you to satisfy your minds on the subject. But when you have attained an enlarged experience in your profession, you will find that it affords you evidence of another kind, though of such a nature that one individual cannot well communicate it to another, either in a lecture or writing. You will then find, that while no two of these cases are precisely and in all respects alike, it is by no means difficult to trace a series of cases leading from one to the other by an almost imperceptible gradation, and connecting with each other symptoms which, in the first instance, might be regarded as the most distant and heterogeneous.

Another question cannot fail to arise in the progress of these investigations. What is the real nature of the disease on which these various and anomalous symptoms depend? We cannot doubt that its locality is in the nervous system. This is sufficiently demonstrated by the character of the symptoms themselves. Dissection, which illuminates so many of the darkest regions of pathology, affords us little assistance here; at least we derive from it only negative information. I have, in several instances, examined the parts to which hysterical pains have been referred; and in one very aggravated case of the kind, I made a careful dissection of all the nerves by which they were supplied, but I have never been able to discover in them anything different from what belonged to their natural condition. But every part of the body has its corresponding point in the brain, and the greater number of them have their corresponding points in the spinal cord also. Does the examination of these organs lead to any more satisfactory result? The best proof that it does not do so is furnished by the following circumstance: although so many die of other diseases, who have suffered from hysteria also, and the opportunities of examining the bodies of hysterical patients after death are therefore sufficiently numerous, yet the works of the best morbid anatomists contain no observations whatever on the subject. I have had the opportunity of instituting *post-mortem* examinations in three cases, in which the hysterical affections were of so aggravated a kind as to be, directly or indirectly, the cause of death; and you shall know the result. In one of them, the patient laboured under a very severe hysterical pain in the side, and was liable, among various other hysterical symptoms, to fits, in which she was scarcely conscious of her own actions. It must have been in one of these attacks that a great number of needles were introduced into one of her legs, which afterwards occasioned much inflammation and effu-

cases of hysteria; but the peculiarity of it, and the circumstance which led to my being consulted, were as follows:—There was a particular spot near the ensiform cartilage, which she believed to be in some way or another connected with her complaint. Nothing could be discovered in this part different from what is usual, by the most strict examination; but the pressure of the finger on it never failed to induce one of the paroxysms which I have just described. When these paroxysms were most severe, they were always attended with an abundant flow of limpid urine. These symptoms had existed in a greater or less degree for ten or twelve years, and had supervened on a state of exhaustion, occasioned by an attack of typhus fever.

A young married lady, who was liable to ordinary attacks of hysteria, complained of a tender spot on the anterior part of the abdomen, a little below the ensiform cartilage. The slightest pressure of the finger on it caused excessive pain, and was followed by violent agitation of the whole person, bearing a more near resemblance to the convulsive motions of *chorea* than to anything else, and continuing for several minutes.

LECTURE XXIX.

PATHOLOGY OF HYSTERIA.—TREATMENT OF LOCAL HYSTERICAL AFFECTIONS.

Although the examples of local hysterical affections which I have adduced in the two preceding lectures form only a part of those which you will meet with in practice, they are probably sufficient to answer the purpose of rendering you less liable than you would have been otherwise, to fall into the very common error of confounding cases of this description with those of real local disease. This is the principal object which I have had in view, in directing your attention to this subject; but it is one of much interest, and I am unwilling that you should leave it without proceeding somewhat further in the inquiries to which it leads. In the present lecture, then, I propose to offer some observations on the pathology of these cases, and on the treatment which should be employed for their relief.

Probably the following question has already presented itself to your minds. Is there any sufficient evidence that symptoms so various and dissimilar as some of those which have been described, depend on one and the same cause? Are there good grounds for the hypothesis that a pain in the knee in one case, retention of urine in a second, tympanitis in a third, are only different manifestations of one and the same disease, and that they are connected with the same state of system as that which gives rise to the common fits of hysteria? The same question may arise if you refer to Sydenham's observations on hysteria, in which he has endeavoured to point out

the symptoms which may mislead the medical, as I (following him *haud passibus æquis*) have now endeavoured to point out those which may mislead the surgical practitioner. To this it may be answered, that there is scarcely a single case, such as I have endeavoured to describe, in which, if you have the opportunity of studying its history and progress, you will not find abundant proof of the patient having suffered, in a greater or less degree, from the ordinary and acknowledged symptoms of hysteria; the two orders of symptoms sometimes existing simultaneously; at other times, and more frequently alternating with each other; and thus even a limited experience will enable you to satisfy your minds on the subject. But when you have attained an enlarged experience in your profession, you will find that it affords you evidence of another kind, though of such a nature that one individual cannot well communicate it to another, either in a lecture or writing. You will then find, that while no two of these cases are precisely and in all respects alike, it is by no means difficult to trace a series of cases leading from one to the other by an almost imperceptible gradation, and connecting with each other symptoms which, in the first instance, might be regarded as the most distant and heterogeneous.

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sion of serum into the cellular texture. The patient died, and the body was most carefully examined, but no morbid appearance of any kind could be discovered in it, except what belonged to the œdematous state of the leg. Another case is one to which I have referred already, in which, the patient having long laboured under an hysterical retention of urine, the bladder was found enormously distended, of a black colour, the mucous membrane and muscular tunic being at the same time much attenuated. This patient was an unmarried female, twenty-nine years of age. Having been previously indisposed for a considerable time, she was supposed to have sprained her wrist in lifting a heavy saucepan. From this time she was never free from pain, in the situation of the outer part of the lower extremity of the radius. The pain extended up the forearm, and downwards on the side. In November, 1814, about a month after the occurrence of the accident, she was admitted into the hospital. At this time the most careful examination could detect no alteration in the appearance of the limb, but she complained of a constant and intense pain, which extended from the supposed seat of the injury downwards to the fingers, upwards to the shoulder, and again downwards to the spine and sternum. She had great oppression and difficulty of respiration, occasional twitches of the muscles of the face, and any sudden motion of the hand aggravated all these symptoms, and then threw her into a state approaching to that of syncope; in which she was almost unconscious of all that happened, lying with her eyes wide open, and at last recovering with an hysterical sobbing. Her pulse was feeble, beating 120 times in a minute. Forty ounces of urine were drawn off from the bladder, but without any relief as to the other symptoms. The tongue became black and dry; the pulse more feeble; the belly tympanitic; the alvine evacuations being of a dark colour. Then there were hiccough and vomiting; she became weaker and weaker, and died after the lapse of fourteen days from the time of her admission into the hospital. After death, the brain and the thoracic and abdominal viscera were very carefully examined, but no morbid appearances were discovered in any one of them, with the exception of the peculiar condition of the bladder, which was described formerly, and two ulcers of the mucous membrane of the *ileum*, each not more than half an inch in length, but occupying almost the entire circumference of the intestine.

The female who was the subject of the third case had laboured under a paralytic affection of the lower limbs, (*paraplegia*,) which Dr. Seymour believed, with good reason, to be connected with, and the consequence of, hysteria. A practitioner whom she consulted, however, thought it advisable to have recourse to repeated blood-letting and other methods of depletion. The result was, the formation of extensive sloughs of the nates and of the soft parts covering the ankles. The patient was now admitted into the hospital, in a state of great exhaustion, and soon afterwards died. The brain and spinal cord were most carefully examined, in the presence of many of you who are now present, but it could not be discovered that they

differed, in the smallest degree, from their natural condition; nor were there any signs of disease in the thoracic or abdominal viscera.

In adducing these facts, however, I by no means intend to assert that the organization of the nervous system, in a person who is liable to aggravated hysterical affections, differs in no respect from that of another. The intimate structure of the brain, spinal cord, and nerves, is on too minute a scale for our senses to be able to perceive and comprehend it, and of course there may be differences in the organization of these organs which our senses are incapable of detecting also. There is, it is true, nothing in the history of hysteria to justify the opinion that it is connected with any morbid growth, or morbid change of structure, such as we find to exist in what are usually termed organic diseases; but it is easy to suppose, without reference to organic disease, that the construction of the nervous system, at the period when growth is concluded, may not be the same in all individuals, and that an imperfect development of it may lay the foundation of all the aggravated hysterical affections. It seems to me that this hypothesis affords a reasonable explanation of the phenomena which those strange diseases present to our observation, and that it is not easy to explain them in any other manner. This being admitted, the connection of hysteria with the habits of early life, while growth is going on, becomes no mystery. We can understand, also, wherefore it is that the disposition is often, to a certain degree, hereditary; that it prevails in particular families, and that having been once established in the system, it is never totally eradicated. Nor is this opinion in any way contradicted by the circumstance of hysterical symptoms alternating with longer or shorter intervals of perfect health. It is the same with many other nervous diseases, some of which are much more formidable than these. The lunatic has intervals in which his delusions vanish. A tumour pressing on the brain may occasion epilepsy: the cause exists always, but after the patient has had one fit, weeks or months may elapse before he has another. In like manner a patient may have a nervous system so constructed as to render her liable to attacks of hysteria. While she is strong and healthy in other respects, no hysterical symptoms arise: but if she be weakened by an attack of fever, by loss of blood, by too great exertion of mind and body, or depressed by anxiety, grief, or disappointment, the disease is rendered manifest, and it assumes one form or another, accordingly as accident directs its influence to one or another part of the system.

This view of the origin and nature of hysterical affections derives some confirmation from a circumstance which I have had frequent occasion to observe; although it has not, so far as I know, been noticed by pathological writers. In those who are much disposed to them, there are an evident weakness and laxity of the tissues, independently of what may be supposed to belong to the tissues of the nervous system. Thus there is a peculiar looseness of the joints; sometimes existing to such an extent that they are liable to a kind of subluxation (a slipping in and out, as the patient terms it), without any laceration of the synovial membrane or ligaments. I have

known several cases in which a patient, on making some sudden exertion, has experienced a sensation as if some muscular or ligamentous fibres had given way; and, in some instances, a severe nervous pain, referred to this and the neighbouring parts, has remained for a long time afterwards. It is not unusual for the smaller blood-vessels to burst, so as to occasion slight hemorrhage; although there is no actual disease in the bleeding part. This occurs most frequently with respect to the vessels of the mucous membranes. The disposition to hemorrhage, however, is not peculiar to these textures. In a patient concerning whom I was consulted with Mr. Mawdsley, there had been repeated hemorrhages from the ears.

These things must be regarded as indications of want of physical power in the system, and such is the prevailing character of hysterical disease; most distinctly marked, of course, in the most aggravated cases of the kind. A large proportion of hysterical patients suffer from cold hands and feet, have a feeble contracted pulse, a small appetite for food, and are wearied by very small exertions; they are more liable than other persons to lateral curvature of the spine. In some instances, and more especially in the parts which are most exposed to the external temperature, or at the greatest distance from the vital organs, the point of the nose, for example, and the ankles, the circulation is so weak that they assume at times a purple appearance, followed by vesications, and even by a thin slough. These last-mentioned symptoms are, in themselves, a proof of an insufficient generation of nervous energy; they correspond to what is observed after severe injuries of the spinal cord, as well as to what occurred in the following cases, as the consequence of an injury of a nerve. A young man met with an accident, in which the ulnar nerve was divided behind the inner condyle of the arm. The wound healed readily; but when I was consulted, about three months afterwards, the little finger was cold and deprived of sensation, with purple spots upon it, similar to those which precede the formation of vesication. A girl was admitted some years ago into the hospital after a similar accident. The little finger was cold and benumbed, and occasionally the whole of the integuments covering, it assumed a dark purple colour; this was always followed by a broad vesication; then by a superficial sore, which, however, healed by the formation of a new cuticle; and this process was repeated several times while the girl remained in the hospital.

In some instances the disposition to hysteria manifestly depends on an original mal-construction of the nervous system, which probably has been transmitted from the parent to the child; in others it is equally manifest that it is the result of injudicious management in the early part of life. In the latter order of cases, the ill consequences which would otherwise ensue, may be altogether averted by the timely adoption of a better system of education; and in the former, much may be done in the interval between the period of infancy and that of growth being completed, to improve the condition

of the individual, and to render her situation in after life less distressing than it would be otherwise.

You can render no more essential service to the more affluent classes of society, than by availing yourselves of every opportunity of explaining to those among them who are parents, how much the ordinary system of education tends to engender the disposition to these diseases among their female children. If you would go further, so as to make them understand in what their error consists; what they ought to do, and what they ought to leave undone, you need only point out the difference between the plans usually pursued in the bringing up of the two sexes. The boys are sent at an early age to school, where a large portion of their time is passed in taking exercise in the open air; while their sisters are confined to heated rooms, taking little exercise out of doors, and often none at all except in a carriage. Then, for the most part, the latter spend much more of their time in actual study than the former. The mind is over-educated at the expense of the physical structure, and, after all, with little advantage to the mind itself; for who can doubt that the principal object of this part of education ought to be, not so much to fill the mind with knowledge, as to train it to a right exercise of its intellectual and moral faculties, or that, other things being the same, this is more easily accomplished in those whose animal functions are preserved in a healthy state, than it is in others?

But these observations relate only to measures of prevention; whereas, in practice, you will have to deal with cases in which the hysterical construction of the nervous system already exists.

The medical treatment of hysteria is in the department of the physician: and as this subject is treated of at length in the lectures on the practice of medicine, I shall only offer a few observations as to the principles in which it should be conducted.

In those in whom the liability to hysterical diseases exists, as I have already had occasion to observe, the symptoms of hysteria are not always present, and much may be done by art towards rendering their occurrence less frequent, and their character less severe, than would be the case otherwise. These symptoms are especially called into existence whenever, from any cause, the bodily powers are reduced below the ordinary standard; and it is reasonable to suppose that an opposite effect will be produced by whatever tends to elevate these powers, and maintain the general health. The whole class of tonic remedies, especially steel, quinine, sulphate of zinc, and ammonia may, under certain circumstances, be employed with advantage. So also, it is of importance that the patient should live on a generous diet; that she should take exercise out of doors; that she should live in the pure air of the country rather than in that of a crowded city; and that her mind should be agreeably occupied, without being exhausted by great exertions. Nothing tends more to aggravate the disposition to hysteria than the tedium and *ennui* of a life without occupation; when the mind is, as it were, thrown back upon itself, brooding over imaginary misfortunes, and creating for itself objects of anxiety.

The use of what are usually called antispasmodic remedies, especially valerian and assafetida, is indicated, not where there is merely a liability to hysterical symptoms, but where these symptoms are actually present. Those tonics which are useful in preventing these symptoms, are useful in the removal of them also, especially where the disease assumes a chronic form, as it generally does in the cases which fall under the observation of the surgeon. Here, also, I have, in several instances, known much advantage to arise from a long-continued course of sulphate of copper administered in pills, in small doses. Nor must we overlook another important rule of practice. There is often some particular circumstance in the state of the system at the time, which operates as the immediate exciting cause of the hysterical symptoms, and which medicine may remove. For example, in one individual there may be a furred tongue, and a costive state of the bowels; in another, deficient menstruation; and purgatives and emmenagogues may be administered with advantage, either separately or in combination. Again, it is not unusual in aggravated cases of hysteria to find the urine depositing a large quantity of lithic acid, in the form of sand; or the urine may be voided high-coloured, depositing a pink amorphous sediment, abounding in the lithate of ammonia; and in either of these cases the exhibition of alkalies, combined with alterative doses of mercury, purgatives and a regulated diet, will contribute to produce a cure, the unhealthy quality of the urine seeming to be the cause, rather than the effect of the hysterical affection.

On all these points I refer you to the instructions which you will receive from some of your other teachers; but there are some questions connected with the surgical treatment of local hysterical affections, into the consideration of which I shall feel it my duty to enter more fully; although, in so doing, the advice which I shall have to give you will be, for the most part, of a negative kind, relating not so much to what you ought to do, as to what you ought to leave undone.

Hysterical pains are sometimes relieved by friction with a stimulating liniment; such, for example, as the compound camphor liniment, which may also be used in combination with the tincture of opium. The application of the belladonna plaster is occasionally useful, although it certainly does not produce those remarkable effects which not unfrequently follow its use in other cases of neuralgia.

Hysterical pains are sometimes palliated by bathing the affected part with the following lotion, applied tepid: ℞.—Misturæ camphoræ ℥iss; spiritus rosmarini ℥iss.—M. Fiat lotio.

In some instances the patients derive advantage from the exposure of the part to the vapour of hot water. This is especially useful in the cases of that peculiar affection of the wrist and hand which I described in the last lecture.

In those cases in which the limb to which the symptoms are referred is affected alternately with heat and cold, I have known the following plan of treatment to be attended with excellent effects. During what may be termed the hot fit, let a compress be applied,

wet with a cold spirituous lotion; and when the heat has subsided, and the limb has become cold, let a thick woollen stocking be drawn over it, and then an oiled silk covering over the worsted stocking, so as to confine the heat and perspiration. When the cold fit has subsided, the oiled silk covering may be removed. This local treatment, however, should be combined with the exhibition of the sulphate of quinine, the use of which seems to be especially indicated by the intermitting character of the symptoms.

In some cases of hysterical neuralgia the patient is supposed to derive benefit from the abstraction of blood by leeches, or cupping, or even by venesection. Indeed, I have no doubt that the loss of blood is occasionally followed by a real alleviation of pain. But the relief is never otherwise than temporary; and wherever I have known this kind of treatment to be frequently resorted to, the ultimate result has been, certainly, not only not beneficial, but absolutely injurious to the patient. In fact, we may lay it down as a general rule, that whatever lessens the physical powers tends to prolong the duration of hysterical diseases of all kinds; and nothing produces this effect in a more marked manner than repeated blood-letting. Those who are subjected to this treatment, according to my experience, become almost invariably invalids for life; and I have no doubt that not unfrequently their lives are materially shortened by it.

Blisters, issues, and the whole class of counter-irritants, in the majority of cases increase the patient's sufferings; and there is one objection that may be urged against all local remedies, which applies especially to these, namely, that they prevent the attention being abstracted from the local symptoms. I may take this opportunity of observing, that nothing is more essential to the patient's recovery than that her mind should not be constantly occupied with the subject of her ailments. The treatment employed should be such as will involve as little as possible deviation from the ordinary habits of life. Thus in a case of hysterical neuralgia of the knee or hip, it seldom happens that any real amendment takes place while the patient remains confined as an invalid to her sofa. The pain may abate, but a sense of weakness follows, which disables her from walking more than the pain itself, and which, for obvious reasons, goes on increasing in proportion as the confinement is of longer duration. The first step towards a cure is, that she should have sufficient strength of mind to begin to use the limb in spite of present suffering.

Another question connected with surgical practice remains to be considered. In hysterical diseases affecting the extremities, will any advantage arise from the division of the nerves which supply the affected part, so as to destroy the communication between it and the sensorium? or from the entire removal of the part itself, by excision or amputation? If the view which I have been led to take of these affections, namely, that they belong to the nervous system generally, and not to the part to which the symptoms are referred, has any foundation in reality, it cannot be expected that such operations will lead to any good result: and the notorious failure of similar operations, when performed in cases of *tic douloureux* of the face, and

tetanus, undoubtedly tends to confirm this opinion as to their utter inutility. Pathological science, however, is not so far advanced as to authorize us in any instance to disregard the lessons of experience; and it is well, before we arrive at a positive conclusion on the subject, that we should refer to this higher source of instruction.

In a case which I have already mentioned, of a young lady who had a train of most severe hysterical symptoms following the accidental prick of her finger, I was induced (many years ago) to divide the digital nerves. This was effected by a circular incision, carefully performed, extending through the whole of the nerves, integuments, vessels, and cellular texture, to the bones laterally, and to the aponeuroses of the tendons, anteriorly and posteriorly. The result was, that the patient's sufferings were aggravated rather than relieved.

As long ago as the year 1818, I was requested to visit a lady in the country on account of a disease of the knee. I was led to believe that she had laboured under an inflammation of the synovial membrane, which had in a great degree subsided, but that the harder textures had suffered in consequence, and that the cartilages were in danger of being ulcerated, and I recommended a plan of treatment accordingly. Whether, with my present experience on the subject, I should have taken the same view of her case, I will not undertake to say, but the result was, that a material improvement took place in the first instance. After some time, however, there was a manifest aggravation of all her symptoms. She suffered more than ever; so that she became anxious to undergo the amputation of the limb. I was now again consulted respecting her, but from the written accounts which I received, I concluded, that the pain did not indicate the existence of any serious disease, and that the circumstances of the case did not justify so violent a measure as had been proposed. However, her wishes remained unaltered, and two surgeons of eminence in the country yielding to her entreaties, performed the operation. On dissection of the amputated joint, they were surprised to find that there was no collection of matter in its cavity; that the cartilages had disappeared in one spot, of very limited extent; and that there was no other mischief. The stump healed readily enough, but she obtained no relief. I had the opportunity of seeing her some months after the operation, suffering more than ever, with intense pain in the stump, and violent convulsive action of the muscles which move the thigh bone on the pelvis.

Mr. Soden, of Bath, informed me of another of these cases, which fell under his observation, in which also the limb was amputated above the knee, but with no better result than in the case last mentioned. The symptoms attacked the stump, and the patient suffered as much after the operation as she had done before.

The history of a third case of the same kind has been published by Mr. Mayo, in his Outlines of Pathology. The knee was amputated, and the stump healed. Soon after the stump was accidentally struck, and this slight accident was followed by pain in the part exactly similar to that which had been referred formerly to the knee. Amputation was then performed a second time; but as the wound

healed, the pain recurred, being again referred to the stump. Mr. Mayo then divided the sciatic nerve, below the edge of the *glutæus maximus* muscle. At first the pain was supposed to have been relieved, as after the former operations; but it returned on the wound being healed. At this period I had the opportunity of seeing the patient, the pain which she endured being as severe as ever. In short, she had undergone these various operations, without having derived the smallest advantage from any one of them.

It must be acknowledged that these, and other similar cases which might be enumerated, seem to be quite conclusive against all attempts to relieve these hysterical affections by an operation. Some evidence, however, may be, and has been, adduced on the other side of the question.

A young woman was bled in the arm, in July, 1820. The wound healed as usual, but on the 7th of August she was admitted into St. George's Hospital, labouring under hysterical pain, referred chiefly to the cicatrix, but extending also downwards to the hand, upwards to the axilla, and again downwards on the side to the leg and foot, the latter being at the same time in a great degree benumbed. The whole of the arm was cold, and of a purple colour, and the skin was exquisitely sensible when pinched. On the 25th of August I excised the cicatrix. She was supposed to be immediately relieved; and when the wound made in the operation was healed, she left the hospital as cured. So far, then, it appeared as if the operation had been successful. But observe what happened afterwards. At the expiration of two months, she was re-admitted, not on account of a recurrence of the pain in the arm, but with other symptoms depending on the same state of the general system. The nose was cold, and of a purple colour, and there was a similar condition of the integuments of the ankle. On the latter there was a broad vesication; and both of these parts seemed as if on the point of becoming gangrenous. This result, however, did not take place, and I lost sight of the patient some time afterwards.

In Mr. Mayo's patient,* whose case I have already mentioned, we are informed that he afterwards was induced to perform a further operation; removing the head of the thigh-bone from the acetabulum: and I have a letter from Mr. Mayo, in which he states that this last measure has been followed by a relief from pain up to the present time. We are also informed that Sir Astley Cooper† amputated the arm at the shoulder joint, on account of a neuralgic affection of a stump, and that the patient was permanently cured; and that a similar operation was performed successfully by Mr. Bransby Cooper. However, until we know more of these cases than is now recorded, it is impossible for us to determine whether they did or did not belong to the class of hysterical affections. Even if they did, the question still remains: how long did the patients remain under the observation of the surgeons afterwards? and was a cure really obtained, or was there simply a commutation of one hysterical affection for another?

* Medical Gazette, May 7, 1836.

† Op. cit.

In estimating the value, not only of such operations, but of various other modes of treatment which have been supposed at one time or another to be useful in cases of aggravated hysteria, we are never to lose sight of the following circumstances:—1. *Hysterical symptoms frequently disappear at once, without any manifest cause for their disappearance.* Examples of this fact may be found among the cases to which I have had occasion to refer in the preceding lectures. A young lady who had been for more than two years confined to the recumbent posture on account of an hysterical affection simulating disease of the hip-joint, recovered suddenly one night while in the act of turning in bed. Another young lady in whom a long train of most severe hysterical symptoms followed an accidental prick of one of her fingers, after the disease had existed for a great length of time (if I am not much mistaken, for more than two years), recovered also. 2. *It still more frequently happens that recovery from hysterical symptoms immediately follows a forcible impression of any kind made on the nervous system.* Hence it is that anything may obtain the credit of having effected a cure in these cases. Moral and physical agents are alike in this respect. Sometimes one remedy may appear to be successful, sometimes another: and that which is supposed to be productive of the greatest benefit in one case, may never be useful afterwards.

I have already mentioned the case of a young lady who, having long laboured under an hysterical neuralgia of the hip and thigh, rendering her unable to stand, or even to walk, immediately lost all her symptoms on being thrown from a donkey which she was riding: and the following are only a few among many other cases, which might be adduced in confirmation of what has been just stated.

In the eighth volume of the Transactions of the Royal Medical and Chirurgical Society, Mr. Pearson has described the case of a lady who laboured under a nervous affection of the hand and forearm, showing itself in the form of severe pain and spasms of the muscles, and she immediately recovered on the application of a stimulating liniment, which, containing oil of turpentine, produced a vesicular eruption over the whole person.

I was informed, on good authority, of the case of a young lady who had long laboured under a severe hysterical affection, attended with spasmodic contraction of the muscles of one of the lower limbs, and which symptoms left her suddenly, on the extraction of a molar tooth.

Many years ago, I attended a young lady on account of a painful affection of the instep, which I certainly did not understand at the time, but of which, with my present experience on these subjects, I am satisfied that it was hysterical neuralgia, and nothing else. She was attended by other surgeons afterwards, who, I believe, were as much perplexed as I was, as to the nature of the disease, and who, at all events, gave her no relief. At last, while suffering as much as ever, she was informed of some remarkable cures obtained by the use of the vapour bath and champooing, and she immediately went to Brighton, that she might make a trial of these remedies. The

first champooing gave her great relief; the second completed the cure. I was consulted respecting her afterwards, labouring under a nervous affection of the arm and forearm.

In the "Christian Observer" for November, 1830, we find recorded the case of Miss Fancourt who had long been unable to move in consequence of what was evidently an hysterical affection, simulating disease of the hip-joint, and was supposed to have been miraculously cured under the influence of the prayers of her spiritual adviser leaving her couch at once, and walking down stairs to supper, to the astonishment of her family.

We need not pursue this part of our inquiries further. To you who will soon be engaged in the practice of your profession, what I have now stated will be sufficient to impress your minds with a proper degree of skepticism, and to prevent you being misled by the caprices of these strange disorders. With respect to the great majority of society, whose minds are not accustomed to these investigations, and who do not know the difficulty of obtaining exact evidence as to the operation even of the remedies in common use, I feel that it will be almost a waste of time to endeavour to enlighten their minds on the subject. They will always be disposed to listen to, and to believe, the histories of the marvelous cures of hysterical affections; and with them conjurors of all kinds, from Prince Hohenlohe and the professors of animal magnetism, down to the most vulgar impostors, will always be the successful rivals of those practitioners who have studied their profession as a science.

Before I quit the subject, I shall trouble you with one further piece of advice. I have told you that it is most important that you should not mistake cases of nervous affection for those of real local disease. It is equally important that you should not mistake the latter for the former; whenever you are in doubt, be careful that you do not employ any kind of treatment which would be injurious, if local disease existed. A short delay will always enable you to understand the exact nature of the case, so that you can no longer hesitate as to the remedies which are required for its relief.

LECTURE XXX.

ON DISEASES OF THE HIP-JOINT.

There are several cases at present in the hospital of diseased joints, and among these some of disease of the hip; and I do not know that I can offer any subject to your consideration better than this. It is one of great interest, and it is very important that you should understand it as far as the actual state of our knowledge will enable you to do so.

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In estimating the value, not only of such operations, but of various other modes of treatment which have been supposed at one time or another to be useful in cases of aggravated hysteria, we are never to lose sight of the following circumstances:—1. *Hysterical symptoms frequently disappear at once, without any manifest cause for their disappearance.* Examples of this fact may be found among the cases to which I have had occasion to refer in the preceding lectures. A young lady who had been for more than two years confined to the recumbent posture on account of an hysterical affection simulating disease of the hip-joint, recovered suddenly one night while in the act of turning in bed. Another young lady in whom a long train of most severe hysterical symptoms followed an accidental prick of one of her fingers, after the disease had existed for a great length of time (if I am not much mistaken, for more than two years), recovered also. 2. *It still more frequently happens that recovery from hysterical symptoms immediately follows a forcible impression of any kind made on the nervous system.* Hence it is that anything may obtain the credit of having effected a cure in these cases. Moral and physical agents are alike in this respect. Sometimes one remedy may appear to be successful, sometimes another: and that which is supposed to be productive of the greatest benefit in one case, may never be useful afterwards.

I have already mentioned the case of a young lady who, having long laboured under an hysterical neuralgia of the hip and thigh, rendering her unable to stand, or even to walk, immediately lost all her symptoms on being thrown from a donkey which she was riding: and the following are only a few among many other cases, which might be adduced in confirmation of what has been just stated.

In the eighth volume of the Transactions of the Royal Medical and Chirurgical Society, Mr. Pearson has described the case of a lady who laboured under a nervous affection of the hand and forearm, showing itself in the form of severe pain and spasms of the muscles, and she immediately recovered on the application of a stimulating liniment, which, containing oil of turpentine, produced a vesicular eruption over the whole person.

I was informed, on good authority, of the case of a young lady who had long laboured under a severe hysterical affection, attended with spasmodic contraction of the muscles of one of the lower limbs, and which symptoms left her suddenly, on the extraction of a molar tooth.

Many years ago, I attended a young lady on account of a painful affection of the instep, which I certainly did not understand at the time, but of which, with my present experience on these subjects, I am satisfied that it was hysterical neuralgia, and nothing else. She was attended by other surgeons afterwards, who, I believe, were as much perplexed as I was, as to the nature of the disease, and who, at all events, gave her no relief. At last, while suffering as much as ever, she was informed of some remarkable cures obtained by the use of the vapour bath and champooing, and she immediately went to Brighton, that she might make a trial of these remedies. The

first champooing gave her great relief; the second completed the cure. I was consulted respecting her afterwards, labouring under a nervous affection of the arm and forearm.

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I remember the time when the question on looking at one of these patients, would have been, whether there were or were not a diseased hip, and the surgeon decided, according to the best of his ability, in the negative or in the affirmative. It was just a case of diseased hip, or it was not, and there was no further attempt at diagnosis. But you know that the hip-joint is composed of a great variety of textures, and that disease of it must arise from various causes. It would be very remarkable if the hip-joint differed from all the other organs of the body, and was subject to only one kind of malady. You cannot for an instant hesitate to believe that there must be a variety of diseases of the hip, the difference between them depending partly on the organization of the part in which the disease began, partly on the patient's constitution, and on the external causes by which that constitution has been influenced.

In my treatise on the "Diseases of the Joints," I have given an elaborate history of the diseases to which this and other joints are liable, and I have detailed many cases and described many dissections, from which I thought I was justified in deducing that history. But in the present lecture I do not propose to pursue the course which I have followed in my treatise. My observations will be confined to the hip-joint only. I shall probably refer to other joints sometimes, but it will be only with the view of illustrating what happens in the hip. It will be my object to bring before you at once the different diseases to which the hip is liable, and the symptoms by which they are to be distinguished in the living body. Perhaps by pursuing this course I shall make the subject more easily comprehended by you than it would be if you were simply to read my treatise. At any rate this mode of proceeding will enable you to understand the observations which I published, when you read them, better than you would understand them otherwise.

INFLAMMATION OF THE SYNOVIAL MEMBRANE.

There is no disease of the joints more common than inflammation of the synovial membrane. The hip is liable to this disease, but it must be acknowledged that it is not liable to it in the same degree with some of the other articulations. You will understand how this may be explained when I tell you that inflammation of the synovial membrane, in a large proportion of cases, may be traced to exposure to damp and cold, and vicissitudes of temperature. The hip is warmly clothed by numerous muscles; an immense mass of flesh lies over it; and thus it is protected from one of the causes which produces inflammation of the synovial membrane, much more than the knee, the wrist, the ankle, and the other joints that are superficially situated.

I conceive that the proper course for you to pursue, if you would study the pathology of any part of the body, is this: be not satisfied with examining the morbid appearances in the last stage of the disease, when all the parts are confounded, as it were, together in one diseased mass—when the disease has extended from the structure primarily affected to the other parts—and when you cannot, therefore, say where it originated, and what it was in the beginning. Be on the look out for the opportunities which must occasionally occur of examining the morbid appearances, where the patient has died from some accidental cause in an early stage of his complaint; this, I say, is the way in which the pathology of any part of the body (that is, so far as morbid anatomy is concerned) should be studied; and it was in this way that I have always endeavoured to study the diseases of the joints.

I have had very scanty opportunities of examining the morbid appearances presented by inflammation of the synovial membrane of the hip in its earliest stages; but this deficiency has been compensated by the abundant opportunities which I have had of examining the same thing in other articulations, so that I have no doubt that I can tell you very accurately what the morbid appearances would be in the hip if you could see them.

In slight cases, then, of inflammation of the synovial membrane, you find a few more vessels than usual injected with red blood ramifying over the inner surface of the membrane, and the joint contains a larger quantity of synovia than under ordinary circumstances. The synovia, in the cases to which I now refer, does not differ from healthy synovia in any of its sensible qualities. But when inflammation of the synovial membrane runs high, you will find great increased vascularity of the whole of its texture; the red vessels being as numerous as those of the conjunctiva of the eye in a severe ophthalmia; and now the joint contains fluid of another character; not synovia, but a turbid serum. Not unfrequently there are small shreds of coagulated lymph floating in the serum, or broad flakes of lymph lining the synovial membrane in different parts. In protracted cases the synovial membrane is thickened, and you will see in this preparation a sort of pendulous process, projecting from it into the articular cavity, like what is called chemosis in the eyelid.

In a more advanced stage of the disease, the morbid appearances are not confined to the synovial membrane; the cartilage is found to be thinner in certain places, or totally destroyed by ulceration. In this drawing [presenting it] you see the incipient process of this ulceration; and in these others it is in its more advanced stages. As the cartilage becomes completely absorbed, so a carious surface of the bone beneath is necessarily exposed.

I have said that inflammation of the synovial membrane terminates in effusion of lymph and serum, but it sometimes terminates in suppuration; the surface of the synovial membrane secreting pus in the same way as pus is secreted by the surface of a mucous, and occasionally of a serous, membrane. The joint, when under these circumstances, becomes one large abscess, and if a free artificial opening be not made at an early period, the matter makes its way out by ulceration, through the synovial membrane and ligaments, burrowing among the muscles in the neighbourhood, and forming sinuses. In these cases of suppurative inflammation the cartilage in the first

instance is unaffected, but that in contact with the pus soon begins to ulcerate, and the ulceration of the cartilage, of course, is followed by ulceration or caries of the bones. Here the suppuration is the immediate result of the inflammation of the synovial membrane, and the ulceration of the cartilage and bones is altogether secondary. But then there are other cases where the cartilage begins to ulcerate without pus having been secreted by the synovial membrane, and in which suppuration at last takes place, being not the cause but the consequence of ulceration of the harder textures.

Such is a brief history of the pathological changes produced by inflammation of the synovial membrane in joints generally, and of course in the hip-joint among the rest. I shall next speak to you more particularly of the symptoms of the disease as it affects the hip.

In the first place, then, inflammation of the synovial membrane of the hip is a disease that comes on suddenly, and in the course of two, three, or four days it is commonly at its height. You must remember this circumstance, and contrast it with what I shall tell you afterwards of the early symptoms of other diseases of the hip. Then, in the course of a few days more, under proper treatment, the pain becomes less severe: and now observe the kind and character of the pain. The patient complains of every attempt to move the limb. The hip-joint feels as if it were stiff, and the pain is referred, not so much to the hip itself, as it is to the inside of the thigh and groin; nearly to the same parts as in cases of fracture of the neck of the femur. There is not at this period a wasting, and sometimes there is even a perceptible fullness of the nates. If you press on the condyles of the femur, and squeeze the head of the bone into the socket of the acetabulum, the patient does not complain; nor does he complain if you press on the great trochanter; but if you take the limb and move it backwards and forwards, or if you take hold of the knee and pull it as if you were trying to pull the head of the thigh-bone out of the acetabulum, then pain is felt.

You have heard of dislocation of the hip-joint from disease, and I shall explain to you one kind of dislocation from this cause hereafter. I shall speak at present of dislocation from disease only as it occurs in cases of inflammation of the synovial membrane. I have seen several instances in which dislocation took place under these circumstances, and I conclude that the following is the proper explanation of it:—The cartilage begins to ulcerate and generally at that part at which the ligaments are inserted. The ulceration extends to one extremity of the round ligament. The acetabulum is filled with lymph and synovia, and the capsular ligament is thereby much distended. There is then, of course, a force operating, which tends to push the head of the bone out of the socket in which it is contained. The round ligament gives way partly from being overstrained, and partly from ulceration, and there is nothing to hinder the head of the bone from being drawn up on the dorsum of the ilium. In the particular cases to which I now allude, according to my experience the dislocation is always upwards and outwards, and we see this indicated by the usual signs. The thigh is bent forwards, the toes

are turned inward, and the head of the bone may be distinguished lying on the dorsum of the ilium. Before such a dislocation can be effected, the capsular ligament must have been kept for a longer or shorter time in a state of excessive tension; and it will not be difficult for you to understand how much the patient must have suffered in consequence. You know what suffering there is in inflammation and effusion under any unyielding texture; under a fascia, for example, or even under the thick hard cuticle of the thumb or foot. The patient suffers more from tension when the hip-joint is distended with synovia, or serum, or pus, than when the same thing happens to any of the other articulations. And for this plain reason: the capsular ligament surrounds the synovial membrane everywhere in the hip-joint, which is not the case in most others. In the knee, for instance, when the synovial membrane is distended, the fluid covered by the membrane usually slides up on the fore part of the thigh, under the muscles. Not only great local suffering, but great constitutional disturbance, is usually the consequence of this distended state of the capsule of the hip; severe fever, attended in some instances with a determination of blood to the head, and delirium. I have known such a case as I am about to mention occur two or three times. A girl was seized with an attack of what was supposed at first to be rheumatic fever. In the course of two or three days the fever was excessive. She lay in a state of delirium for several days, and she seemed, as it were, to supersede the local symptoms which existed in the first instance. She nearly died, but by and by things took a favourable turn, and she recovered. After her recovery her friends looked to the limb, and to their surprise found it very much distorted. Mr. Earle and myself saw the girl under these circumstances, and we found that the head of the bone was lodged on the dorsum of the ilium. In some cases of this kind when the head of the thigh-bone is pushed out of the socket of the acetabulum, the serous fluid which has been collected within the cavity of the capsular ligament makes its way through an ulcerated opening of it into the cellular membrane external to the joint, forming a tumour under the glutæi muscles. This tumour evidently fluctuates, and you might suppose it to be an abscess, but take care not to arrive too hastily at this conclusion. It may, it is true, be a collection of pus which cannot be absorbed; but it may, on the other hand, be a collection of serum and lymph, which may be absorbed. The grooved exploring needle (which you see so frequently used with advantage in this hospital), may be usefully employed in this case. Puncture the tumour with it. A little of the fluid will probably escape along the groove, and if you find that it is really purulent, you may then introduce a lancet and make a free opening; but if it be serum, you will take care to go no farther. It is doubtful whether pus is ever absorbed. If this ever happens, it certainly is a rare occurrence; but an effusion of serum becomes absorbed ultimately. If you find the fluid to be serous, you have nothing to do but to leave the patient quiet, and wait for the time when absorption will have taken place. If you open a cavity containing serous fluid with a lancet, in all probability you induce

suppuration, and thus make an abscess where there was no abscess before.

Such, then, are the principal circumstances respecting the pathology and the symptoms of inflammation of the synovial membrane of the hip; I shall speak of the treatment in another lecture. But before we go farther I should like to call your attention to a preparation which is now on the table, taken from a patient who died lately in this hospital. I think it not improbable, though we do not know enough of the history of the case to speak with certainty—for we did not see the disease till it was far advanced—that here the original disease was inflammation of the synovial membrane. The cartilage is extensively ulcerated, the synovial membrane is rather (not a great deal) thickened, but the circumstance which leads me to suspect that the original disease may have been inflammation of the synovial membrane, is this, that the joint was filled with a number of small granular bodies, composed of coagulated lymph, and I know that in other cases these bodies are the result of inflammation of the synovial membrane. You find them sometimes in joints, but more frequently in the synovial membranes which constitute the bursæ, and sheathe the tendons. These granular bodies, after a considerable time, assume an appearance like that of small melon seeds, becoming flat and smooth, and of an oval figure. The joint in this instance contained a great quantity of these bodies and they had caused the head of the bone to be partially pushed out of the socket. There is a groove formed in the head of the bone, where it had rested upon the edge of the acetabulum. If this patient had lived some time longer, the bone would have completely escaped out of the socket, and become lodged on the dorsum of the ilium, so that there would have been a complete dislocation. As it was, the dislocation was incomplete, or what they call a subluxation.

The chronic diseases of the hip more frequently have their origin in the harder textures than in the synovial membrane. It is very common to call all diseases of the hip-joint scrofulous, but it is also very common to call any disease scrofulous. The fact is, that in most cases diseases of the joints are not scrofulous, not particularly connected with a scrofulous diathesis; but there is one disease of the joint which is especially of this description, and of that I shall speak to you next.

Scrofulous disease of the hip.—This disease has its origin in the bony structures. It occurs most frequently in children, and very rarely after twenty-five years of age. We meet with it especially in those children who have a fair complexion, light hair, blue eyes, and wide pupils; and who are delicate and precocious.

If you examine the morbid appearances in the early stage of the disease you find the synovial membrane, the ligaments, and the cartilages quite sound, but there is a peculiar alteration in the articulating extremities of the bones. You can even cut them with a scalpel without turning its edge, there being in them less earthy matter than natural. The cancellous structure of the bone is unnaturally vascular, and a small quantity of serous fluid is to be found in the

cancelli. But in a more advanced stage of the disease the bones become still softer, so that you may crush them by pinching them with the fingers; and, *now*, the cancellous structure, instead of being more vascular than natural, is less vascular, and, instead of a serous fluid, you find a yellow cheesy matter in the cancelli. The vascularity of the bone goes on diminishing, and in some parts of it the vessels become so much obliterated that the bone dies, and becomes an exfoliation. Here is a section [presenting it] of the femur and tibia, where you will see both stages of the disease. Here is another [exhibiting it], showing scrofulous disease of the bones as plainly as it can be seen in a preparation. If these dried preparations [exhibiting them] were out of the bottles you would be struck with the lightness of the bones, from want of earthy matter. Here is a drawing [exhibiting it] from a private patient who had disease in one hip-joint. On examining the opposite joint in which no disease had been suspected, there was the appearance of the head of the femur which you see in this other drawing occasioned by increased vascularity in some parts, and a deposition of cheesy matter in others. The surface of the bone next to the cartilage being diseased, you may well suppose that the cartilage itself will become diseased afterwards; and so in fact it does. The cartilage loses its very firm adhesion to the bone, and you may peel it off, and as you do so, a red vascular surface of the bone is to be observed underneath. The surface of the cartilage where you have peeled it off is a little rough. Here is a specimen [exhibiting it] illustrating what I now mention. The cartilage then begins to ulcerate. How is it that the ulceration of the cartilage takes place in these cases? The ulceration begins on that surface which is towards the bone; and as it is thus, as it were, eaten away, the space formed between the cartilages and the bone is filled up by coagulated lymph, which becomes organized. The ulceration goes on, getting deeper and deeper, till it penetrates through the cartilage, making at first a small opening, through which a probe may be passed until it comes in contact with the bone. The ulceration by degrees extends in every direction, and ultimately the cartilage becomes everywhere destroyed. Here is a drawing of the other hip-joint of the patient, to which I referred just now. There is a section of the head of the femur, and you see a yellow cheesy deposit within, while the cartilage has completely disappeared from the surface. As the disease makes still further progress, suppuration becomes established in the joint; but the cartilage in these, as in other cases, often ulcerates to a considerable extent without the formation of abscess. It was shown by Mr. Hunter that suppuration and ulceration are not necessarily connected; at least that you may have suppuration of the mucous and other membranes without their being ulcerated; and there are numerous facts connected with the pathology of the joints which establish the converse of this, showing that ulceration may take place without the formation of pus.

I will now state the symptoms which this scrofulous disease produces in the hip. The most remarkable thing is the small quantity of pain which it for a long time produces. Indeed, the scrofulous disease

of the bones, when the cartilages are unaffected, may exist without any pain whatever; and over and over again I have examined cases where children died affected with scrofulous disease to a great extent in one hip-joint, but where they have never complained of pain in the other hip, although the *post-mortem* examination proved that to have been affected also. Even when the cartilages begin to ulcerate there is at first only a trifling degree of pain. The disease is, indeed, most insidious in its origin. I was called to see a child, many years ago, in consequence of the parents having observed him to limp in walking for some time previously. That was all; he had never complained of pain, nor were there any other symptoms. I examined the joint, and found that I could push the head of the bone into the socket of the acetabulum, and move the limb in any direction without producing the smallest uneasiness. I took a great deal of pains to make out the case, and told the parents that if we did commit an error it was better that we should make it on the safe side, and I therefore advised them to lay the child up, as if the hip was diseased, although I was by no means certain that it was so. It was well that I did give that advice, for the next account which I had, some months afterwards, was, that there was a considerable abscess in the hip. I believe the poor child ultimately died. I have seen similar cases since, in which children have been brought to me in consequence of their limping, but without pain, and it has proved to be this scrofulous disease of the hip-joint. The disease may then go on for weeks and months, the child having some pain, but not a great deal, and very often when the relations are careless, the disease is quite unobserved for a long time. But by and by the child begins to make greater complaints, sometimes of pain in the hip, but more frequently of pain in the knee, and you observe him putting its hand to the joint last-mentioned. Then the pain becomes greater, but I suspect that in these cases the pain is never very considerable till an abscess is formed in the joint, and then certainly the child suffers enough. At this period it cannot bear to be moved, it lies in one position in bed, and generally twists itself round into a very awkward posture, making one hip very much bulge out, and the knees crossing each other, so that there is a great deal of deformity. The child screams from pain in the day, but he suffers chiefly at night; he wakes out of his sleep screaming, and complaining of frightful dreams. Bad dreams in children, and, I believe, in grown up persons, generally depend upon something wrong in the physical system. That which would be pain in the knee from the diseased joint if the child were awake, becomes a frightful dream if he be asleep. You must not wonder at this when you consider that even acid in the stomach is a frequent cause of disagreeable dreams in an adult. By and by an abscess presents itself in one place or another. Sometimes it makes its way on the inside of the thigh; sometimes backwards, showing itself behind the little trochanter; sometimes outside under the nates; and sometimes it penetrates by ulceration through the bottom of the acetabulum, into the cavity of the pelvis. In the latter case it not unfrequently bursts into the vagina or rectum; and I do not see why,

in some instances, the matter should not make its way into the urinary bladder, though I do not recollect having met with an example of this myself.

When an abscess presents itself externally from this disease, there is invariably another change in the condition of the limb. It becomes shortened, and this occurs in two different ways. If the head and neck of the bone be destroyed, and especially if the margin of the acetabulum be destroyed also, it is no matter of wonder that the muscles should pull up the thigh-bone, and that the limb should be shortened. Here is a drawing of the head of the thigh-bone where there is only a small part of the neck left, and where a very little action of the muscles would pull the thigh-bone out of the socket and lodge the remains of the neck upon the dorsum of the ilium. In these cases the limb is shortened just in the same way in which it would be shortened in a case of fracture of the neck of the femur. The toes, if left to themselves, turn outward, and the thigh may remain in a line with the trunk. But at other times the shortening of the limb takes place in another way. The cavity of the acetabulum is filled up by lymph or pus, or by lymph and pus altogether, the capsular ligament of the joint in consequence is dilated, the patient having undergone a great deal of suffering from the tense state of the capsule previously. Then the round ligament is destroyed by the ulceration which has already consumed the cartilage. The head of the femur is pushed from the joint until it passes beyond the margin of the acetabulum, and then the muscles pull it upwards, and lodge it on the dorsum of the ilium. Sometimes, when the head of the femur is dislocated, it will be nearly entire; in other cases it is partly absorbed. The dislocation is generally in the same direction, and here as in those other cases, in which dislocation arises as a consequence of inflammation of the synovial membrane; the dislocation being upwards and outwards the limb is much shortened and the toes are turned inward. There is one circumstance which favours the escape of the head of the femur from the socket of the acetabulum, and also favours the escape of the remains of the neck wherever the head has been destroyed; and that is, the position in which the child generally lies if left to himself, with his knee bent inwards so as to cross the sound limb. This cannot be done without making the trochanter project on the side of the disease, and this favours the escape of the head of the bone.

There are a few cases in which dislocation takes place in another direction. I had a patient under my care who has now recovered, but who had, a few years ago, disease in the hip-joint, and there the head of the femur has been dislocated forwards. It may be felt upon the ramus of the pubes, the great trochanter being, of course, placed farther back than natural, and the toes being turned outward. The child is better off than when the dislocation is upwards and outwards. There is, it is true, a little shortening of the limb, and the child has the toes turned out, but she can walk very well nevertheless.

I need not tell you that these cases of the hip-joint, if they proceed to the last stage, are very dangerous. But why should the disease

be dangerous? The hip-joint is not a vital organ. The fact is, that disease of the hip-joint is very rarely the immediate cause of death; but when an abscess has burst externally, discharging matter, and has continued to do so for a long time—when the patient has been long exhausted by suffering and night perspirations, disease takes place in the thoracic and abdominal viscera. Such circumstances are always favourable in bad constitutions to the production of disease, especially in the lungs and mesenteric glands. In like manner scrofulous persons may become phthisical when the constitution has been weakened by ague, by a course of mercury, by the venereal disease, by scarlet fever, or measles, or anything else.

I mentioned that a great aggravation of pain takes place when suppuration is established in the joint. The escape of the head or neck of the thigh-bone from the acetabulum tends not at all to diminish the patient's sufferings, but rather to increase them. When this has taken place, the patient, of course, is relieved so far as the tension is concerned; but he now suffers from another cause. The head of the thigh-bone in some cases, and the ulcerated neck of the femur in other cases, coming in contact with the soft parts in the vicinity of the joint, keeps these parts in a state of irritation, and every attempt to remove the limb, even the slightest, is a source of torment.

LECTURE XXXI.

ON DISEASES OF THE HIP-JOINT. (*Continued.*)

There are two important circumstances in the history of the scrofulous disease of the hip, which I neglected to notice. One is, the shrunk, flattened appearance of the nates. This appearance is not, in fact, an absolute diagnostic mark of disease in the hip-joint, though it does usually accompany it. It arises simply from the wasting of the muscles. If you tie up one arm the muscles will waste; if it be painful to use the knee, and it be not employed, the muscles of the thigh waste; if it be painful to use the ankle, the muscles of the leg waste; if it be painful to use the hip, the muscles of the hip waste; and the largest muscles of the hip are those situated posteriorly, the glutæi. These are the muscles of which the wasting is most perceptible, and thus you will understand the reason of the altered form of the nates. The flattened appearance of the nates may occur, not only in cases of diseased hip, but wherever there is anything which prevents the hip-joint from being moved; as, for instance, in that paralytic affection to which young children are liable. I have known a painful tumour in the groin, and disease in the thigh-bone produce the same effect, although the hip-joint was perfectly sound.

In some cases there is an alteration in the appearance of the nates from another cause. If the acetabulum be filled up with lymph, the head of the thigh-bone must be pushed more or less out of the socket, and this being the case, the great trochanter must project farther on the side of the disease than on the other, so that the nates become actually widened. Then, again, if the head of the thigh-bone be quite pushed out of the socket, and lodged on the dorsum of the ilium, the appearance of the nates must be different from what is natural. The great trochanter is prominent behind, and the head of the thigh-bone may be felt or even seen through the wasted glutæi muscles lying on the dorsum of the ilium.

Another of the symptoms of this disease is an apparent elongation of the limb. In the advanced stage of the disease the limb is always shortened; and I have explained to you how that occurs. But in the early stage of the disease there is sometimes the appearance of elongation, and there may, indeed, be some absolute elongation, though it cannot be much; for if you look at the skeleton you will see that the acetabulum looks a little downward, but more outward. If the acetabulum be filled with lymph or matter, and the head of the thigh bone be pushed out, this must be in the direction outwards rather than downwards. The absolute elongation of the limb can never amount to more than half an inch, yet it appears sometimes to be elongated to the extent of two inches. This arises from the distorted condition of the pelvis. It makes with the spine an obtuse angle on the side of the disease, and of course an acute angle on the other side. The tuberosity of the ischium is lower on that side than on the other. Observe the position in which the patient places himself when he stands. In order to save the diseased hip from supporting the weight of the body, as much as possible, he throws his principal weight on the foot of the sound limb, while he advances the other foot merely to steady himself. But this cannot be accomplished without the tuberosity of the ischium being a little depressed. The apparent elongation of the limb often vanishes when the patient has been some time in bed. Occasionally I have seen an apparent shortening of the limb, without a real shortening, produced by the pelvis being twisted in an opposite direction.

In order to know whether a limb is shortened or elongated, it is not sufficient to look at a patient as he lies in bed. You must lay him flat on his back, and take care to place the two limbs parallel to each other, so that a line which passes from the patient's chin straight over the navel and the symphysis pubis, should go exactly between the knees. When you have placed him in this position, the two thighs making exactly the same angle with the pelvis, you measure with a tape from the anterior superior spinous process of the ilium to the patella. It is only by this method that you can acquire a knowledge of the comparative length of the two limbs. If you trust to your eye, and not to the measurement with a tape, you will be continually deceived.

be dangerous? The hip-joint is not a vital organ. The fact is, that disease of the hip-joint is very rarely the immediate cause of death; but when an abscess has burst externally, discharging matter, and has continued to do so for a long time—when the patient has been long exhausted by suffering and night perspirations, disease takes place in the thoracic and abdominal viscera. Such circumstances are always favourable in bad constitutions to the production of disease, especially in the lungs and mesenteric glands. In like manner scrofulous persons may become phthisical when the constitution has been weakened by ague, by a course of mercury, by the venereal disease, by scarlet fever, or measles, or anything else.

I mentioned that a great aggravation of pain takes place when suppuration is established in the joint. The escape of the head or neck of the thigh-bone from the acetabulum tends not at all to diminish the patient's sufferings, but rather to increase them. When this has taken place, the patient, of course, is relieved so far as the tension is concerned; but he now suffers from another cause. The head of the thigh-bone in some cases, and the ulcerated neck of the femur in other cases, coming in contact with the soft parts in the vicinity of the joint, keeps these parts in a state of irritation, and every attempt to remove the limb, even the slightest, is a source of torment.

LECTURE XXXI.

ON DISEASES OF THE HIP-JOINT. (*Continued.*)

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PRIMARY ULCERATION OF THE CARTILAGES.

I give this name especially to a class of cases in which ulceration of the cartilages takes place in a different way from either of those already described. The disease begins in the harder textures; but it is not preceded by that soft or scrofulous condition of the bones which I then described. The first thing that you observe, if you happen to have the opportunity (as I have had many times), of examining the body after death, where the patient has died in the early stage of the disease, is a destruction of the cartilage by ulceration. Here is a very fine specimen [presenting it] of what I now mention. Looking at it, you will see that the synovial membrane and the ligaments are in a natural condition; that the cartilage is absorbed from a considerable portion of the acetabulum in two spots; and that the cartilage covering the head of the bone has not its natural structure, but is converted into a sort of fibrous substance. The soft parts are in a natural condition, and also the bones. The latter are perfectly hard, having none of the scrofulous alteration which I mentioned in the last lecture. There are other specimens on the table showing similar appearances.

Now this ulceration of the cartilage I believe to begin in different ways: sometimes in the cartilage itself, which becomes converted into a fibrous substance first, and that fibrous substance becoming ulcerated afterwards. Here is a specimen, in which you perceive the disease in these two different stages; for while the cartilage of the head of the femur is converted into a fibrous substance, that of the acetabulum is completely absorbed. Here is another preparation [showing it] where the cartilage is converted into a fibrous substance, actual ulceration not having as yet taken place. There was a body in the dissecting-room, in which many joints were affected in this manner. In some the cartilage was converted into a fibrous substance; in others it was ulcerated away, and the carious surface of the bone exposed. In some joints the disease had gone to a greater extent than in others. Here is a preparation of two patellæ, where you see ulceration of the cartilage going on. In one the cartilage is merely converted into a fibrous substance; in the other it is completely destroyed by ulceration.

Then I have reason to believe that in other cases the disease originates not so much in the cartilage itself as on the surface of the bone to which it is connected, and that it corresponds to what happens in cases of periosteal nodes. In syphilitic, mercurial, and some other nodes, you know that the first thing that calls your attention is often the thickening of the periosteum. But the fact is, that there is a previous alteration in the condition of the bone, which becomes inflamed and ulcerated under the periosteum, and then the thickening of the periosteum is consequent upon the disease on the surface of the bone. The bone is more vascular and of a darker colour than healthy bone, and you may peel the cartilage off its surface. In this specimen you perceive that the surface of the bone is of a dark colour,

and that the ulceration began on the surface of the cartilage which is towards the bone.

In practice I do not pretend to distinguish these two orders of cases from one another, any more than I can in practice distinguish those cases in which nodes are the consequence of disease beginning in the periosteum, and other nodes which are the consequence of disease commencing in the bones.

Ulceration of the cartilage, beginning with the conversion of it in the first instance into fibrous structure, is one of the diseases of joints to which persons are liable in old age. I have seen a person, sixty years of age, have disease and abscess in the hip-joint in consequence of this kind of ulceration in the cartilage. Ulceration of the cartilage sometimes takes place as a consequence of rheumatic affection. A patient, for example, came into the hospital who had been exposed to damp and cold. He had pains in the whole of the lower limbs, and in one shoulder. The man died from some other complaint—I believe from an attack of fever—and I examined the body. There was no affection of the soft parts, no disease in the bones anywhere, but in the right hip the cartilages were ulcerated to a great extent. There was pain in the other parts of the limb, but no ulceration of the cartilages anywhere else. There was pain in the opposite shoulder, but there were no morbid appearances in it when it was examined. I have seen several other cases where ulceration of the cartilage has been preceded by pain similar to that from rheumatism, but without any affection of the soft parts.

Ulceration of the cartilage sometimes takes place in a very remarkable manner, as a consequence of inflammation and abscess in the neighbouring parts. Of this I have met with many examples. Here is a case [presenting a specimen] in which the cartilages of the knee-joint are extensively ulcerated, but there is no disease in the softer textures—no matter in the joint. It was taken from a boy who had had compound fracture of the femur; and an enormous abscess in the thigh, contiguous to the knee-joint, had preceded death. I have seen several other cases where a large abscess in the neighbourhood of a joint has been followed by ulceration of the cartilages to a great extent. Mr. Mayo has published some cases of the same description.

In those cases in which the cartilages are ulcerated independently of the scrofulous disease of the bones, the progress of the complaint after the ulceration has taken place must be very similar to the progress of it in those other cases which I described in the concluding part of the last lecture. Pus is thrown out into the joint, and then the soft parts are affected, or the acetabulum being filled with lymph, the head of the thigh-bone is pushed more or less out of the socket: the ulceration of the cartilage extends, the bones become destroyed, the head of the thigh-bone is diminished in size, the margin of the acetabulum is more or less destroyed, the neck of the thigh-bone is drawn up and lodged on the dorsum of the ilium: and in other cases the head of the femur is pushed out of the socket, and there is dislocation. But I need not trouble you with a complete history of the

symptoms, which I described in the last lecture. You have, in fact, almost all the symptoms which I mentioned as occurring in cases of scrofulous disease of the bone.

But how are you to distinguish these cases in practice? You cannot distinguish them in all instances, but you may do so in most cases so as to make a diagnosis which will be very useful in practice.

In the first place you will judge something by the aspect of the patient's countenance. If he is not that kind of person whom you would judge to be predisposed to what is called scrofula, it would be a reason for suspecting that it is not a case of strumous affection of the bone. Such affection of the bone almost invariably occurs in early life, and there may be ulceration of the cartilages, independent of scrofulous disease of the bone, in early life also. But the latter may occur in advanced life as well; and if the patient be above twenty-five years of age, it is more likely that he will have simple ulceration of the cartilage than the true scrofulous disease. Another important diagnostic mark is this:—A much greater amount of pain attends the disease in its early stage, in cases of simple ulceration of the cartilage, than where the ulceration is combined with scrofulous disease of the bone. One most remarkable circumstance connected with scrofulous disease of the bone is, that there is so little pain in the first instance, the patient going on for weeks, and even months, limping, and yet the disease being scarcely noticed. But in simple ulceration there is generally severe pain at an early period. In scrofulous disease of the bone you have very little pain in general, till the cartilages are extensively ulcerated, and matter begins to form, but in the other cases there is a great deal of pain long before that period has arrived.

I have given you my notions of ulceration of the cartilages, but I should tell you that other pathologists have entertained different views respecting the functions of the cartilage, and its capability of being ulcerated. Among these pathologists I may mention especially Cruveilhier, in Paris, and my friend Mr. Key in this country: both of whom seem to regard the cartilages as being not vascular, and as incapable of ulceration, from the action of vessels belonging to itself. Mr. Key has indeed published a paper to show that ulceration of the cartilage is the consequence in general of disease of the synovial membrane. He describes vascular processes of the synovial membrane as projecting into the joint, filling it up, and then, as it were, eating away the cartilage.

Now I do believe that if these gentlemen had taken as much pains as I have done to examine the bodies of patients who have died in the *early* stage of these diseases, they would have come to a different conclusion. They seem to have examined the bodies of persons when the disease was in a late stage, and when the morbid appearances were deceptive. The first question is, are the cartilages vascular or are they not? The cartilages of children are undoubtedly vascular—nobody can hesitate to admit that—till the period of growth is over. Growth could not take place otherwise. If you cut the articular cartilage of a growing child you see the vessels, or

rather the sinuses, in which the blood flows very distinctly. The cartilages of children resemble the cartilages of adults in all essential circumstances. Some changes take place, as I shall mention presently, but still in all essential circumstances they resemble each other. Merely looking at the structure, you would say that if the cartilages of children are vascular, those of adults are vascular also. You see in this preparation, and in others taken from adult subjects, the alteration of cartilage into a fibrous structure; and how could such a morbid alteration of structure take place, if the part were not organized?

The epidermis, or cuticle, is not organized. You may have bad cuticle secreted; but being once secreted it does not become altered in quality. The nails and the hair are not organized; you may have bad hair and bad nails secreted, but these being once formed, they do not alter. But this preparation [exhibiting it] and a number of others, show that the cartilage does alter. It seems to me that this single specimen which I now hold in my hand is quite sufficient to prove the organization of the cartilage. Look at the two patellæ in this preparation; the cartilage in one of them is clearly undergoing a change of structure, while in the other it is entirely destroyed by ulceration. How can this be accounted for, except upon the supposition that the cartilage is organized? Then observe what happens to cartilage in its healthy state; how it is exposed to friction, and if there were not a power in the cartilage of regeneration, how could it bear the quantity of friction to which it is exposed during life? Take the example of a wild animal, with its limbs in constant motion, the cartilage constantly exposed to friction, except during the hours of sleep, yet all this produces no change in it. But if there were anything else there, an elastic substance, such as caoutchouc, or the hardest metal, as gold or platina, would it not be worn away? The living body is subject to the same mechanical laws as dead matter. The fingers of a mechanic would be worn out if their organization did not enable them to repair the loss occasioned by the destructive power of friction. Are not the articular cartilages placed under the same circumstances? How can you explain their durability, except by supposing them to be endowed with vital powers and organization?

You cannot see blood-vessels in the healthy cartilage of an adult; but does that prove that vessels in it do not exist? You cannot see vessels in the transparent cornea, but who doubts its vascularity?

Besides what I have already mentioned, it would be easy to indicate many other changes in cartilage which must be referred to organization and vascularity. The cartilage of a young man and the cartilage of an old one differ in many respects. There is a difference of colour, of thickness, and consistence, sufficiently marked, which cannot be the effect of friction, which can only be attributed to a change taking place in the cartilage itself.

I have already adverted to the analogy between the cornea of the eye and the articular cartilages. But it may be said that in the

cornea you have the proof of its being endowed with vessels, in its liability to inflammation; and it is quite true that in long-continued ophthalmia you may see the blood-vessels running into the substance of the cornea, injected with blood. But you may see just the same thing in the cartilages of the joints. I have observed it distinctly in many instances. Two or three instances of this are recorded in my work on Diseases of the Joints. A man, for example, had that scrofulous disease of the ankle which I described in my last lecture. The cartilage in some parts was ulcerated, in others it was beginning to ulcerate. Where it was beginning to ulcerate there were red spots, into which I could distinctly trace blood-vessels shooting from the neighbouring bone, exactly corresponding to the blood-vessels which shoot into the trasparent cornea in cases of ophthalmia. Mr. Mayo has described a case of the same kind, and I believe that in the Museum of King's College the specimen which he met with is preserved, and that the vessels running into the cartilage are seen injected with size and vermilion. Now taking all these things into consideration I really know not how we can refuse our assent to these propositions: first that cartilage is organized, and secondly, that cartilage, like other parts which are organized and possessed of vital properties, is capable of ulceration.

To illustrate the subject still further:—In the subject from which this drawing was taken, there was an extensive absorption of the cartilages of some of the tarsal bones, the os calcis, the os naviculare, and astragalus. Now observe how the absorption has taken place. In some parts the cartilage has disappeared altogether, and the bony surface is exposed. In other parts the cartilage is partially absorbed; it is rendered thin and semi-transparent, so that you can see the brown colour of the bone through it; and the absorption has taken place *on that surface of the cartilage which is towards the articular cavity, while the layer towards the bone remains entire, and retains its natural adhesion to it:* a fact quite incompatible with the notion of its being absorbed by the vessels of the bone to which it adheres. There was no disease of the soft parts.

The preparation which I now show you is of great interest; and in order that you should understand its relation to the present inquiry, I must briefly explain the patient's case.

There was a compound fracture of the thigh, and a portion of the femur was sawn off, for not till then could the fracture be reduced. An immense abscess formed in the thigh, near the knee-joint, but not communicating with it. The boy sank and died, and on examining the body we found the large collection of matter which I mentioned in the thigh. The knee-joint externally presented no indication of disease; there was nothing the matter with the synovial membrane or the ligaments, no effusion of pus, or serum, or lymph, in the joint. All that we could discover was the disappearance of the cartilage. Now observe how it has disappeared. In the centre the cartilage is altogether absorbed, and the bone exposed. Then, in some parts, the cartilage is partially absorbed; the surface of it

towards the cavity of the joint having been taken away, while that which is next to the bone remains entire, and has its natural adhesion to it. You will see the cartilage in some parts putting on a peculiar grooved appearance, as if you had dug out a piece of it with a chisel. How could the cartilage be absorbed in this case, except from the action of its own vessels?

Mr. Key, in his interesting paper on Ulceration of the Cartilage, has given a drawing of the knee-joint, where the cartilage was affected in this manner—that is, partially absorbed on the surface towards the articular cavity; and this was in a case where the original disease had been inflammation of the synovial membrane. Large processes of inflamed synovial membrane are seen hanging pendulous into the joint, and he supposes that these pendulous processes of the synovial membrane came in contact with the different parts of the cartilage, and were the agents through which the absorption had taken place.

Without entering into the question as to how far this explanation is correct, as applied to this particular case, I may observe that it certainly is not applicable to the cases of which I have just given you the history, any more than it is to the cases of ulceration of the cartilage published by Mr. Mayo in the Medico-Chirurgical Transactions; in none of which these pendulous excrescences of the synovial membrane existed.

At the conclusion of this investigation, you will ask "what becomes of a joint of which the cartilage has been destroyed by ulceration?" If it be extensively destroyed without suppuration, the case may be compared to one of simple fracture; and if there be suppuration, it may be compared to one of compound fracture; and in either instance the ulcerated surfaces of the bone come together and ultimately become united. Bony anchylosis, however, takes place very slowly in the scrofulous disease which I described in the last lecture; the bond of union being for a very long time nothing but a soft ligamentous substance. But in other cases, where the cartilage is ulcerated without scrofulous disease of the bone, bony anchylosis takes place, I believe, readily enough. There may, however, be absorption of cartilage to a considerable extent, without it being followed by bony anchylosis. I showed you, in the last lecture, a drawing where the cartilage had been ulcerated in several parts of the patella and condyles of the femur, in consequence of inflammation of the synovial membrane. The patient died a year afterwards from disease of the chest; and on examining the body after death, I found that where the cartilage had been absorbed, it was replaced by a sort of ligamentous membrane. You will see the same thing in this preparation, where the cartilages of the hip have been partially absorbed, and replaced by a dense membrane. I cannot say whether this substance ever is or is not converted into true cartilage; perhaps it may be; but you know how difficult it must be to acquire anything like satisfactory evidence on this point.

TREATMENT OF DISEASES OF THE HIP.

If you could *always* be exactly certain as to the nature of the disease in the hip-joint, of course you would be able to apply your remedies more precisely than you can with that sort of doubtful diagnosis which we are compelled to make in some cases. The diagnosis of diseases of the hip is more difficult than the diagnosis of the same diseases in other joints, simply for this reason, that the hip is not a superficial joint, but is covered by a great mass of muscle, and you cannot examine it with the hand as you can the knee, the elbow, or the wrist. We are necessarily compelled to depend more upon the history which the patient gives of the disease than when the other joints are affected. This history, going back as it often does to a long period, and in a great number of instances having to be drawn from very young persons, is often not much to be depended upon. There are, however, many cases of disease of the hip in which we are able to say at once what kind of disease exists in it; there are others where we must give a more doubtful opinion; but even here a careful investigation will generally enable us to make such a diagnosis as will be sufficient to lay a tolerable foundation for our practice.

There is one remedy which is applicable to all cases of disease of the hip, and this happens in all of them to be the most important part of the treatment, at least of the local treatment; and of this I shall speak first.

If your leg were inflamed, and you were to rub it a dozen times every day, would you not make the inflammation worse? If your leg were ulcerated, and you were to rub it in the same manner, would you not prevent the ulcer from healing? nay, rather, would you not make the ulcer spread? If the hip-joint, then, be inflamed, and you move it several times a day, will not the inflammation be kept up? If the cartilages or bones, or both are ulcerated, and the joint be moved, and the ulcerated surfaces are rubbed against each other, is it not to be expected that the disease will be aggravated? Have we not a right, under all circumstances, to expect that motion or exercise of the hip-joint will tend to aggravate the disease, whatever it may be; and that the keeping of the joint in a state of perfect repose will be a most important part of the treatment to be employed. In all cases of affection of the hip-joint, without inquiring into the nature of the disease, the first thing that you have to do is to keep the joint in a state of perfect repose. This may be accomplished in different ways. In one of the cases now in the hospital a quantity of bandage was rolled upon the pelvis and the upper part of the thigh; then stripes of adhesive plaster were put over the bandage; then other bandages were applied, and other stripes of plaster; and so on till a great mass of bandage and plaster, all sticking together, was fastened round the pelvis and round the upper part of the thigh. This has fixed the boy's hip-joint very firmly, and is very nearly the method which Mr. Scott, of Bromley, employs for all diseases of the

joints. He, indeed, uses mercurial ointment spread on lint under the plasters; but this I apprehend to be perfectly unnecessary. The good which he attributes in diseased hips to the ointment, I attribute altogether to the support afforded by the plaster and bandage, forming a kind of splint, and limiting the motion of the joint. This method, in the case up stairs, and in a number of others, is productive of very good results. But a still better method than this, in the majority of cases, is that of applying a splint adapted to the hip-joint, thigh and pelvis, such as are used for the knee and elbow, made of a very thick, hard, firm, strong leather, prepared without oil or other grease. This leather is prepared for the purpose, of cow's-hide; and the consequence is, that on putting it into water a little below boiling heat, it becomes as soft as wet brown paper, and you may cut it out to any shape you please, and mould it to the hip, securing it afterwards by a bandage, and leaving it to dry on. This splint cannot fail to fit the joint, and must therefore be easy to be worn. Altogether it answers the purpose very well when the thigh is not much bent on the pelvis. Where, however, this is the case, it is very difficult to adjust the splint, and the plasters and bandages which I mentioned just now are preferable. There is still another method of fixing and supporting a diseased hip, which you will see carried into effect in one of the patients up stairs. The lad is placed on Mr. Earle's fracture or invalid bedstead. He lies there on his back; the shoulders are raised by one inclined plane, the thighs are raised by another, and the legs are supported by a third; so that he lies on three inclined planes, and cannot slip upwards or downwards. The thigh is kept at that angle which is most convenient to the patient, and the two limbs are placed parallel to each other. Lying in this manner, the patient, you perceive, has very little motion; he can scarcely manage to turn, and has no inducement to attempt it. In this bedstead there is a sort of trap-door beneath, filled up with a cushion, which may be taken out when necessary, and which answers the purpose of a bed-pan, so that the patient has his evacuations without being in the smallest degree disturbed. This method is especially applicable to those who have passed the age of childhood, and in whom the disease is still in its most early stage.

It is of some moment that you should, before the disease is very far advanced, get the limb into a good position. A child especially has always a tendency to throw one knee over the other, and to lie on one side. The consequence is, that the thigh-bone gets twisted into an awkward posture, the pelvis and the spine are also twisted, and the whole figure is in a state of distortion. It matters not how trifling the disease may be, your first duty to your patient is to make him lie down at once. Take care to place him with his shoulders a little elevated, and his limbs parallel to each other, and thus you will prevent that ugly distortion of the whole body which always takes place where these precautions are neglected.

LECTURE XXXII.

ON THE TREATMENT OF DISEASES OF THE HIP-JOINT.

In the last lecture I began the subject of the treatment of diseases of the hip-joint, and I explained to you that without reference to what the disease is, there is one kind of treatment applicable to all these cases—I may say, indeed, applicable to all cases of diseased joints—namely, the taking away of the function of the joint, and keeping it in a state of complete immobility. I repeat this observation, at the risk of being tedious, because it is a rule of the first importance. This is the principal improvement in the local treatment of diseased joints made of late years. Formerly, patients were allowed to use their limbs, and now they are not allowed to do so, the bones being kept in a state of repose, with as much care as in a case of fracture.

Then I explained to you that in cases of diseased hip there are different ways of attaining this object; that sometimes you may apply a leathern splint, something like what we apply to the ankle or the knee; that at other times we put on a great quantity of plaster and bandage, in alternate layers; and that in other cases it is quite sufficient to keep the patient lying on his back on one of Mr. Earle's invalid bedsteads.

In cases of inflammation of the synovial membrane, you are to employ that treatment which you would employ in other cases of inflammation. When the inflammation is very intense, it may be necessary to take away blood from the arm; but it is generally sufficient to bleed locally, by cupping on the nates, or by applying leeches to the groin; or you may cup on the nates first, and then apply leeches to the groin afterwards. The patient should have his bowels kept open; and if there be any febrile excitement of the system, he may require antimony or some other diaphoretic medicine. However, in general, inflammation of the synovial membrane of the hip is of a chronic character, not disturbing the constitution, nor requiring remedies of this last-mentioned kind.

As the inflammation recedes, you may apply blisters in the neighbourhood of the joint—on the nates in the groin also. The skin of the groin is nearer to the hip-joint than the skin of the nates, and blisters and other local applications may be made in the groin with very great advantage.

Occasionally other remedies may be employed with advantage. In cases of inflammation of the synovial membrane of the hip, as well as in cases of this disease when it occurs elsewhere, especially in private practice, among the more affluent classes of society, who live luxuriously, and do not take sufficient exercise, or in those who expend their nervous energy in intellectual pursuits, and have not

sufficient left for the physical part of the system, you will find it connected with a gouty diathesis. The patient complains of acid generated in the stomach after his meals; of heartburn; he is flatulent; he rests uncomfortably at night; he has flying pains about him besides those of the hip; the urine which is made three or four hours after dinner is voided clear, but when it cools it deposits a great quantity of sediment; sometimes there is a pink sediment, which stains the chamber utensil, making it look like what is called a *pink saucer;* and sometimes there is a yellow sediment. These sediments are composed chiefly of lithate of ammonia, and they indicate a tendency to acidity in the stomach, and to gout in the system.

When inflammation of the synovial membrane of the hip occurs under these circumstances, in addition to the treatment, which I have already mentioned, you may employ other remedies. Occasionally give an active purgative, and keep the bowels gently open in the meantime. About three or four hours after breakfast, and three or four hours after dinner, let the patient take a dose of magnesia, or potass, or soda, to neutralize the acid which there is then in the stomach. I do not think that medical men, in general, when they prescribe magnesia and the alkalies, are sufficiently careful to tell their patients at what particular times to take them. They are to be taken when there is acid in the stomach to be neutralized. There is none in the morning before breakfast; and these alkalies taken in the morning, at any rate do no good, and probably are injurious. There is the greatest quantity of acid in the stomach about four hours after a meal, and subsequently to that period it has begun to get into the system, and then produces the secretion of lithic acid by the kidneys. Your object is to neutralize the acid before it passes into the circulation, and you must do that when the acid is in the stomach. A patient told me the other day, who had inflammation of the synovial membrane of the knee, accompanied with this pink deposit, that he had observed that if he took the alkali three or four hours after a meal, there was no pink deposit; but that if he took it five or six hours afterwards the deposit appeared as usual. Another remedy, very generally useful in these cases, is *colchicum.* If the pain in the affected joint be very severe, and it is connected with that peculiar state of the system which I have just mentioned, the tongue being at the same time tolerably clean, you may give half a drachm of *vinum colchici* two or three times daily, for a few days, till it begins to create nausea, or to disturb the bowels. But in less urgent cases I prefer giving it in a milder form. You may exhibit two or three grains of *ext. acet. colchici* every night, combined with a small dose of the compound extract of colocynth. This must be taken for ten or twelve successive nights. Sometimes the *colchicum* produces yellow stools, showing that it stops the secretion of bile; and to counteract this tendency you should add one or two grains of blue pill to each of the pills.

There are other cases of inflammation of the synovial membrane of the hip, connected not properly with a gouty tendency but with rheumatism, and where the patient may derive great benefit from

taking some mercurial preparation—Plummer's pill, or calomel and opium, for example: and the latter may be exhibited in severe cases, so as to affect the gums.

Inflammation of the synovial membrane of the hip, when it has any sort of attention paid to it, very seldom goes on to any ill consequences. In a very few rare cases, as I have already explained to you, it terminates in what has been called spontaneous luxation of the hip. It seldom terminates in absolute anchylosis, but very frequently there is a great degree of stiffness of the joint for a considerable time afterwards. Anchylosis, however, occurs occasionally. A patient was admitted into this hospital, who was observed to have something odd in his gait as he walked, but he did not complain of his lower limb at all, and therefore nobody took much notice of it. He had some pneumonic disease, of which he died under the care of the physician; and on examining the body after death, we found that there was complete anchylosis of one hip, but not bony anchylosis. There were the remains of the capsular ligament and synovial membrane closely adhering to the parts below: there was a thin layer of cartilage between the bones, but merely a single layer, as if the cartilage of the head of the femur and acetabulum had become united to each other. I do not know how the circumstances of this case can be explained, except by supposing that it was the result of inflammation of the synovial membrane. Had the anchylosis been the consequence of ulceration of the cartilage, the cartilage would of course have disappeared.

The treatment of those cases, which unfortunately are of such frequent occurrence, of scrofulous disease of the hip-joint in children, having its origin in the bones, and then extending from them to the cartilages and other structures, is very simple. If you are called to a child in the early stage of the disease, when he limps and complains a little of pain, or perhaps does not complain of pain at all, the local treatment should be simply negative. *Keep the hip-joint in a state of perfect immobility*, which you may accomplish by a leather splint, by plaster and bandages, or merely by the invalid bedstead. I repeat that *this is all the local treatment which the disease requires, if you are called to the patient in the first instance.* I remember the time when in these cases we were in the habit of applying leeches, blisters, and issues. I am satisfied from all I have seen of the two kinds of practice, that the abstraction of blood and the application of counter-irritants, not only do no good, but that on the contrary, by weakening and worrying the patient, they sometimes do great harm. In my own practice I have been much more successful since I laid aside all these painful remedies, and relied merely on perfect rest.

Perfect rest will do a great deal towards stopping the progress of the scrofulous disease in the joints; that is, when it has taken place in the bones, it will prevent the ulceration of the cartilages; if the cartilages are ulcerated, it will prevent the ulceration extending further; and if matter is not yet formed, it will retard, or even prevent,

its formation. Yet after all, this negative treatment does not strike at the root of the disease, which is not in the part in which the disease shows itself, but in the patient's constitution. You may well suppose, that mere rest will not correct a scrofulous constitution; and that for this purpose you must have recourse to other means.

To lay down any rule of constitutional treatment, such as will be applicable to all cases, is not possible; you must exercise your discretion in each particular instance, and I can only undertake to give you some general notions as to the plans which you should pursue.

In the first place, then, you should take care that the digestive organs are properly attended to: if the bowels are confined, purgatives should be administered according to circumstances. If there be a deficiency of bile in the evacuations, a little mercury should be carefully exhibited, to correct the faulty secretion. The child will then require some kind of tonic. Various tonics may be employed with advantage, some in one case, some in another; but the remedy in which my experience leads me to place the greatest confidence is some preparation of iron; and in children I find nothing answers better than steel wine. I do not mean the modern steel wine, which contains scarcely any steel, but the old wine, made according to the old Pharmacopœia, and which is almost of a black colour. There is no occasion for giving it in large doses. To children of three or four years of age, give a drachm twice daily; if the child be a little older, give two drachms; and to one approaching the age of puberty, you may give three or four drachms for a dose. It is not important in these cases that the steel should be taken in a large quantity, but it is important that it should be continued, with occasional intermissions, for a great length of time. The best cures that I have seen, not only in cases where the hip-joint was affected with the scrofulous disease, but also where the disease was situated in the knee and other joints, and even in the spine, have been in those cases in which steel has been given, off and on, for a great length of time—for three or four years or even longer. I give it for a month, then stop it for ten days; I then give it for another month, then stop it for ten days again, and so on, combining purgatives with it, according to circumstances. This system, in four cases out of five, agrees with the child exceedingly well. You will not see any marked improvement at the end of the first month, but you will at the expiration of six or twelve months. I could tell you of families where the most delicate of the children have by the long-continued use of steel, in this manner become the strongest of the whole set. I do not think that steel in these cases is, under ordinary circumstances, given to a sufficient extent. The parents get impatient of giving the child medicine every day, as well as of the expense of medical or surgical attendance, and the medical man himself naturally becomes tired of his attendance under these circumstances. There is no perceptible improvement from day to day, and it is difficult to command confidence where the change is not visible perhaps for six months, and to induce the patient or the parents to persevere in the use of this, or any other remedy for so long a time.

But such perseverance is really what is required, and it is necessary to explain it to the parents in the first instance. Of course I am now supposing that steel agrees with the child; but there are some who cannot take it except in small doses; and there are others who cannot take it at all without its producing headache, making them costive, heated, and feverish. Other tonics may then be exhibited, such as quinine, some of the bitters, or what, perhaps, is better still, the alkaline infusion of sarsaparilla. The latter is a very excellent and useful preparation, and I will give you a formula for preparing it, as it is not in the Pharmacopœia:—To make a pint of the infusion, you take two ounces of the root of Jamaica sarsaparilla, cut and bruised; then you add two drachms of liquorice root, to cover the taste of the sarsaparilla; to this you add two drachms of the *liquor potassæ*, and about eighteen ounces of boiling distilled water; macerate the whole in a close vessel for about twenty hours; strain off the liquor, and you may give the patient, according to his age, from four to six or eight ounces of this infusion daily.

But there is still another method of improving the child's constitution: let him live in the fresh air as much as possible. All that I have seen leads me to believe that nothing tends more than this to strengthen a delicate constitution: of course I mean, not that the child should be exposed to cold, or wet, or night air, but that he should pass his time out of doors in fine and temperate weather. In the summer his couch may be placed in the garden, and he may remain there during a great part of the day; if it can be managed that he should reside at the sea-side, it would be so much the better; —I say *reside*, for as to his being taken for a month or six weeks to a sea-bathing place, the benefit which he will derive from it is not such as to compensate for the mischief which may arise from the journey, especially if it be to a distant place.

The period during which it is necessary to keep the patient in the recumbent posture, must vary very much in different cases; in some cases three or six months may be all that is wanting; in others, the patient must perhaps be kept lying down for twelve months; and where the joint has been destroyed by an abscess, and the bones have become displaced, even a much longer period may be necessary: but I shall speak of these last cases presently.

The treatment of those cases in which the cartilage of the hip ulcerates, independently of that scrofulous disease of the bones which I have just described, and which we call, by way of distinction, cases of primary ulceration of the cartilage, (though it may sometimes be originally disease of the surface of the bone, and sometimes of the cartilage itself—two orders of cases which I cannot pretend to distinguish in practice,) in many respects resembles the treatment of scrofulous affection of the hip-joint. The patient must be kept in the same state of perfect immobility; but he does not in general require the same treatment otherwise. Very often he will derive much benefit from a course of sarsaparilla; at other times he will derive still greater benefit from being put for a certain time under the influence of mercury. In many of these cases he will derive

benefit from the employment of what we call *counter-irritation*. Although I do *not* recommend the employment of blisters and caustic issues in other cases of disease of the hip-joint, yet I *do* recommend them here. You may apply a blister to the nates, or to the groin, or you may make a caustic issue behind the trochanter large enough to hold twelve or fifteen peas. Usually, however, I keep the issue open, not by peas, but by rubbing the surface of it about once in a week with the caustic potass, dressing it in the meantime with the savine cerate. You may distinguish where you ought and where you ought not to employ these means with sufficient accuracy; thus, if the disease has not been marked by much pain previous to the formation of matter—if there has been limping for a long time with scarcely any suffering—you may conclude that the case is one of scrofulous disease, and that counter-irritations are unnecessary; but if the disease has throughout its whole course been accompanied by pain, becoming gradually more severe, then you may conclude that it is not one of these scrofulous cases, and that counter-irritation will be beneficial. I speak of pain, observe, previously to the formation of matter; for when matter is formed in the joint, there is severe pain in all cases. Where the pain is very severe, and is not relieved by a caustic issue behind the great trochanter, you will sometimes afford great relief by making a seton in the groin, in the fore part of the joint. I suppose that the pain in part depends on irritation communicated to the anterior crural and obturator nerves, and that this will explain the relief obtained from a seton made in their vicinity.

I have hitherto said nothing regarding the treatment of abscess connected with the hip-joint, having reserved my observations on this subject to the last, because the treatment of abscess of the hip is pretty much the same under all circumstances—whether the disease has begun in the synovial membrane, the bones, or the cartilages. Whenever you find that the patient complains of a great aggravation of his former symptoms, when the pain becomes intolerable, the limb starting at night, and the pulse becoming increased in frequency, you may always suspect that matter is forming in the joint, and that the acetabulum is becoming filled up with matter and lymph. You may, under these circumstances, employ fomentations, which may help the patient a little, but not much. If the pain be excessive, you must give opium, though I am not desirous of giving it without ample reason for doing so, on account of the ill effect which it produces afterwards on the digestive organs. By and by the abscess presents itself externally, and this is almost invariably followed by a shortening of the limb, produced in one or other of the ways which I mentioned formerly.

When the abscess presents itself, you will feel it, and you may even see it; but if it is yet deep-seated, I would not advise you to open it, because, first (especially in the cases of very delicate children), there may be a loss of blood which the patient cannot afford, and, secondly, because under these circumstances the wound will heal directly, and the matter will become pent up as it was before. An exception, however, to this rule may be made in those cases in

which you find an abscess burrowing under the fascia, instead of coming forward to the surface, and then it may be right to make an opening through the fascia to prevent the destruction of the parts below.

Different methods have been recommended for opening these abscesses; but I shall not occupy your time by a critical discussion as to their respective merits. Some have advised an oblique or valvular opening, others a direct opening; some have advised us to keep the orifice open, and others to heal it; some have advocated the use of the lancet, others of the caustic potass. I shall merely tell you what, according to my experience, is the best mode of managing these cases. The patient having been kept for a considerable time in the recumbent posture, when the time arrives at which you think proper to open the abscess, do it with an abscess lancet, or double-edged scalpel, and make a large opening, so that the matter may run out freely of itself; and that there may be no obstruction to its discharge from the opening becoming blocked by curdly matter or flakes of lymph. But having done this, be satisfied that you have done all you ought to do. *Never squeeze and compress the parts to force out the matter; never move the limb for the same purpose, nor allow others to do so.* If you attempt to squeeze out the matter you bring on inflammation in the cyst of the abscess,—you induce bleeding from the small vessels on its inner surface—the blood collected in the cyst of the abscess mixes with the pus, and becoming putrid, produces great constitutional disturbance, taking on the character of typhus fever. It is said that bad symptoms often come on, on opening an abscess; but I believe that for the most part it is not the opening of the abscess, but the rough hand of the surgeon in trying to squeeze out all the contents of the abscess, that does the mischief.

Then, are you to bring the edges of the wound together, and heal it, or not? My own practice is to apply a poultice, and to leave the wound to take its own course. On the whole, I would rather that the wound did not heal; but I do not usually endeavour to prevent it healing by introducing lint into it, lest this irritate the inner surface of the abscess, and excite a mischievous inflammation in it. If it does not heal, it is so much the better; the matter continues to flow out, and the cyst of the abscess gradually contracts. If the wound does heal, the matter will of course be again collected, and you must make another opening. If the abscess should present itself in two or three different places, do not be satisfied with one opening, but make an opening wherever it presents itself, as otherwise there can be no proper evacuation of its contents.

In the majority of cases in which abscess has formed, the cartilage is destroyed, the bones are carious, the synovial membrane and ligaments have in great measure disappeared, so that there is really no joint left. The case may now be compared to one of compound fracture, and you are to treat it just in the same manner, by keeping he limb in a state of perfect immobility, and taking care that the matter should flow out as fast as it is generated; but it may take a

long time for this abscess to heal—months always, and even years in some cases. But anchylosis will be going on all the time, though the period of its completion varies. In the scrofulous disease of the bone, it takes a longer time for bony anchylosis to be effected. If you examine the limb many years afterwards, you will often find that the anchylosis is not by bone, but by a sort of ligament. But when the cartilages are ulcerated independently of the scrofulous disease of the bones, the bones being in a tolerably healthy state, bony anchylosis takes place at a much earlier period.

As soon as you find that the thigh and the pelvis move completely together, there being no perceptible motion of the joint, you may be satisfied that there is sufficient anchylosis to enable you to allow the patient to begin to take exercise on crutches.

In all cases the patient experiences great pain at the time that the head of the thigh-bone is being pushed out of the socket, or if the head is destroyed, when the neck of the femur is drawn up and lodged above the acetabulum: and this pulling up of the head or neck of the thigh-bone is always followed by great and permanent distortion of the limb. Can you do anything to prevent those sufferings, and the subsequent distortion? The patient suffers because the head or the neck of the femur is leaving its own place, and getting into new parts which are not intended to have the rough bone in contact with them. I have in some instances endeavoured to prevent this by mechanical means,—that is, by the application of an extending force to counteract the action of the muscles: and a very slight force is sufficient for this purpose. It is astonishing what comfort I have known this to give the patient in some instances. As soon as you have reason to think that the limb has begun to shorten, you may begin to make a gentle extension below, so as to counteract the action of the muscles above; and experience shows that this may be done with the most perfect safety.

As to the mode of accomplishing this object, it is sufficiently simple. The patient is to be placed on his back, on the treble-inclined plane of an invalid bedstead, with his shoulders and his thighs a little elevated. An upright piece of wood is fixed to the foot of the bed, and in this upright piece of wood there is a pulley, which pulley is just in a line with the thigh-bone. There is a bandage round the patient's thigh above the knee, a string extends from each side of the bandage, and joins another string which passes over the pulley. At the further extremity of this last string there is a very light weight attached—a few ounces of shot or some copper penny pieces put into a basket are sufficient in the case of a child. You often require a great extending force to counteract the powerful action of the muscles in reducing a dislocation, but a very slight force, constantly acting, is sufficient to counteract the weak action of the muscles in these cases. My experience of this practice leads me to believe that by the adoption of it you may prevent a great deal of pain and suffering belonging to these cases, while at the same time this method has a tendency to lessen very much the ultimate distortion of the limb.

I have spoken to you in these lectures of the ordinary diseases of the hip-joint; and it is not my intention to enter into the history of the diseases of more rare occurrence. I have known instances of scirrhous disease and fungous hæmatodes of the hip; and then there are hysterical affections which simulate the symptoms of other diseases. A knowledge of these hysterical affections is of great importance, in order that you may not be in danger of confounding them in practice with cases of actual local disease.

LECTURE XXXIII.

ON TIC DOULOUREUX OR FACIAL NEURALGIA.

"Joshua Kingett, forty-eight years of age, was admitted into the hospital on the 14th Oct., 1835. On his admission he stated that for the last ten months he had been suffering the most severe pain, which was entirely confined to the left side of the face; that this pain at first had an intermittent character; but that latterly it had become constant; and at times was so acute that, to use his own language, he would have rejoiced if any one had knocked him on the head. At these times he seemed almost to lose the sight of his left eye, and very often suffered from toothache. At the time of his admission the pain was chiefly confined to the cheek and nostril, which were puffy, and tender to the touch. There was no disease to be observed on looking into the nostril. The bowels were always torpid, and the tongue was covered with a whitish-brown fur. He was directed to apply the veratrine ointment, in the proportion of a scruple of the veratrine to an ounce of lard. A portion of this was to be rubbed in twice a day, and he was to take five grains of blue pill every night, with a draught containing five drachms of infusion of senna, five drachms of compound infusion of gentian, a drachm of tincture of senna, and a drachm of sulphate of magnesia every morning.

"On the 23d, having pursued this plan for about a week, he thought that he was a little better. A bad tooth was discovered in the upper jaw, which was extracted. The tongue was a little cleaner. He was directed to take infusion of rhubarb and columbo, of each six drachms, with a drachm of compound tincture of cardamoms, and half a scruple of carbonate of potass, three times daily. He was to go on taking the blue pill."

On the 29th the report runs thus:—"He has improved rapidly: the pain is now very tolerable; the bowels are open twice daily; the tongue is nearly clean."

On the 7th November it is said, "The pain, which had almost left him, returned with great severity two days ago. He has had no sleep since, in consequence of it. The tongue is again white and furred. The medicine was not sufficient to act on the bowels, which have been confined for the last two days. He was directed to take five grains of blue pill every night, and a dose of compound infusion of senna with sulphate of magnesia every other morning."

On the 15th it is said that "he had been again relieved as soon as the bowels were well opened."

"On the 17th November I placed him on the following plan of treatment. He was to take five grains of blue pill, five grains of compound extract of colocynth, with three grains of extract of lettuce, every night. This medicine acted well on his bowels; he has been purged ever since he took it, two or three times daily. He has continued to take it up to the present time. The tongue is now quite clean. He is entirely free from anything that deserves the name of pain, although he has still some feeling of uneasiness in the face."

A violent pain in the face attacking the patient at intervals,—a pain so violent that the patient wishes that somebody would destroy him, and yet there being no disease perceptible in the parts to which the disease is referred: it is to a pain of this kind that we commonly apply the name of *tic douloureux*, or, as some call it, with more propriety, *facial neuralgia*. We must regard this case, then, as one of tic douloureux, or, if you please, facial neuralgia.

You will observe, that besides other classifications which you may make of the pains that occur in disease, you may divide them under these two heads. There are cases in which the pain is felt where the disease exists, as there may be inflammation in the knee, and pain in the knee in consequence; carcinoma in the breast, and pain in the breast in consequence; disease in the liver, and pain therefore in the hepatic region. Then there are other cases in which the pain is referred to parts which are not actually the seat of disease. Thus, there may be pain in the knee while the real disease is in the hip; there may be pain in the shoulder while the real disease is in the liver; there may be pain in the breast, while the real disease is an hysterical state of the constitution generally.

Tic douloureux, or facial neuralgia, belongs to this last class of pains. The pain which is felt is referred to some part or other of the face, or to the whole of one side of the face, and yet there is no disease there. You are not to suppose that the cause of the pain in this complaint is always the same: the fact is, the pain is but a symptom and it may depend upon different causes; so that in those patients who are said to be affected with tic douloureux, the real nature of the disease varies very much in different cases. You may have half a dozen persons with tic douloureux in the face, the symptoms in all of them being the same, or very nearly the same, and the real disease may be different in every one of them. The pain, as I have said, has the same character in all these cases, and it differs from the pain of most other nervous affections. You will observe that the branches of the fifth pair are all under particular anatomical circumstances; that they all proceed from that remarkable plexus which is bathed, as it were, in the blood of the cavernous sinus, and that the branches of it all run through

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A violent pain in the face attacking the patient at intervals,—a pain so violent that the patient wishes that somebody would destroy him, and yet there being no disease perceptible in the parts to which the disease is referred: it is to a pain of this kind that we commonly apply the name of *tic douloureux*, or, as some call it, with more propriety, *facial neuralgia*. We must regard this case, then, as one of tic douloureux, or, if you please, facial neuralgia.

You will observe, that besides other classifications which you may make of the pains that occur in disease, you may divide them under these two heads. There are cases in which the pain is felt where the disease exists, as there may be inflammation in the knee, and pain in the knee in consequence; carcinoma in the breast, and pain in the breast in consequence; disease in the liver, and pain therefore in the hepatic region. Then there are other cases in which the pain is referred to parts which are not actually the seat of disease. Thus, there may be pain in the knee while the real disease is in the hip; there may be pain in the shoulder while the real disease is in the liver; there may be pain in the breast, while the real disease is an hysterical state of the constitution generally.

Tic douloureux, or facial neuralgia, belongs to this last class of pains. The pain which is felt is referred to some part or other of the face, or to the whole of one side of the face, and yet there is no disease there. You are not to suppose that the cause of the pain in this complaint is always the same: the fact is, the pain is but a symptom and it may depend upon different causes; so that in those patients who are said to be affected with tic douloureux, the real nature of the disease varies very much in different cases. You may have half a dozen persons with tic douloureux in the face, the symptoms in all of them being the same, or very nearly the same, and the real disease may be different in every one of them. The pain, as I have said, has the same character in all these cases, and it differs from the pain of most other nervous affections. You will observe that the branches of the fifth pair are all under particular anatomical circumstances; that they all proceed from that remarkable plexus which is bathed, as it were, in the blood of the cavernous sinus, and that the branches of it all run through

bony structures; the second and third branches especially being enveloped in bone to a great extent; and probably it is from one or other of these anatomical circumstances, or from both of them combined, that the pain derives its peculiar character.

The pain in all these cases, whatever may be the cause of it, generally comes on gradually. At first it is a pain which, though severe, may be borne; but at last it becomes quite intolerable,—so intense that the patient always says he would rather die than bear it. At first he complains of an odd twinge every now and then in the face; and it generally begins in the cheek where the second branch of the fifth pair of nerves is distributed. The twinge becomes more severe, and recurs more frequently. At first it recurs only two or three times daily, and lasts for an instant; then the twinge becomes more severe, of longer duration, recurring several times in the twenty-four hours; and so it goes on increasing. When the disease is at its height, the patient is in as wretched a condition as you can well imagine a human creature to be in. The pain attacks him every quarter or half hour, sometimes oftener, coming suddenly and unexpectedly on him at uncertain intervals. He states that at first there is a sensation of spasm, which is followed by a violent and continued pain, accompanied in some cases with a sense of pressure acting from above. You see the patient acting with all the muscles of the trunk, as if it were necessary that he should make this effort in order to support himself under a heavy weight that was forcing him to the ground. This will last perhaps for two or three minutes, and then the pain goes off, and he is quite well again till the attack returns. The recurrence of the pain is always readily induced by the patient's attention being directed to it. If you ask him how his face is to-day, the attack comes on directly; but if you hold him in earnest conversation upon any other subject, it may stay away for half an hour. The patient often cannot get to sleep on account of the pain; but having once fallen asleep, he may continue so without the pain recurring for several hours. I have known this to happen even in the very worst cases.

When the pain comes on there is often violent spasmodic contraction of the muscles of the face; and perhaps it is this which causes the face, on the side on which the disease exists, to become swollen and puffy. The conjunctiva of the eye on that side looks red and blood-shot. The pain, I say, generally begins in the cheek; and often it is altogether confined to the parts to which the second branch of the fifth pair of nerves is distributed; but in extreme cases it will sometimes extend to the forehead, that is, to the parts supplied by the first branch of the fifth pair of nerves; and to those supplied by the third branch of the fifth pair, that is, to the chin, and even to the teeth. In some cases the tongue and palate are affected also.

In some cases the disease torments the patient for a month, six weeks, or even six months, and then, without rhyme or reason, vanishes, and he continues well for an uncertain period: then it recurs, and continues as long or longer than before. In other cases the disease may vanish, not for a time, but altogether, the patient obtaining a complete recovery. In other cases, again, there is never an actual giving way of the disease; it goes on tormenting the patient day after day, month after month, year after year; and in some of these cases other symptoms ultimately supervene, and the disease proves fatal. But of this I shall speak again hereafter. In addition to what I have already stated, it is worthy of notice that the disease attacks only one side of the face; I never saw it in both sides.

On what cause do these symptoms depend? Many persons thus affected have a bad tooth, and they generally go and get it drawn, it being thought that the carious tooth may be the cause of the pain. I never knew a case myself where the patient was relieved of genuine tic douloureux by the extraction of a carious tooth; and I remember that in a conversation which I had some years ago with a very experienced dentist, he told me that he had frequently been called upon to draw bad teeth where the patient had laboured under tic douloureux in the face, and he could not remember that the operation had ever been of any service. I have said that the disease may depend on different causes. Sir Henry Halford has published a paper, in which he mentions some cases bearing all the character of genuine tic douloureux, in which the symptoms seemed to be connected with a diseased condition of the bones of the face; and I have no doubt that such is their origin in some instances. There was a man in this hospital suffering from a pain in the face and cheek, having all the characters which I have just endeavoured to describe, and in whom there was disease of the bone of the upper jaw. If I remember right, for I have preserved no notes of the case, he went through a course of sarsaparilla; a portion of the bone exfoliated, and after this the pain was very much relieved. I saw another case where there was pain very like that of tic douloureux existing in combination with disease in the bones of the upper jaw, but of which I know not the result. But these are rare instances. There is no diseased bone to account for the pain in ordinary cases. Then from what else may it arise? You will find it sometimes in young women of hysterical constitution, a product of hysteria. Where there is hysterical pain referred to the part in which the branches of the fifth pair are distributed, it assumes the form of tic douloureux. Then at other times the pain is intermittent and periodical, depending on that peculiar state of the system which may produce the phenomenon of ague, and may be cured as ague is cured, by quinine or arsenic. In other cases, again, the disease evidently depends upon the state of the digestive organs, and the patient is cured by great regularity as to diet, and a course of medicine which is calculated to put the digestive organs into a more healthy condition. In another order of cases the pain in the face is the result of disease in the brain. The late Dr. Pemberton, who was for many years physician to this hospital, and was engaged in a large practice at this end of the town, in the midst of his career of prosperity became affected with tic douloureux, and suffered from it in the most horrible manner. I never saw any individual, under any circumstances, suffer more. He went into the country, and died with symptoms of disease in the brain.

There was a gentleman who had tic douloureux in the face for a very long time. The pain at last left the face, and then he was attacked with fits of epilepsy. As the pain left the face when the patient became affected with epilepsy, that alone seemed to be sufficient ground for believing that there was some disease in the brain. After that, however, there was a ptosis, or a dropping down of the upper eyelid, on the same side on which the tic douloureux had existed. After a more than usually severe epileptic fit, he fell into a state of apoplexy, and died. Mr. Green, Mr. Freeman, and myself, who had attended him, examined the body after death. We found all the membranes of the brain bearing marks of chronic inflammation; the vessels connecting the *dura mater* and the bone unusually large; the *tunica arachnoides* thickened, and at the upper and back part of the left hemisphere of the cerebrum adhering to the inner surface of the dura mater, in a spot about an inch in diameter. The cerebrum generally was soft and vascular, exhibiting a red mottled appearance on many places. The softening of its substance was most distinct in the crura cerebri, fornix, and adjacent parts. The nerves of the fifth pair were carefully dissected to the extremity of the cavernous sinus, but presented no morbid appearances.

There are still other cases in which you cannot trace tic douloureux to its real source. There is something or other somewhere or other in the system, which acts as a source of irritation to the nerves of the face; but where that something is, and what it is, we cannot discover. Indeed, generally speaking, I should say that nothing is more difficult than to trace any local nervous affections to their real source. The disease may be in one part of the body, and the pain or spasm which it produces may be in another. I have known a patient have violent neuralgia of the foot, which depended on a stricture of the urethra, and which, whenever it occurred, was invariably relieved by the use of a bougie. I have known another patient have neuralgia of the foot depending on internal piles, which came on when the piles were protruded through the anus, and went away when they were reduced. I have known a spasmodic wry neck, or a nervous pain in the back, to alternate with insanity.

If it were worth while to do so, I might mention other cases illustrative of this observation, that the disease may be in one part of the body, and from some nervous connection, it may produce pain in some other part of the body. We cannot explain the matter much further than this. I may, however, venture to make this additional observation—namely, that there is good reason to believe that the seat of the nervous communication, on which those sympathies depend, is for the most part not in the nerves themselves, but in a higher place—in the brain, or in the spinal cord.

Treatment.—The treatment of *tic douloureux*, of course, must differ in different cases. In some instances it may be relieved by one method; in others, by another; but in the greatest number of cases it cannot be relieved at all. A very old operation, which had fallen into disuse, but has been revived of late years—namely, that of dividing the trunks of the nerves, to the extremities of which the pain

is referred. It has been said that if the pain be referred to the extremity of the second branch of the fifth pair of nerves, you should divide the second branch where it passes out of the infra-orbitary foramen on the face; that thus you will cut off the communication between the extremities of the nerve and the brain, so that the painful sensation may no longer be communicated to the sensorium. Now this would do very well if the seat of the disease were really in the extremity of the nerve: but there is no reason to believe that it is so, and there is every reason to believe the contrary.

The irritating cause, whatever it may be, manifestly acts not on the extremity of the nerve, but on its origin; and both reason and experience prove that the division of the nerves below the origin is of no service. I have myself performed this operation without the smallest benefit to the patient.

In the late Dr. Pemberton's case the branches of the nerves were divided by Sir Astley Cooper. Sir Astley did not recommend it, and, if my recollection be accurate, when Dr. Pemberton first applied to him to do it, he declined acceding to his wishes. He did it at last in order to satisfy the patient; but the division of the nerves, instead of giving relief, very much aggravated the evil. It is altogether an unscientific operation, from which we have no more right to expect any benefit than we should have if we were to amputate the testicle, because pain was referred to it in consequence of a calculus being lodged in the ureter.

In those cases in which the disease has an intermitting and periodical character, you can always relieve it, as you may all other cases of intermittent and periodical disease, by the exhibition of quinine, bark, and arsenic. But then, if you give quinine, it must be in large doses; you must begin with ten grains, and go on increasing it. I saw this very morning a gentleman who had formerly a nervous pain in the back, almost as bad as tic douloureux in the face. It was intermittent and periodical. I told him, when he consulted me about it, that I was sure that quinine would cure him. He took ten grains without benefit; he took twenty with little benefit: and was not cured till he took half a drachm daily. He remained well for two or three years afterwards. The combination of bark and arsenic, also, is an excellent remedy in these cases of intermittent and periodical disease; but I generally prefer giving quinine first, because it is a more innocent medicine, requiring no watching, and not subject to the inconveniences which belong to the use of arsenic.

I was consulted in conjunction with another practitioner, concerning a young lady who had tic douloureux of the face. She was hysterical, and the disease had followed the occurrence of some circumstances which had occasioned great agitation of mind. The case was evidently connected with hysteria and an irregular state of the menstruation. We gave her steel and ammonia in combination, which put her into better health, and in the course of a few weeks the tic douloureux, which had existed for many months, had disappeared.

If you can really trace the pain to disease in the bones of the face,

you must, of course, instead of directing your attention to the pain which is the symptom, endeavour to cure the disease in the bone which produces it. A piece of bone may exfoliate; and if the dead fragment has caused the pain by pressing or otherwise irritating the trunk of a nerve, the pain may thus be removed; or perhaps the patient may get well under the use of sarsaparilla, which, as you know, acts most beneficially in a number of cases of disease of the bones; or if sarsaparilla fail, you may serve your patient by the exhibition of calomel and opium, oxymuriate mercury, some preparation of iodine, or the mezereon; every one of which may in its turn be advantageously resorted to in cases of disease of the bones.

In cases where the pain depends on an organic disease of the brain, you must of course turn your attention to the primary affection, although it is probable that in the majority of these cases you will be able to render the patient but little real service.

But supposing that you can trace the disease to no other source, and that you find the tongue furred, the bowels confined, and other indications of an ill performance of the digestive functions, you have a right to conclude that this very probably is the origin of the pain in the face; at any rate you are called upon, in the first instance, to ascertain what will be the result of putting the digestive functions in better order. It was upon this principle that I proceeded in the case to which I called your attention in the beginning of the lecture; and you see that the practice has answered so far wonderfully well. As the bowels were opened, and the tongue became clean, so the pain abated. A great number of diseases depend on the state of the digestive organs. You will meet with examples of this every day; and there is nothing more remarkable in a patient having tic douloureux from a deranged state of the digestive organs, than there is in having sick headache in consequence of an overloaded stomach, or a lumbago from costive bowels.

But supposing that you cannot trace the disease to its real source —that the patient is in other respects well,—that all the functions are well performed,—that there is this frightful pain, and you have no clue to lead to the real seat of the original malady, and therefore no clue to the practice you ought to adopt,—you are driven to the expedient of trying remedies at hazard,—a very unsatisfactory mode of proceeding, it must be acknowledged, but you have no alternative. You may give the patient quinine, which is useful in many cases of nervous pain, even though it be neither intermittent nor periodical; or you may give carbonate of iron, which I do not hesitate to say relieves many neuralgic affections also. Half a drachm of the carbonate may be given three times a-day, and the dose may be gradually increased to a drachm. I never saw any good arise from pushing the use of the carbonate of iron beyond this; and I can easily conceive that much evil may arise from its being given in those enormous doses in which, if I am rightly informed, it is given by some practitioners. It is easy to conceive that when thus exhibited the bowels may be actually clogged by it, just as in other cases they are found clogged by cubebs or by Ward's paste. Whenever you

give these insoluble substances, you should give an occasional purgative to prevent the accumulation of an insoluble mass in the bowels. I heard of a patient who died of inflammation of the bowels in consequence of taking large doses of cubebs, which were not purged off. So I can conceive that inflammation of the bowels may be produced by the large doses of carbonate of iron being suffered to accumulate in the intestines.

If the quinine and carbonate of iron fail, it may then be worth while to try the effect of zinc or copper, or some of those other metallic salts which are occasionally useful in cases of chronic nervous affection.

But supposing that you have tried all ordinary means without benefit, are you to go on *ad infinitum* tormenting the patient with medicine? The first rule of our art is to do no harm; and if you have tried all reasonable expedients without benefit, you had better not go on to further experiments. No one can be dosed constantly with medicine without the health being injured by it, ultimately, if not immediately; and if you have not some reasonable grounds for giving medicine, you should not run the risk of doing harm by its continued exhibition. It is much more wise and honest, when you do not know what to do, to advise your patient to wait, and take the chance of the pain subsiding of itself, as it does in many instances. But where you cannot cure your patient, you may often succeed in making his life less intolerable than it would otherwise be. Some patients are capable of being much relieved by the use of opium, and among them there are a few with whom opium never disagrees, so that they may take it without harm. Even in these, however, it should be given only when the pain is more than usually severe. Let them avoid taking it constantly, because then the opium loses its effect. In slighter cases, the patient may perhaps be benefited by extr. of lettuce, extr. of henbane, or some other of the slighter narcotics. In all cases the patient is likely to derive advantage from avoiding as to diet, and mode of life in other respects, irregularities, including all unusual demands on the nervous system, great mental exertion and anxiety.

In the present case, one of the first things which I did was to direct that the part should be rubbed with the veratrine ointment. This has been lately proposed as a remedy possessing a most extraordinary influence over a number of diseases, neuralgic affections among the rest. I saw one patient who thought himself relieved by it of a pain in the forehead, connected with disease of the frontal bone in the neighbourhood of the frontal branch of the fifth pair of nerves. I was, however, by no means satisfied that the relief really arose from the use of the ointment; and in several other cases I have had recourse to it without the smallest advantage: however, there could be no objection to the use of it on this occasion, and I thought it worth while to make one experiment more—you have heard the result.

Although I employed the veratrine ointment in this instance, I am not one of those who would be trying indiscriminately all the new

remedies which, in these days, are being constantly brought before the public; nor can I think well of this modern fashion of resorting on all occasions to novel methods of treatment. I see many practitioners who would always rather give a new medicine than an old one, but I advise you if you wish to succeed in your profession and to be useful to the public, to pursue a different course. Make yourselves masters of the old remedies. Learn how to handle them, and what good they will do, and, as a general rule, have recourse to them in the first instance. If the old remedies fail, and you are at a stand-still, then, and not till then, have recourse to the new ones. If you always begin with new remedies, you throw away all the valuable results, not only of your own experience, but of the experience of those who have gone before you. You have to begin, as it were, *de novo*, and the first consequence of this will be that you will not cure your patients; and the second, that you will have none to cure. Where old remedies fail, I say that it is not only not unreasonable, but proper, that you should ascertain what can be done by new ones; but it is very unwise to employ the latter where there are sufficient grounds to believe that those already in use will answer the intended purpose. I should be very sorry to see the march of science impeded by an unjust apprehension of experiments and innovations: but, surely, there is a broad enough line between a discreet and prudent use of new remedies, and that indiscreet and hasty use of them which we find to prevail in the practice of the medical profession at present.

LECTURE XXXIV.

ON HEMORRHOIDS.

In the present lecture I purpose to make some observations on the disease which we call piles, or hemorrhoids.

A patient consults you, complaining of swelling, pain and tenderness, in the neighbourhood of the anus: you examine the part, and find on its verge a number of tumours, about the size of the end of the thumb or finger, with broad bases, not very distinct from, but running one into the other, covered by the common integuments, and of a more or less purple appearance. If you cut into one of these tumours there is immediately a flow of venous blood, followed by a small quantity of arterial blood, such as might arise from a cut anywhere else. On making a section of the tumour, it presents to the eye the appearance of dilated and tortuous veins: in fact you cannot doubt that they are dilated veins; they are exactly like varicose veins of the leg. The tumours which I have described are situated below the sphincter muscle, and we call them *external piles.*

Another patient consults you, complaining also of a swelling at

the anus, accompanied by pain and tenderness. You examine the part, and find a number of tumours of a different kind. These, too, have broad bases, and run one into the other, forming a circle, which projects below the anus. They are covered, not by the common integument, but by the mucous membrane of the rectum protruded from above the sphincter muscle. On making a section of one of these tumours there immediately flows venous blood, and arterial blood may flow afterwards. On looking at the divided surface, it is evident that the tumour was composed of a large tortuous vein. It is the accidental enlargement of these tumours which causes them to protrude externally; but they are formed above the sphincter muscles, and we call them internal piles, or hemorrhoids.

I cannot doubt that piles are just what I have mentioned—dilated varicose veins. This is the common theory of their formation, and I certainly believe it to be correct. If you cut through piles, and dissect them, as it were, in the living person, you see that they are made of dilated veins; and if you dissect piles in the dead body, you find them just the same. If you insert the pipe of a syringe into the trunk of the inferior mesenteric vein of a person who had laboured under piles, the piles become all dilated largely with the injection. I know that some have held a different opinion concerning the formation of these tumours, and have supposed that they were not composed of dilated veins: but I apprehend that they have been misled by examining the parts in the advanced stage of the disease. If you wish to know what any disease really is, you must make your dissection of it in its origin; for in its progress, one morbid change is followed by another, and when a disease has lasted for a considerable time, you find various appearances in addition to those which existed in the first instance.

Those ultimate changes which take place in cases of piles, are exactly similar to those which occur in connection with varicose veins of the leg. You know that at first the veins of the leg are simply varicose, or dilated; that at last they become inflamed; that lymph is deposited in the cellular membrane surrounding them, and that at last there is a great mass of induration, in which the diseased blood-vessels are, as it were, imbedded. So it is with the veins of the anus and rectum. At first they become simply dilated; repeated attacks of inflammation cause an effusion of lymph into the adjacent cellular texture, and then the pile appears like a solid tumour; in the centre of which, however, you still find the dilated vein in which the disease originated.

I have divided piles into internal and external; but, in fact, it is the same veins which are affected in both cases. The veins run on the inside of the sphincter muscle, and where the muscle compresses them there can be no dilatation of them; it is a bandage constantly operating to prevent the dilation in this particular part; but above and below the muscle the veins become dilated.

Whatever tends to obstruct the return of the blood from the inferior mesenteric vein will lay the foundation of piles. It is said that persons with diseased liver are liable to piles; and no doubt they

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are likely to be so more than others, because the hard and indurated mass of a diseased liver interferes somewhat with the return of the blood from the abdominal viscera through the *vena portæ*. However, a great many persons have piles who have not diseased liver. The most common cause of piles is obstinate costiveness. Where the colon becomes loaded, and especially the sigmoid flexure, with hardened feces, there is a pressure on the trunk of the inferior mesenteric vein, which interrupts, in some degree, the return of blood from its branches. Women, during pregnancy, are liable to piles, the pressure of the gravid uterus producing the same effect as an accumulation of feces; and women who have borne children many times are liable to piles ever afterwards, the veins which have been repeatedly kept in a state of dilatation not becoming again permanently contracted afterwards. Piles are more frequent in the upper classes of society than in the lower. You know that in hospital practice you see comparatively few cases of piles, but out of it, I must say that they form a very large proportion of the cases that come under my care. The reason of this difference is to be found in the different mode of life in the various classes of society. The better classes take but little exercise, and they are more liable to constipated bowels than the lower classes, who take much exercise and live a great deal in the open air. There is a notion that those who take aloetic purgatives are more liable to piles than others; but I must acknowledge that I, am not quite satisfied of the fact. I have a respect for all popular notions, believing that there is in general some truth at the bottom; and I will not say, as everybody thinks so, that aloes will not make people liable to piles, but I am sure they do not produce that effect to the extent that is supposed; and I could not be certain, from my own observation, that they are productive of it at all. The fact is, that those who are habitually taking aloetic purgatives are persons with costive bowels, who, as I have already mentioned, are just the individuals most liable to this disease.

The symptoms which are produced by piles differ accordingly as they are internal or external; and also according to the stage of the disease. In the origin of the disease, when the piles exist only in a slight degree, the patient complains of a sense of heat and itching about the anus; and every now and then, when he is costive, the external piles become a little swollen and tender; the internal piles become swollen, also, so as to fill up the cavity of the gut, thus exciting a sensation as though a stick, or some other foreign body, were lodged in it. The external piles sometimes inflame, swell, and become tender, so that the patient can scarcely bear them to be touched, and cannot walk without difficulty. They may continue thus inflamed for some considerable time, and then the inflammation may subside; the piles generally returning to the condition in which they were before the attack of inflammation came on, but not always.

Sometimes an abscess forms in one of these inflamed external piles, and bursts externally. The abscess may be troublesome to heal, but when it is healed it is found that the cavity of the vein is obliterated, and that it is, in fact, cured. Such an abscess as I have

just mentioned must be distinguished from a *fistula in ano;* from which, indeed, it is essentially different, as I shall explain more fully hereafter. Sometimes, when an external pile is inflamed, the blood in it becomes coagulated, and it is then hard to the touch. If under these circumstances you slit open the pile with a lancet, there comes out a mass of hard coagulum, perhaps as large as a pea or a horse bean; the cavity inflames, suppurates, and granulates; the same thing happens as though suppuration had taken place in the first instance, and the pile is obliterated. But if you do not slit open the pile, and leave the disease to take its own course, the cavity being blocked up by the coagulum, the vein becomes obliterated, after which the coagulum is gradually absorbed, and the pile is cured; that which was a pile before being now converted into a flap of skin. Just the same circumstance happens with varicose veins of the leg, where sometimes there is a natural cure, in consequence of the coagulation of blood in the dilated vessels. Sometimes, when a pile is thus distended with coagulated blood, the skin becomes so much attenuated that it gives way in some one point, and the blood being gradually squeezed out, suppuration probably takes place; and the case proceeds just the same as if you had opened the pile with a lancet. It is very common for external piles to undergo a process of natural cure in one or other of the ways which I have now described; and by examining the parts, you may ascertain whether these changes have taken place, as every one of them, after the cure is effected, becomes at last converted into a fold or flap of skin. Thus, if you see a patient with three or four loose folds of skin at the margin of the anus, you may know that these were formerly piles. At first these folds of skin are large, loose, and pendulous, but gradually they become contracted, till at last they give no sort of inconvenience to the patient.

Internal piles, as I have already told you, in slight cases produce heat and itching; and when inflamed, they give rise to a sensation as if there were some foreign body lodged in the rectum. Sometimes they are so much distended, that the gut is incapable of containing them, and they are pushed out through the anus, forming a tumour, which, while it projects externally, is still covered by the mucous membrane of the bowel. When internal piles are large, they always protrude when the patient goes to the water-closet, and afterwards go up spontaneously. If they be larger still, after going to the water-closet they will not return spontaneously, but the patient is under the necessity of pushing them back with his hand. If they be larger still, they come down at other times, especially when the patient is walking, so that he cannot well take any exercise. Sometimes you see one small internal pile permanently protruded, forming a red vascular tumour of the size of the extremity of your little finger. This is painful, and otherwise very troublesome to the patient, by keeping up a great and constant discharge of mucus. Sometimes there is a large protrusion of internal piles for several days, then they gradually become reduced in size, and go back into their proper place above the sphincter muscle. In short, with respect to the protrusion of internal piles, there are all possi-

ble varieties of circumstances: they may protrude occasionally, for a short time, or for a long period; they may be constantly protruded; or there may be a large protrusion at one time, and a small constant protrusion besides. Whenever the protrusion, be it large or small, takes place, there is an abundant secretion of mucus from the rectum; the piles themselves are sore to the touch; the surface is red and vascular; and if you put your hand upon them, you find that you can diminish their size by pressure, but the moment you take off the pressure, they are as large as ever.

In the state which I have now described, internal piles are not unfrequently confounded with *prolapsus of the rectum*—nay, in general, patients, and even most medical men, describe the disease under this appellation; but the term is improperly employed. There is prolapsus of the rectum independently of piles: the disease may even originate in piles, and yet, when once established, it is entirely different from them. In a genuine case of prolapsus of the rectum, the gut itself comes down, sometimes several inches in length. When internal piles protrude, of course that portion of the mucous membrane of the bowels covering them is pushed down, because they could not come down without it; but you will easily understand that this is entirely a different matter from the whole length of the rectum, or even a large portion of it, coming down of itself. The distinction between these two diseases is very important, and you should be careful not to confound them together.

Internal piles, in the state which I have just described, give the patient a great deal of inconvenience; besides which, they are liable to irritate the neighbouring parts—sometimes producing the frequent desire to make water, at other times inducing spasm in the muscles which surround the membranous part of the urethra, so as to cause complete retention of urine. Internal piles in this state are liable to discharge a large quantity of blood; and hence it is that they have their name of *hemorrhoids*. You might suppose that the blood was venous, but it is arterial. Piles do not bleed in the early but in the advanced stage of the disease, when there is an increased determination of blood not only to the veins but to the mucous membrane and cellular texture by which they are surrounded.

The quantity of blood lost from internal piles varies in different cases: sometimes there is a little tinge of blood when the patient goes to the water-closet, and nothing more; at other times a large quantity is lost every time he goes there, so that as much as six or eight ounces are voided daily; and then there are the usual consequences of hemorrhage—the patient is weak, his countenance blanched, and his appetite voracious. I have known cases in which the patient was in danger of becoming dropsical, in consequence of the profuse loss of blood going on for a considerable time.

Inflammation sometimes takes place in internal piles, and ends in suppuration. The patient complains of a little discharge of matter from the anus, and you find, in addition to the mucus, that there is a little yellow stain of pus on his linen; and at first you would suppose there was a common abscess about the rectum, such as produces a *fistula in ano*. But if you introduce your finger into the rectum, you feel a small orifice in one of the internal piles, and if you pass a probe with a light hand, it goes to the bottom of the abscess, which is perhaps a quarter of inch in depth, or thereabout. The parietes of the abscess, however, are very thin and weak, easily broken down, and if the probe be not lightly introduced, it will run through them into the loose cellular texture external to the mucous membrane. The cellular texture also is very loose and yielding, offering scarcely any resistance to the probe, so that it will run in every direction; and hence it is that I have sometimes known a small abscess or internal pile to have been mistaken for a very long sinus. You ought to be very careful not to fall into this error, which you might easily do—nay, in all probability would do—in the first case of the kind that occurred to you, if I did not give you this caution.

I have mentioned that there is sometimes a natural cure of external piles; and I will now state how a natural cure of internal piles may take place also. Where piles of a large size protrude, completely filling up the orifice of the anus, the sphincter muscle is contracted upon them like a ligature, and causes them to become more swollen than when they were first protruded; just as a ligature on the arm makes the veins of the forearm and hand turgid previously to venesection. But the piles may be larger still; the sphincter muscle may contract more powerfully upon them; and then the pressure not only interferes with the return of the venous blood from the pile, but prevents the entrance of arterial blood into it. It acts as a ligature acts in a surgical operation—on a polypus of the uterus, for example. There is not a sufficient circulation in the protruded piles for them to retain their vitality; mortification takes place, sloughing follows, and thus the piles are destroyed. I have known several cases cured in this manner, and there is little or no danger in the process. I have sometimes known medical men to be alarmed at a case of this kind, confounding it with those of mortification from other causes; but the alarm is without foundation. The late Dr. Pearson, who was for a very long period of time physician to this hospital, was the physician of the celebrated Mr. Horne Tooke. Many years ago I was dining with Dr. Pearson, and after dinner he gave an account of Horne Tooke's illness. He said that he had long laboured under piles; that at last mortification had taken place; that there was no chance of his recovery; and he added, that he had that morning seen him for the last time. I remember that in the middle of this history there came a knock at the door, on which Dr. Pearson said, "Here is a messenger with an account of my poor friend's death." However, it was some other message; but by and by a messenger did arrive, saying that Horne Tooke was much the same, or a little better. It turned out, as I have been informed, that the piles sloughed off, and that from this time he never had any bad symptom. In fact, he was, if I have been rightly informed, cured of a disease which had been the misery of his life for many years preceding, and he lived for some years afterwards.

Treatment.—In considering the treatment of piles, we will first suppose that you are consulted when the disease is in its earliest stage. The patient complains of a sense of heat and itching about the anus, and perhaps there is already a slight protrusion of the piles. You may cure him, in general by a very simple process. Keep the bowels gently open; take care that he is not costive on the one hand or violently purged on the other. The best aperient for this case is the following:—One ounce and a half of *confectio sennæ*, half an ounce of *sulphur precipitatum*, and then *mel rosæ*, as much as is necessary to make an electuary, and let the patient take about a teaspoonful, or what he finds necessary, of this, every evening. This is all that is wanted in many cases; but at the same time he should avoid drinking much wine; and if he be of sedentary habits, he should, if possible, alter them, and take exercise. If this should not relieve him, in addition to what I have just mentioned let him inject half a pint of cold water, fresh from the pump, as a lavement, every morning after breakfast, and keep it up as long as he can. This will give him immediate comfort, but it requires to be persevered in for many months; and perseverance in this plan of treatment will sometimes make a cure even of very bad cases of piles. You may, if you please, add something to make the water more astringent, as alum, the *tinctura ferri muriatis*, or the patient may use cold lime-water. A friend of mine, a practitioner at this end of the town, informed me that for many years he had used cold lime-water in cases of piles, with the best result; and I have employed it in several instances lately, in which I think it has been serviceable.

There is a medicine that is very often useful in those cases where these simple expedients fail, namely, the *confectio piperis composita*, which is similar to what was once very celebrated as Ward's paste. It is composed of black pepper, fennel seeds, elecampane, and honey: and the dose is a piece of the size of a nutmeg three times a day. It is like eating coarse gingerbread; it may be a little disagreeable to be taken, but still it may be taken easily enough; and the patient must persevere in its use for a considerable time. Very severe cases of piles are sometimes cured by it. A lady came to me with one of the worst cases of this disease that I ever saw: the piles were so large, and protruded so constantly, that I did not think there was any chance of curing her, except by the operation to be hereafter described, and I advised her to submit to it. She said the piles made her miserable, and she should be very glad to be cured on any terms; but she was compelled to pay a visit in the country, which would render it necessary to delay it for a month. I thought the delay for a month could not hurt her, and under these circumstances I recommended her to give Ward's paste a trial, and see what it would do for her. I heard nothing more of her for six or eight weeks, when she came back, and said she was happy to inform me that she had taken the paste regularly, and was now quite well. It is of no use to take this remedy for a week, a fortnight or a month; it must be persevered in for two, three, or four months.

How does the Ward's paste operate? I know a case in which

a patient, labouring under stricture of the rectum, had indiscreetly taken an immense quantity of Ward's paste, and in which the colon was found quite full of it after death. It is evident, that, except any small portion which may be digested, the Ward's paste passes into the colon, and that it must become blended with the feces; and I suspect that thus coming in contact with the piles, it acts upon them as a local application; much as *vinum opii* would act upon the vessels of the conjunctiva in chronic ophthalmia.

In confirmation of this view of the *modus operandi* of Ward's paste, I may mention an observation of the late Sir Everard Home. He had a patient labouring under piles, and he recommended him to take Ward's paste. The patient, little thinking that something put into the stomach was to cure disease in the rectum, crammed as much as he could bear of it up the rectum. I dare say it gave him a great deal of inconvenience, but, as Sir Everard Home reported, it cured him; and Sir Everard said that since then he had used it as a local application in some other cases, with manifest advantage.

I mentioned that a patient with stricture of the rectum had indiscreetly taken a large quantity of Ward's paste, and that the remains of it were found distending the colon after death. I recall your attention to this circumstance now, because it will serve to impress upon your minds the necessity of always giving the patient some gentle aperient occasionally at the time that the Ward's paste is being taken. This is not the only medicine of this description which may be used in cases of piles. Cubebs pepper, a scruple three times a day, may be given with advantage; it operates, I suppose, in the same manner as Ward's paste. In some cases of this disease, where there is a great deal of irritation, the patient will derive benefit from copaiva combined with caustic alkali; half a drachm of balsam of copaiva, with fifteen drops of *liquor potassæ*, may be rubbed down with two or three drachms of mucilage and cinnamon water, and taken three times a day. This answers a very good purpose, soothing the piles, and keeping the bowels gently open at the same time.

If you are called to a patient when the external piles are inflamed and swollen, your best way is to make him remain quiet in the horizontal posture, which takes the weight of the column of blood off the piles. You may, if you please, apply leeches in the neighbourhood, but not on the piles themselves, for the leech bites will cause them to become inflamed, and to fester; or, if the piles be much distended, you may puncture them with a needle. Acupuncture, on the whole, relieves the patient more than the application of leeches; and there are these advantages in it, that the puncture of the needle does not cause the piles to fester, and that the relief is immediate. By puncturing them in several places you let out a large quantity of venous blood, and the benefit arising from this is great. Besides this, you may keep a piece of rag constantly applied to the part, wetted with some cooling lotion; and the patient should take some gentle aperient, active purgatives being avoided.

When internal piles are inflamed, swollen, and protruded, you should try first of all to push them back into the gut. Take a cam-

bric handkerchief, or a soft old linen rag, squeeze out the blood from the piles, and if you can, return them into the bowel, it is so much the better; it will relieve the patient very considerably. But if you cannot push them up, or if, when pushed up, they immediately come down again, you should then keep the parts wet with a rag bathed with a cooling lotion, let the patient remain in the horizontal posture, and keep the bowels gently open, without purging. Here, also, as in the case of external piles, the patient will derive much benefit from acupuncture in several places. Punctures made with a needle, neither on this nor any other occasion, so far as I know, occasion inflammation or any other inconvenience; they evacuate the blood, relieve the tension and swelling, and do a great deal of good without any harm.

The observations which I have now made relate to the treatment of piles under ordinary circumstances. In more aggravated forms of the disease the patient must be relieved by other methods; but I must defer the consideration of the operation for piles till the next lecture.

LECTURE XXXV.

ON HEMORRHOIDS, (*continued.*) ON PROLAPSUS OF THE RECTUM. ON EXCRESCENCES OF THE RECTUM.

Different methods have been proposed for destroying hemorrhoids by operation: some surgeons have practised and recommended that by excision, while others have preferred the removal of them by ligature; others speak of the ill consequences attendant on each of these modes of operating.

It appears to me that the question respecting the operation and the proper rule of treatment has been very distinctly and correctly laid down by Sir Everard Home, in a paper on that subject, at the end of his work on Ulcers of the Legs. He states the matter thus:—That external piles which are covered by the skin ought not to be removed by ligature; if they are removed at all, it ought to be by excision. On the other hand, internal piles which are covered by the mucous membranes, ought, *for the most part*, to be removed by ligature. In short, the ligature is applicable generally in cases of internal piles, and excision to those which are external. The grounds of this distinction are as follow:—The application of a ligature to external piles gives the patient extraordinary pain at the time, and afterwards excites much inflammation, swelling, and disturbance of the general system; whereas, if they be removed by excision, these ill consequences are avoided. After the excision of *external* piles, there can be no danger of hemorrhage, because the parts are entirely within your reach, so that the bleeding vessels can be easily secured; and

though some little inflammation may supervene on the operation, yet it is not sufficient to be of any real consequence. If, however, you remove large *internal* piles by excision, there may be copious and even dangerous hemorrhage, since the parts which bleed are out of reach, above the sphincter muscle, where you cannot expose the cut surface, so as to be enabled to take up the bleeding vessel. On the other hand, the application of a ligature to internal piles in general causes but little pain, and only a slight degree of inflammation follows, for the mucous membrane has nothing like the sensibility of the skin, and does not resent an injury in the same manner. With respect to internal piles, then, there is no objection to the use of the ligature, while there is the greatest objection to their simple excision. This is the doctrine which I was taught by Sir Everard Home in this hospital when I was a student. But I met with a copy of Mr. Cline's Lectures on Surgery, in which he stated that he removed internal piles by excision; and this observation was added—"a timid surgeon removes them by ligature." Knowing Mr. Cline to be a very cautious practitioner, I thought that in what he recommended there could be no kind of danger, and for some time, therefore, I was led to follow his suggestion. In the first one or two cases I found no inconvenience to arise from my altered practice; but then a case occurred in which the patient lost a great deal of blood; in another case, the hemorrhage was so great that the patient nearly died; and then a third case occurred, in which also the patient lost an enormous quantity of blood —so much, that I now only wonder that he did not actually die. Since then I have never removed large internal piles except by ligature.

The removal of external piles is very seldom necessary: they are generally complicated with internal piles; and if you cure the former, the latter, which are a continuation of the same veins, will be cured also. However, there are cases in which it is right to remove external piles by excision. For example, where they are enlarged and inflamed, so that it will take a great deal of time to subdue the inflammation, and the patient is all the while suffering pain, he may be relieved at once by two or three snips of the curved knife-edged scissors. Or if an abscess has formed in an external pile, which bursts, discharges, and closes at the orifice, then bursts and discharges again, it may be worth while to cut off the pile and the abscess with it.

The excision of external piles is easily accomplished by means of the scissors which I have just mentioned. You take hold of the pile with a double tenaculum, elevate it a little from the base, and then snip it off. If there be a little artery bleeding considerably, you take up the vessel as you would on any other cut surface.

I have said that internal piles are to be removed principally by ligature. You will observe I do not say they are *never* to be removed otherwise. The fact is, that when internal piles are small, it is not worth while to tie them; and they may under these circumstances be excised with perfect safety. Such a case as this will frequently occur: —a patient complains of symptoms of internal piles; he has always pain about the anus, and a discharge of mucus. You examine the

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parts, and find a pile, not larger than the end of your little finger, covered with the mucous membrane of the bowel, protruded, and, as it were, sticking in the orifice of the anus. You take hold of it with a double tenaculum, apply the scissors to the base, and no kind of inconvenience follows the operation. But whenever there are large internal piles, which protrude either constantly or occasionally, you ought not to venture to remove them except by ligature. In performing the operation by ligature, the first thing is to get the piles well protruded. For this purpose, you may make the patient sit over a pan of hot water, which will relax the sphincter muscle, and at the same time cause the veins of the rectum to become filled with blood. If this be not sufficient, let the patient have a pint or two of warm water thrown up as an enema; and when that comes away the piles will probably descend with it. The piles having been by these means brought properly into view, you may let the patient lean over a table, or lie on one side in bed, with his knees drawn up, the nates being held apart by an assistant. Each separate pile must be separately tied. If the pile be of a very small size, you may just take it up with a double tenaculum, draw it out, and tie a ligature round its base. But if the piles be of a large size, you should proceed in the following manner: have a large curved needle, armed with a strong double ligature; pass the needle, carrying the ligature after it, through the base of one of the piles, and then cut off the needle. The double ligature is now divided into two single ligatures, which are tied round the base of the pile, one on one side and the other on the other side, with a single knot. Treat all the piles in this manner; and as the ligatures are applied, let your assistant draw the several threads out of your way, holding them over the nates. When each of the piles is secured in this manner (and there may be two, three, four, or five, to be thus treated), you then proceed to another step of the operation: cut off the convex portion of each pile, so as to make an opening into the cavity of the convoluted vein which forms it. Thus you take off the tension produced in the pile by the blood which it contains, and are enabled to draw the ligature tighter than before. It should be drawn as tight as possible. As the ligature is tighter, so there is less pain afterwards; so also the slough separates sooner, and the more expeditious is the cure. You have now only to complete the double knot upon each of the ligatures, and cut off the threads close to the knots, returning the piles, ligatures and all, into the rectum. It is a very simple operation; and except when the piles are in a state of inflammation, attended with but little suffering. You are to take care, in performing it, to keep all the ligatures clear of the external parts; for if they include any of the skin, the patient suffers a great deal of pain, and much inflammation will supervene. I generally give a pretty active dose of rhubarb the day before the operation, so that the bowels may be well emptied, and that the patient may afford to go for two or three days after the operation without having an evacuation.

It very seldom happens that inflammation or fever follows the use of the ligature, and the threads generally separate at the end of a

week,—not that I look for their separation, for it is of no consequence whether they come away a day sooner or a day later. I never trouble my head about the ligatures after they have been once applied; but if you choose to look for them, this is the time at which you will find that they usually come away.

But the patient must now take measures to prevent a recurrence of the disease. For this purpose, when there has been time for the sores left after the separation of the ligatures to have healed, I recommend him to take some lenitive electuary and sulphur every night, so as to keep the bowels gently open, and to use a lavement of cold water every morning.

I conceive that this is not only one of the most effectual, but one of the safest operations in surgery. I should think I must have performed, or seen it performed, between 200 and 300 times. I saw one patient who died after the operation, in consequence of diffuse inflammation of the cellular membrane running up on the outside the gut as high as the mesentery; but that was a patient whose constitution was broken down by long-continued hemorrhage, and in whom any slight accident might have produced equally bad consequences. I saw another patient, who, a week after the operation, and having been quite well in the interval, had an attack of pain in the abdomen, and shivering attended with fever, and died. I was not allowed to examine the body after death. I could not make out at the time that the symptoms had any connection with the operation, nor do I believe that they had; but I mention the case because, as the body was not examined after death, I have no certain knowledge on the subject.

With the exception of these two cases, out of all the 200 or 300 patients whom I have known treated in this manner, I never knew any ill consequences to arise. I contend, then, that the operation is as safe as any operation can be expected to be. You are not to suppose that even the slightest operations in surgery are absolutely, in all cases, free from every particle of danger, any more than the slightest accident. I have known two patients die after the extraction of a tooth, and I have known several die in consequence of venesection at the arm, or an accidental prick of a finger. The chance of danger from this operation at any rate is so trifling that you need not calculate upon it. If you were to calculate upon so small a chance as this, you would scarcely be able to do anything in the common affairs of life.

Supposing a person has piles which come down when he walks, which are constantly teasing him in this way, and yet he cannot make up his mind to submit to an operation, or that there are any circumstances that lead you to think it better not to have recourse to it, still you may do something for his relief. There is a machine made for the purpose of supporting the bowel, and preventing the protrusion of the piles. It is sold under the name of a truss for the *prolapsus ani*, the makers of it confounding, as I have told you is often done even by surgeons, internal piles with prolapsus of the rectum. It is made with a spring which fits round the pelvis, and so far resembles a spring truss for a hernia; but at the back part, fixed at right angles

to the circular spring, there is another spring which descends behind the sacrum, taking the course of that bone, and terminating below in a pad, which rests on the anus. The elasticity of the spring supports the pad, keeps it pressed against the anus, and prevents the protrusion of the internal piles.

PROLAPSUS OF THE RECTUM.

I have just observed, that it is very common to confound *prolapsus of the rectum* with internal piles. This error is committed not only in common conversation, but by surgical writers; and hence it is that no good account, so far as I know, has ever been published of the first-mentioned disease. But the difference between internal piles and real prolapsus of the rectum is this: in the protrusion of the former, the mucous membrane covering them descends, and may be seen below the anus; but it is only the mucous membrane; there is no descent of the muscular tunics; whereas, in the latter, the whole of the rectum comes down, and sometimes as much as twelve inches in length. I have never dissected a case of prolapsus of the rectum; but it is impossible to examine a genuine instance of this displacement in the living person without being satisfied that the muscular tunic is protruded, as well as the mucous membrane. There being such a marked difference between prolapsus of the rectum and internal piles, nothing can be more absurd, or unscientific, than to confound these two diseases with each other.

It is not remarkable that the whole of the tunics of the rectum should sometimes protrude in this way. Look at what happens to the bowel above. Do you not find one portion of it slipping into another in the case of intro-susception? and prolapsus of the rectum is just the same thing. If one portion of bowel slips into another, why should not the rectum slip out at the anus?

Prolapsus of the rectum occurs most frequently in children, and especially in those with large tumid bellies and costive bowels, where the whole mass of the intestine becomes too large for the cavity which contains it. Simple dissection will inform you why children are more liable to this disease than grown-up persons; it is because the prostate gland, urethra, vesiculæ seminales, and all these parts, are not so much developed as in the adult. The attachment of the rectum to the surrounding parts does not extend so high in children as in persons of mature age, while the reflection of the peritoneum takes place lower down, and hence the rectum is more liable to be pushed out.

In adults prolapsus of the rectum sometimes occurs as a consequence of piles. The patient having been liable to the protrusion of internal piles, and the sphincter muscle having been thus continually dilated, the rectum is more liable to slip out, as you may well suppose, than it would be if this dilatation had not taken place. However, in grown-up persons the disease is comparatively rare. I see it every now and then, but very seldom; and where you meet with it in the adult, it has generally begun in early life.

When prolapsus of the rectum is combined with internal piles, you will see the latter at the upper part of the prolapsus—that is, close to the orifice of the anus, forming a zone around the gut; and the colour and appearance of the mucous membrane covering the protruded piles are altogether different from that of the membrane covering the rest of the gut.

The inconvenience which the patient suffers from prolapsus of the rectum varies very much in different cases. Sometimes it comes down occasionally after a costive motion only, and is easily pushed up; and when pushed up it remains in its place till some accidental circumstance brings it down again. In other cases you return it, but the moment the patient begins to walk about, down it comes again; and in instances of long standing, the bowel becomes so fixed in its unnatural position, that you cannot return it by any means, and then other inconveniences follow. The rectum having been constantly protruded, becomes inflamed from friction, ulcerated, sore, tender, painful; and where the protrusion has existed for a long time, you will find it covered by a kind of cuticle.

Treatment.—When you are called to a child labouring under prolapsus of the rectum—and these are the cases that you most frequently meet with—you will almost invariably relieve him in the following manner:—Purge him with calomel and rhubarb occasionally; be very careful about his diet, that he does not eat a great quantity of vegetable substance, which tends to fill up the cavity of the bowel, while it affords but little nourishment; and every morning let some astringent injection be thrown up. The injection which I have generally used is a drachm of tinct. ferri muriatis, in a pint of water; and two or three ounces, or more, of this, according to the age of the patient, may be injected into the rectum every morning, the child being made to retain it as long as possible. I never saw a case of prolapsus of the rectum in a child, which was not cured in this manner.

If you are consulted about an adult labouring under this disease, and it has been consequent on a protrusion of piles, the first thing to be done is to destroy the piles. Let the patient sit over a pan of hot water, and the sphincter muscle being relaxed and the parts distended with blood, the piles and rectum will all protrude together: you must then tie the piles, which you can easily do, your assistant holding the rectum on one side, while you apply the needles and ligatures on the other. Having tied the piles, you return the rectum into its proper place; and you will probably find, that in curing the piles you have also remedied the prolapsus of the bowel. But if the patient neglects himself afterwards, as the piles return so the prolapsus returns with them.

Where the disease is not complicated with piles, in those cases which occur occasionally in which prolapsus of the rectum has begun in early life, and has continued to adult age, the cure is very difficult and perhaps impossible. The patient must be retained in the horizontal posture, for then the rectum is much less likely to protrude than when he sits up: he ought not to sit up even for an evacuation,

but should have a bed-pan. Whenever the rectum protrudes, it should be pushed up again; an astringent injection should be employed daily, and the patient should be put through a course of Ward's paste. This plan affords him the best chance of a cure which he can have, but I will not say that it will always be successful. I remember trying it for a great length of time in a woman in the hospital, and, after lying many weeks in bed, when she got up the rectum came down as before; nay, it came down sometimes when she was in bed, even in the horizontal posture. In these cases, however, you may employ with advantage the truss for prolapsus of the rectum, which I mentioned as applicable chiefly to bad cases of internal piles. There was a patient in the hospital (a soldier) who had, I suppose, eight or ten inches of the rectum constantly protruded, and it could not be returned. After trying various means for a length of time, he left the hospital as bad as when he came in, and I do not know what became of him. It occurred to me afterwards, that in such a case as this it might be advisable to apply ligatures, and then cut off the protruded gut; for though the disease is not immediately dangerous, yet it must be regarded as ultimately so; and it might be worth while for the patient to run some risk at the time, for the chance of subsequent cure. I do not know that such an operation has ever been performed; but is it not deserving of consideration whether we ought not to have recourse to it in certain cases? There is a natural cure of bad cases of intro-susception, the analogy of which is in favour of the practice which I have just suggested. In the cases to which I allude, one portion of gut being protruded into another, the protruded portion is constricted by the edge of that into which it has passed; the circulation in it is stopped, and it sloughs away as if a ligature had been put round it. In this manner a portion of gut, eight or ten inches in length, has sometimes come away, and the patient has lived and done well afterwards. Several cases of this kind are on record; and I once had an opportunity of dissecting a patient who died when the sloughing process was taking place. If such an operation as I have proposed were to be had recourse to, the gut must be included in several ligatures, so that the orifice of it may not be obstructed, as it would be by a single one.

EXCRESCENCES OF THE RECTUM.

Excrescences of various kinds take place on the inner surface of the rectum, which patients are very apt to mistake for piles. Here is one [presenting a specimen]—a sort of polypus. It is, as you see, of a small size, but I have seen them as large as the finger. It seems to be of the same structure as the polypus of the uterus. This kind of excrescence is by no means uncommon. Sometimes there is a single one; at other times there are two or three growing from the mucous membrane. In some instances they occasion the patient scarcely any inconvenience, while in others they give rise to the most extraordinary suffering. What is it that makes this difference? The

patient suffers in those cases in which the excrescence comes down when the bowels act, and gets pinched by the sphincter muscles. Under these circumstances it is liable to become ulcerated, and then the pressure of the sphincter ani always induces excessive pain, which continues not only till the excrescence recedes, but for some time afterwards. A lady sent to me, complaining of what she called very bad piles. On examining the rectum, I discovered a little polypous excrescence, in a state of ulceration, sticking in the sphincter muscle. I took hold of it with a pair of forceps, and snipped it off with the scissors. She felt hardly any inconvenience from the operation, but, to her surprise, though she had been enduring a great deal of pain, and had been miserable for months, from this moment she was well. A lady, not long since, came to my house, from a distance in the country, in whom most severe sufferings were occasioned by one of these polypi being ulcerated and entangled in the sphincter muscle. I immediately snipped it off; she was completely relieved; went home, I believe, on the same day, and I have no doubt has been quite well ever since.

Excrescences of the rectum sometimes take place, of a large size, which are not of a malignant nature, such as you see here [exhibiting a preparation]. This I removed from an old lady, 80 years of age. She sent to me, complaining of pain about the rectum, and hemorrhage. I thought there were probably internal piles, and that it was not worth her while, at so advanced an age, to go through any operation, and I prescribed her some trifling medicine. She sent to me again, to say that she had lost a great deal of blood, and could not pass an evacuation from the rectum without the greatest difficulty. I introduced my finger and found a large excrescence, of which this specimen is only a portion. It seemed to be a matter of necessity that something should be done for the patient's relief: I therefore introduced my fingers into the rectum, gradually dilated the sphincter muscle, took hold of the excrescence, pulled it down, tied a ligature round its neck, and then snipped it off below the ligature. No harm followed the operation; the patient was perfectly relieved, and lived some two or three years afterwards. I believe the excrescence returned before death, but still she suffered no inconvenience from it.

These excrescences [presenting a fourth preparation] were, I believe, originally external piles, and they are not very uncommon. I mentioned in the last lecture, that when the cavities of external piles become obliterated, they generally form flaps of skin, which gradually waste; but sometimes diseased action takes place in them, and they become converted into excrescences similar to those which grow from the nymphæ of women. They are generally connected with dirty habits: the parts get irritated by the dirt, and so the piles become converted into these excrescences, into which they would not be converted in a more cleanly person.

LECTURE XXXVI.

ON PRETERNATURAL CONTRACTION OF THE SPHINCTER ANI. ON ULCER ON THE INSIDE OF THE RECTUM. ON STRICTURE OF THE RECTUM.

The orifice of the anus, as you know, is closed by the sphincter muscle. The ordinary condition of this muscle is that of being contracted, and thus it prevents the involuntary discharge of feces from the rectum. In the expulsion of the alvine evacuations, the effort of the abdominal muscles and diaphragm is always attended with a relaxation of the sphincter muscle, in consequence of which the contents of the bowels are allowed readily to escape. If this consent and sympathy between these different muscles did not exist—the whole of them being in a state of contraction at the same time—the feces would be expelled with very great difficulty and distress to the patient, or not at all. Now it happens that this state of things sometimes actually exists, and the result is precisely what I have mentioned. The contraction of the sphincter at first appears to be merely spasmodic, without any other change of its condition; but you know, that in proportion as muscles are called into greater action, so they become increased in bulk; and, in conformity with this general rule, when spasmodic contraction of the sphincter muscle has existed for a long time, the muscle becomes considerably larger than it was in its natural state before the disease existed.

This disease is not of uncommon occurrence. It is met with chiefly in women, especially those who are disposed to hysteria. It is, however, met with in other women, and sometimes in the male sex.

The patient, under these circumstances, is forced to strain very much in passing her evacuations; and this is especially the case when the feces are hard, or even solid. There is pain not only when the feces are being passed, but for a very considerable length of time afterwards; and in some cases the pain will remain from the period of one alvine evacuation to that of another; so that it is constant, or nearly so. It is remarkable what misery some persons suffer under the circumstances which I have just described.

In connection with spasmodic contraction of the sphincter muscle, you will frequently find a small ulcer of the mucous membrane of the rectum. This ulcer is always in a particular spot, at the posterior part, opposite to the point of the os coccygis. I imagine that it arises from the mucous membrane there being torn by the pressure of the hard feces, at the time that the evacuation is labouring, as it were, to get through the contracted orifice of the anus. Such an ulcer as I have just described adds very much to the patient's sufferings; it is always excessively sensitive; the least pressure of the finger upon it occasions the patient the greatest pain, and the pressure of solid feces produces the same effect.

An ulcer of this kind is met with in some cases independently of disease of the sphincter muscle; but to that I shall advert hereafter.

Treatment.—When the patient does not suffer excessively from this disease, you may sometimes relieve her in the following manner:—Give her purgative medicine, so that she may never have hard or figured evacuations, and let an opiate suppository be introduced at night. I have formerly used a suppository with extract of belladonna, with manifest advantage; but I own that I am not in the habit of frequently employing this remedy. Even used in the form of a suppository, the belladonna sometimes produces very serious symptoms, by its influence on the brain. In addition to what I have mentioned, the patient may introduce a bougie into the anus, to dilate the orifice of the bowel, each time before she goes to the water-closet.

These remedies, however, are of no avail in bad cases of this disease; and then it is absolutely necessary to resort to some more certain means of cure. It may always be relieved by a simple operation—the division of the sphincter ani muscle. You introduce a straight probe-pointed bistoury into the anus, and cut through the fibres of the muscle, taking care not to penetrate beyond them. The fibres are of considerable thickness, and you cannot cut them through at one incision, nor should you attempt it; the knife must be drawn across the muscle two or three times before the operation is completed. It is generally sufficient if you divide the muscle on one side. It is better to divide it laterally than either in the posterior or anterior direction. The wound does not readily heal if the division be made towards either the perineum or the os coccygis; nay, more than that, if in the female you divide the muscle towards the perineum, and consequently towards the vagina, you make the patient miserable for life, for there is incontinence of feces ever afterwards; whereas, if you divide it in any other direction, this inconvenience is altogether avoided after the wound is healed.

The operation of dividing the sphincter muscle is not very painful, except in those cases where the disease is complicated with ulcer at the back part of the rectum; neither is there ever any hemorrhage of consequence, as the pressure of the finger, or a plug of lint, will always command it. The relief is immediate; and the very next time that the patient has an evacuation, there is an end of all the pain and difficulty which she suffered before. It is better, however, that she should not have an evacuation immediately after the operation, and therefore I generally give her an active purgative on the preceding day, and some opium afterwards to keep the bowels constipated. After two or three days castor oil may be exhibited, and the bowels opened. The wound requires very simple treatment; a little dressing of lint may be applied to it till it is cicatrized; and cicatrization is generally completed in about three weeks.

No inconvenience whatever follows the division of the sphincter muscle, except it be made, as I have mentioned, in the female, in

the direction forwards. The patient retains her feces as well as ever, and yet the difficulty of voiding them is relieved. All the symptoms, so far as I have seen, are permanently removed. I have performed this operation of dividing the sphincter muscle for this disease, and in other cases, a great many times; and I have been accustomed to say that it is an operation free from danger; but, after all, there is no operation in surgery, not even the slightest, of which we can assert this as a general proposition, or as one to which there are absolutely no exceptions. The utmost that we can venture to say is, that the probability of any bad result is so small, that we ought not to calculate on it; and that if we were to calculate on such chances in the common affairs of life, we should do nothing. I have known two instances of persons dying after the extraction of a tooth; I have known others die in consequence of being bled in the arm, or of erysipelas occurring after being cupped. I have known the bite of a leech, and the sting of a wasp, and the prick of a pin, to prove fatal; and I have lately had the misfortune of losing a patient after the division of the sphincter ani muscle. The case occurred in a lady of a peculiarly susceptible nervous system. Immediately after the operation she fell into what might be called a state of hysterical syncope, from which she did not recover until after the lapse of three or four hours. She died at the end of a week, with inflammation of the pleuræ and peritoneum, which had caused a very large effusion of turbid serum into the cavities of the chest, and a smaller effusion into that of the abdomen also. There was no inflammation of the rectum, nor of the cellular membrane or other textures in immediate connection with it; and it was evident that the pleuritic and peritoneal inflammation had not extended from the part on which the operation had been performed, but that it had been the result of the impression made on the system generally. I cannot so well compare the case to anything, as to one of puerperal fever.

ULCER ON THE INSIDE OF THE RECTUM.

The ulcer which occurs in connection with a contracted sphincter muscle, in some instances exists independently of it. You may discover it on the posterior part of the rectum, opposite to the point of the os coccygis; and, as I have already stated, it occurs, for the most part, in persons who have costive bowels and hard stools, the mucous membrane being under these circumstances lacerated by the pressure of hard evacuations. When once produced, the ulcer is very difficult to heal, and very frequently it goes on spreading till it becomes of considerable size. It is a superficial ulcer, of exquisite sensibility, and great pain is always produced by the passage of the feces over it, lasting for a considerable time after each evacuation. In some instances, considerable hemorrhage takes place from an ulcer of this kind.

Treatment.—The ulcer is always cured by a division of the sphincter muscle. This, however, is not always necessary, unless

the muscle be actually contracted. Mr. Copeland has observed, that when there is a simple ulcer, the mere setting of the mucous membrane at liberty, by dividing it longitudinally, so as to include the ulcer in the incision, is sufficient to effect a cure. I have known this to succeed in several instances, and I believe that it is Mr. Copeland's ordinary practice. However, a cure may be obtained, in many instances, without an operation of any kind, by means of the conf. piperis compos., or Ward's paste, given internally (the bowels being at the same time kept gently open by the use of lenitive electuary and sulphur, or some other simple aperient). Ward's paste may be applied locally also. I had a case, not long since, in which the patient was unwilling to submit to the division of the mucous membrane, and where she got well under the use of suppositories of Ward's paste and soap. A piece of this, blended with soap, was introduced into the rectum twice a-day, gentle aperients being exhibited at the same time, so as to prevent her having hard evacuations.

STRICTURE OF THE RECTUM.

Under the appellation "stricture of the rectum," various diseases have been confounded with each other—some malignant, and some not malignant; but I am going to speak now of that stricture or contraction of the gut which does not partake of a malignant character. Malignant diseases of this organ will be considered in another lecture.

Here is a specimen [presenting it] of stricture of the rectum. On dissecting a case of simple stricture of the rectum, I have found the mucous membrane thickened, of a harder structure than natural, and the muscular tunic thickened also. The stricture sometimes occupies the whole length of the gut, for some way up above the anus—perhaps three or four inches, as in the specimen just shown you; at other times it is only of short extent. Frequently the gut is of its natural diameter close to the anus, and about an inch and a half or two inches above it there is a circular contraction, and then above that the gut is of its natural diameter again. Although the contraction may occupy only a small portion of the length of the rectum, yet the disease of the tunics is generally more extensive. Thus, if there be a contraction of the gut two inches above the anus, you find the mucous membrane between the stricture and the anus thickened, and in an unhealthy state; and on passing the finger through the stricture into that portion of the gut above it, you will find the mucous membrane in this situation in an unhealthy state also.

The disease occurs in either sex: in adult persons more than in children. It comes on gradually. The patient finds a little difficulty in passing the evacuations; then the difficulty becomes greater; he is forced to strain when at the water-closet, especially if the feces be hard; and at the same time the feces are observed to be of a very

small diameter. The constant straining against the stricture causes the diseased part to become inflamed, and then the evacuation is attended with a great deal of pain, there being also a discharge of mucus constantly dribbling from the anus, and staining the patient's linen of a brown colour. As the disease advances, some parts of the mucous membrane ulcerate. This causes the pain to be much aggravated, there being then a discharge not only of mucus, but of blood and pus from the anus. If the disease proceeds still farther, inflammation takes place in the cellular membrane around the gut; putrid abscesses form, which burst in various situations at every side of the anus, into the urethra in men, and occasionally in women into the vagina. These abscesses are probably formed in the following manner:—ulceration takes place of the mucous membrane, and of the muscular tunic of the gut, in consequence of which a very small communication is formed between the cavity of the rectum and the cellular membrane in the neighbourhood; then some small portion of the contents of the bowel escapes into the cellular membrane, inducing inflammation and suppuration, the admixture of a little feculent matter causing the contents of the abscess to be putrid. In some instances the patient dies with symptoms of strangulated hernia—that is, a piece of hard feces is lodged above the stricture, and cannot pass through it; thus there is a mechanical obstruction to the passage of the feces; the belly becomes tympanitic, the tongue dry; there is sickness, vomiting, and the other symptoms indicating strangulation. He may have one of these attacks, and, by means of injections and the use of the bougie, may recover; he may have a second, and recover from that; and then he may have a third, which may prove fatal. In the most advanced stage of this disease, independently of these attacks, the patient suffers much in his general health, loses flesh, perspires at night, his digestion is deranged, he is emaciated and hectic, and thus gradually becomes exhausted.

The progress of the disease, which I have thus described in a few words, is, however, lingering and tedious. The patient may die, even where no remedies are employed, after ten or twelve years of inconvenience first, and of suffering afterwards. In some cases, under a judicious treatment, although the disease cannot be cured, it may be much mitigated, and may never prove fatal.

Treatment.—When you are called to a patient with stricture of the rectum, you should first make an examination with the finger, so as to ascertain exactly where the stricture is situated, how high up it extends, and how much of the gut is included in it. If the stricture be not in a very irritable and tender state, the patient may at once derive benefit from mechanical dilatation by the use of a bougie. You will ascertain the diameter of the stricture with the finger as nearly as you can do so, and introduce a bougie, of proper size, through its orifice. The bougie must be allowed to remain in the stricture five or ten minutes, or in some cases for a longer time; and the operation must be repeated every day, or every other day, according to circumstances. In this manner you will gradually be enabled, in the early stage of the disease—I will not say to restore

the gut to its natural diameter—but to dilate the stricture so much that the evacuations may be readily discharged, and that the patient may suffer but little inconvenience from it. I saw not long since a lady, respecting whom I had been consulted about three or four years previously. At that time the stricture was so great, that I could introduce only a small urethra bougie. I directed her to commence a course of bougies, which her medical attendant introduced for her. They were very gradually increased in size; and when I last saw her the stricture would admit one of very large diameter; and she experienced no more than the slightest inconvenience from the complaint. Here, as in cases of stricture of the urethra, the use of the bougie must be continued. If it be neglected, the stricture will return and be worse than ever.

In some cases of this disease you may facilitate the process of cure in the following manner. In the cases to which I allude, the stricture is situated about two inches above the anus, and occupies only a small portion of the length of the gut. It forms a circular band, embracing the finger, as narrow as a cord. A stricture of this kind may be divided in two or three parts of its diameter, before you begin the use of the bougie, in the following manner:—Introduce a *bistouri caché*, and let the screw be so adjusted that the blade may be opened about the sixth of an inch, but certainly not more than a quarter of an inch. The *bistouri* must be introduced with the blade shut; then press on the handle, open the blade, and, drawing it out, you nick the stricture first in one part of its diameter, then in another, and then in a third. This being done, a larger bougie may be introduced than could be done before, and the process of cure is very much expedited.

But in a great number of cases where the disease is far advanced (and, generally speaking, you are not consulted till that is the case, especially in hospital practice), you cannot resort to the use of the bougie in the first instance, or, if you do, it must be employed in combination with other remedies. It will be necessary to lessen the irritability of the bowel by the introduction of an opiate suppository every night, a gentle aperient being taken in the morning. The patient may take a combination of caustic potass with balsam of copaivi; half a drachm of balsam of copaivi, fifteen minims of the *liq. potassæ*, three drachms of mucil. gum arabic, and about nine drachms of carraway water. A draught of this composition may be taken three times a day with very great advantage. Mr. Bryant, a respectable practitioner in the Edgeware Road, two or three years ago recommended to me a decoction of *achillea millefolium*, which I have employed in some of these cases with manifest advantage. About two ounces of the *achillea millefolium* may be put into a pint and a half of water. This may be boiled down to a pint, of which a patient may take a wine-glass three times a day. The *achillea millefolium* is sold at the herb shops in Covent Garden; it is not in the Pharmacopœia, although it has been always a popular remedy.

Where abscesses have formed in the neighbourhood of the gut, it is of no service to lay them open. I have told you on many occa-

sions, that if abscesses are connected with diseased structure, they are not likely to heal; and you only make the patient worse by laying them open, there being, of course, a much greater extent of raw surface after the operation than before. If these abscesses are to be healed at all, it can only be after the stricture has been fully dilated.

In some cases the feces accumulate above the stricture, the bowel in this situation becoming distended into a large bag, forming an immense reservoir of feculent matter, always pressing against the stricture, and aggravating the disease. It is very important to empty the bowel which is thus loaded; and you can only do it in the following manner:—Introduce an elastic gum catheter through the stricture into the feculent mass above; inject tepid water, or tepid soap and water, or a weak solution of caustic alkali; and by repeating this operation, and washing out the gut with warm water every day, or every other day, you may at last get the whole of the feculent accumulation dissolved, and empty the reservoir. When this has been accomplished, the injection of warm water should be constantly repeated, so as to prevent the accumulation taking place again.

In some cases of stricture of the rectum, I have thought that the patient has derived benefit from the application of mercurial ointment to the inside of the gut, which is easily managed in the following manner:—Let the bougie be covered with lint smeared with mercurial ointment: the bougie thus anointed must be allowed to remain in the stricture for a few minutes daily.

Your success in the management of this disease will vary very much in different cases. It will depend chiefly on the period of the disease at which you are consulted. If it be quite in the early stage, you may render the patient great service; and although you cannot cure stricture of the rectum any more than you can cure stricture of the urethra, yet you can dilate it, and keep it dilated, so that the patient will suffer little from it, and that it will not shorten his life. But if you are consulted in the advanced stage, when the stricture is much contracted, when the mucous membrane is ulcerated, when abscesses have formed in the neighbourhood, you can only palliate the symptoms in some degree. The patient, under these circumstances, in spite of all your efforts, will lead a miserable life, and in all probability will ultimately fall a victim to the disease.

Strictures of the rectum are commonly situated in the lower part of the gut, within the reach of the finger. Are they ever situated higher up? I saw one case where stricture of the rectum was about six inches above the anus; I saw another case where there was stricture in the sigmoid flexure of the colon, and manifestly the consequence of a contracted cicatrix of an ulcer which had formerly existed at this part. Every now and then, also, I have heard, from medical practitioners of my acquaintance, of a stricture of the upper portion of the rectum, or of the sigmoid flexure of the colon, having been discovered after death. *Such cases, however, you may be assured, are of very rare occurrence.* Inquire of anatomists who

have been for many years teachers in the dissecting-room, or of surgeons who have witnessed a great number of examinations in the dead-house of an hospital, and they will bear testimony to the correctness of what I have now stated.

Nevertheless, an opinion has of late years prevailed among some members of our profession, that a stricture high up in the rectum is a very frequent cause of constipation of the bowels; and I have known an almost incredible number of persons who have been treated on the supposition of their labouring under such a disease, by the introduction of long bougies into the bowel. The only evidence of the existence of a stricture in these cases has been, *first*, that there was obstinate costiveness; *secondly*, that a bougie introduced into the rectum could not be made to pass further than a certain number of inches beyond the anus.

But what is the value of this evidence when compared with that which anatomy affords of the rarity of this kind of stricture? Are there not many causes of a costive state of the bowels besides mechanical obstruction? Will it be always easy, even in the most healthy rectum, to introduce a bougie more than a few inches into it? Although we call the lower bowel the *rectum*, you know very well that it is anything but a straight gut. Three or four inches above the anus the rectum begins to make flexures, which increase as you trace it upwards, until they terminate in the sigmoid flexure of the colon. These flexures of the rectum differ in different individuals, and even in the same individual at different periods. When a bougie is introduced, be it small or large, it is certain that it will be stopped somewhere or another by one of these flexures; and nothing can be more unphilosophical than to conclude, because a bougie meets with an impediment at the distance of five or six, or eight or nine inches, that this is the result of an organic disease of the rectum, when the natural formation of the parts will sufficiently account for it.

But let us suppose that you actually meet with one of those rare cases in which there is a stricture in the upper part of the rectum; by what means are you to recognize the disease in the living person? Or, if you can recognize it, how can you know its exact situation? If the bougie can only be introduced to a certain distance, how are you to be certain that it is stopped by the stricture, and not by a fold of the bowel, or even by coming in contact with the sacrum?

Further than this, if you employ the force which you would suppose to be necessary to make the bougie penetrate through the stricture, is there no danger of it penetrating the tunics of the intestine instead? This last is no theoretical objection to the use of these long bougies in diseases of those parts. I will not say that I have seen the patients, but I have been informed, on good authority, of not less than seven or eight cases in which this frightful accident occurred, and the patients died in consequence.

Taking all these things into consideration, I advise you to lay it down for yourselves as a rule of practice, that you should not use

bougies for stricture of the rectum, except where the stricture is within reach of the finger. If there be any exceptions to this rule, they are very rare indeed.

LECTURE XXXVII.

ON AN UNUSUAL FORM OF STRICTURE OF THE RECTUM. MALIGNANT DISEASES OF THE RECTUM. ON RECTO-VAGINAL COMMUNICATION.

THERE is a disease of the rectum in which there is generally, but not always, a contraction of the gut, which is not a malignant affection, and which, although frequently confounded with ordinary stricture, ought, as I conceive, to be distinguished from it.

This disease, so far as I know, is not distinctly noticed in books. I have observed it chiefly in women, and especially in those who have borne children. In the great majority of cases it has shown itself sometimes after a difficult labour. The patient complains of pain referred to the rectum, pain in the lower part of the back, a discharge of mucus from the anus, and some difficulty in passing the evacuations. These symptoms at first are trifling, but they gradually increase in severity as the disease advances. The patient then complains of exceeding difficulty in passing the evacuations, of constant pain—which, however, is greatly aggravated after the feces have been voided. There is a copious discharge of mucus; sometimes of blood, or of mucus tinged with blood. If you examine the bowel at this period of the disease with the finger, you find the inner surface of the mucous membrane irregular, as if it were lined with a multitude of small flat excrescences; or as if your finger came in contact with a surface covered with warts. There are generally, at the same time, some small flattened excrescences to be observed at the margin of the anus; something like shrunk or collapsed external piles, but smaller. Besides this, it seems, in some instances, as if the mucous membrane in the interstices between the excrescences was here and there in a state of ulceration. The examination with the finger, which is necessary for the ascertaining all these points, gives the patient extreme pain. Generally about an inch and a half, or two inches above the anus, you find a circular contraction, or stricture; but at other times there is no contraction whatever in this situation, while there is a very contracted state of the anus itself. In some instances there is the diseased state of the mucous membrane which I have described, without contraction anywhere; so that the contraction is an accidental, and not a necessary accompaniment of the disease.

When the disease goes on still farther, inflammation takes place in the cellular membrane in the neighbourhood of the gut, and an abscess forms, which bursts externally, near the anus, or on the nates,

or in the perineum. Other abscesses form which burst in other situations, one after another, in the same manner as after common stricture of the rectum. Sometimes an abscess forms in front of the rectum and bursts into the vagina, making a communication between the two organs. These abscesses continue to form for an indefinite time, so that ultimately there are a great number of orifices, all of which remain pervious. The abscesses seem, in fact, to have no disposition to heal; but sometimes they get into a quiet or tranquil state, there being but little inflammation, but little discharge of matter; and then, all at once, inflammation takes place again in one or more of them; there is a fresh accumulation of pus, and a fresh burst of it externally. It seems not improbable that these attacks of inflammation may, in many instances, at least, depend on small portions of feces getting into the abscesses from the cavity of the gut.

The disease which I have just described is very formidable, and it is one which, if left to itself, always proves ultimately fatal. Many years, however, may elapse before it has run its course; the patient all the time suffering miserably. At last she has shiverings, nocturnal perspirations, and a rapid pulse; she becomes emaciated, and dies worn out by hectic fever.

Treatment.—In the very advanced stage of the affection you can do but little for the patient; whereas, in the earlier stage, you may do much. I do not know that this disease can be actually cured except you are called in nearly at the period of its commencement; but, nevertheless, you may, in many instances, do a great deal of good in the way of palliating the symptoms and prolonging life. It is only every now and then that you are able to keep a particular case in view for a great number of years. I was, however, called to a patient labouring under this disease so long ago as the year 1812 or 1813, and I know that she was alive four or five years since, and rather better at that time, with respect to the condition of the rectum, than when I was first consulted; so that she must have lived seventeen or eighteen years after I was first consulted. I believe she has since died of a disease in the chest.

When you are called to a case of this kind, you have first to examine the state of the rectum—whether there be or be not stricture, whether the parts are in such a state that they will not bear local treatment. If the introduction of the finger does not occasion much pain, and if you find a stricture in any part of the bowel within reach of the finger, you may proceed to the dilatation of it with a bougie. In the first instance, introduce a common bougie into the orifice of the stricture; let it remain there for a few minutes daily, gradually increasing its diameter; and after a time you may arm the bougie with lint, well smeared with mercurial ointment. This is a good application to the excrescences with which the surface of the bowel is lined. You may pursue this treatment daily, or every other day, until you have dilated the stricture to a tolerable diameter, observing that if at any time there should take place an attack of inflammation of the gut, or in its neighbourhood, you are to lay aside the use of the bougie for a while, resuming it afterwards. If

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the patient, however, be suffering a great deal of irritation, and the parts are exceedingly tender, so that they will not bear the contact of the finger, you may presume that they will not bear the contact of the bougie; and, under these circumstances, an opiate suppository may be introduced into the rectum every night; the bowels being at the same time kept gently open by means of lenitive electuary and sulphur, or small doses of castor oil, or some other simple aperient. By these means you may lessen the irritability of the diseased bowel, and, after a time, be able to employ a bougie, though you could not use it in the first instance.

The abscesses which form in the neighbourhood are to be distinguished from those which I shall describe hereafter under the name of *fistulæ in ano*. You will understand the difference when I come to explain the latter disease. They are not to be laid open like *fistulæ in ano;* they correspond to the abscesses that form in common stricture of the rectum; and the more you do to them, the worse they are, except it be when matter is collected which does not readily escape, and where a puncture with a lancet will give it a free discharge. These abscesses very seldom heal; but if the stricture be well dilated, and the mucous membrane of the bowel restored to a more healthy state, they will remain indolent, giving the patient but little inconvenience, and that only occasionally.

You may relieve the patient also by internal remedies, one of which I have already mentioned, viz.: a gentle aperient. Costive bowels are bad for the patient, for the hard motions will not pass through the contracted gut, or if they do pass, they are very injurious to the diseased membrane below. But purging is injurious also, and therefore very active purgatives are inadmissible. The balsam of copaiva, combined with caustic alkali, (the liq. potassæ,) for which I gave you the prescription in the last lecture, or the decoction of *achillea millefolium*, may also be given with advantage. I have seen some of these cases in the advanced stage of the disease, where the patient has derived much benefit from the internal use of arsenic; four or five minims of *liq. arsenicalis* being given three times a-day. The effect of the arsenic was to lessen the quantity of discharge from the bowel, and to diminish its irritability, at the same time improving the general health, and sometimes putting an end to the rigors to which the patient was liable. This last effect was especially observed where, as often happens, the rigors had assumed a periodical character.

You may easily recognize the disease which I have just described, by an examination of the inside of the rectum; but you may often detect it, when it comes before you, even before this examination is made. A woman complains of pain in passing her stools, and discharge of mucus; and these symptoms have come on after a difficult labour. On inspecting the anus, you discover some little flattened excrescences surrounding the orifice; and you may be quite sure, where there is this combination of symptoms, that if you introduce the finger into the rectum, you will find the diseased condition of it which I have now described.

MALIGNANT DISEASES OF THE RECTUM.

Malignant diseases of the rectum are often confounded with simple stricture, and with that peculiar disease of which I have just spoken. The diagnosis is, however, of great consequence; for the treatment which is right in simple stricture would in general be wrong in these more formidable affections.

Malignant diseases of the rectum generally occur after the middle period of life; and patients affected with them have for the most part a sallow, unhealthy aspect, and very frequently labour at the same time under hepatic or some other visceral affection. Here, as in the case of malignant disease in other organs, the symptoms come on insidiously and slowly. The patient has a little uneasiness about the rectum; he thinks little of it. Then he finds some difficulty in passing his evacuations; but even this at first scarcely attracts his notice. Then the difficulty increases; the uneasiness becomes converted into pain; the stomach gets out of order, and the general health begins to fail. In the advanced stage of the disease, there is for the most part a great deal of difficulty in passing the evacuations, though that varies in different cases; and sometimes there is no difficulty at all, accordingly as the disease does or does not cause an obstruction of the bowel. By and by there is a constant discharge of bloody mucus, and constant pain, which is, however, aggravated after each evacuation of the bowels. The pain is especially referred to the lower part of the back, but there is also pain down the thighs, and in the nates and hips. If, at this period of the disease, you institute an examination of the rectum, you find the morbid growth a little way up the bowel, within reach of the finger. But, as you may suppose *d priori*, it varies in size, in figure and in position, in different cases. Sometimes there is a hard, solid tumour, occupying only a portion of the circumference of the rectum, and usually situated at the back part, with elevated edges, and, as it were, excavated in the middle, the bowel not being contracted in size, but as capacious as ever. At other times the morbid growth occupies the entire circumference of the bowel, which takes a winding course through its substance. Then, if you introduce your finger into the rectum, you meet with a large solid mass, and with some difficulty discover the orifice of the intestine in its centre. Sometimes the diseased structure extends down quite as low as the anus; more frequently it begins about two inches above it, the intestine below being in a healthy state. There is great variety also as to the extent of the disease upwards. It may be that the whole of it is within reach of the finger, so that the healthy portion of the intestine may be perceived above; and it may be, also, that it extends so high up that you can in no way trace its upper border. In some instances the disease is complicated with the addition of several pendulous excrescences, which come down through the anus when the patient passes his evacuations, and this very much aggravates his sufferings.

In the advanced stage of the disease, there is sometimes, but not

frequently, a large hemorrhage from the bowel. Abscesses form in the neighbourhood, and burst externally. In females, they burst into the vagina, and the opening is increased by ulceration, so that a large quantity of feces may be passed by that canal. In the male sex, ulceration will frequently make a communication between the rectum and bladder, or the rectum and urethra, and then the patient voids not only wind but feces with his urine. The urinary organs are liable to be affected in another manner: spasm is induced in the urethra, and the patient is liable to a retention of urine. This occurs especially in the cases of which we are now treating, but it will occur also in other affections of the rectum.

The patient goes on suffering in this miserable manner, his distress gradually increasing from the beginning to the end of the complaint; and at last he dies worn out, as he would be by malignant disease in any other organ, except that his sufferings are greater here than when it is situated on the surface of the body, and for an obvious reason—namely, that the ulcer in the surface of the tumour is constantly irritated by the passage of the feces. In some cases the morbid growth completely obstructs the passage of the feces, which become accumulated above it. The patient then has symptoms somewhat resembling those of strangulated hernia, and dies nearly as he might have died of this last-mentioned disease; or the bowel ulcerates immediately above the obstruction, and the feces escape into the general cavity of the peritoneum, and then he dies of peritoneal inflammation.

The general rule in this complaint is, that the patient suffers miserably, especially when it has arrived at its latter stage; but this rule has its exceptions, and I was lately called to this remarkable case:—The servant of an old lady, who was nearly helpless from age, took it into her head that her mistress passed her feces from the vagina. She mentioned it to the old lady's usual medical attendant, who questioned the patient, and found she was not aware of it; that she had no pain, and complained of no other symptom of disease, either of the vagina or rectum. By and by the servant repeated her assertion that the feces passed by the vagina, upon which the physician requested that I should be consulted. When I examined the rectum, as far as I could reach it was completely obstructed by a mass of solid substance, manifestly a malignant disease.—It appeared that ulceration had taken place in the rectum above the tumour, and to such an extent that the whole of the feces were passed by the vagina. This, it is true, was no trifling inconvenience, but it saved the patient from the dreadful pain of the feces passing over the surface of the diseased rectum.

The morbid growth in these cases is sometimes hard, seeming to partake of the nature of *scirrhus;* sometimes of a softer texture, and more resembling *fungus hematodes.* Here, too, as in other organs, the two diseases may be blended together in the same morbid growth; and there are many cases in which, although the disease is undoubtedly malignant, you scarcely know, from examining its structure, under what name it should be described.

Treatment.—All that is worthy of being said respecting the treatment of these unfortunate cases, may be comprised in a few words.

It has been proposed that the disease should be extirpated by an operation; and there is no doubt that if it were merely your object to excise the parts in which the morbid growth was completely established, so as to be distinctly perceptible to the finger, such an operation would in some instances be sufficiently practicable. But let me ask, what security would you have that the seeds of the disease did not exist in the mucous glands, or other textures above the tumour, and that your operation would soon prove of no avail? More than this: if you consider in what manner a malignant disease spreads, when once established in a particular organ, and the general ill success which attends the operation for its removal, even when performed under the most favourable circumstances, and where the whole organ can be taken away, can you reasonably expect that it will succeed under such circumstances as these, where you cannot take away the whole organ, and where it must be always doubtful whether you have been able to make a complete and satisfactory examination of the diseased part previously? Then consider, if much of the rectum were to be removed, what a frightful operation it would be, and in how miserable a plight the patient would be left afterwards? If ever such an operation be justifiable, it must be surely only under some very peculiar circumstances, where the disease was very low down in the gut, and quite in its earliest stage. In ordinary cases it ought to be entirely out of the question, as one which no conscientious surgeon can advise his patient to submit to.

Opiate injections into the rectum, and injections of linseed oil, either in its pure state or combined with lime-water, are sometimes useful in allaying the irritation of the rectum; and alkalies may be given internally, either with balsam of copaiva, or otherwise combined. In the advanced stage of the disease you must give the patient opium; you cannot help doing so; and, indeed, he must be kept very much under its influence to make life at all supportable. Yet there are great objections to the use of opium here, as in most other cases. You seldom meet with a patient on whom opium confers a benefit, without a corresponding evil. Opium, it is true, relieves the pain for a time, but it makes the bowels costive, so that it is very difficult to manage them. It stops the secretion of the liver, disorders the stomach, and injures the general health, making the patient at the same time nervous and irritable. Therefore I advise you not to give opium till you are driven to it. In the advanced stage of the disease all that can be said is, that you must have recourse to it as the least of two great evils.

RECTO-VAGINAL COMMUNICATION.

I have mentioned, in treating of the different diseases of the rectum, that a communication sometimes forms between the rectum and vagina. This is sometimes subsequent upon a difficult labour, just

as a communication is sometimes formed between the vagina and urethra, or bladder, from the same cause.

The communication between the vagina and rectum used to be one of the opprobriums of our art, the patient's life being rendered miserable, with little or no hopes of recovery. Of late, however, a simple and scientific method of relieving the patient in these cases has been contrived by Mr. Copeland, who has succeeded in curing several patients labouring under it, simply by dividing the sphincter muscle of the anus. The sphincter muscle being divided, the feces are not retained in the rectum; they run out as fast as they enter it, so that the bowel is kept empty and contracted, and altogether in a passive state, and the communication between the rectum and vagina is thus enabled to cicatrize. I do not know whether this would answer if the communication were of large size, but I am told that it has answered very well in the cases in which Mr. Copeland has hitherto employed it. I cannot but regard the application of this operation to these cases as one of the principal improvements of modern surgery; and the simplicity of the practice forms one of its principal recommendations. Of course it can be recommended in those cases only in which, independently of the opening into the vagina, the parts are in a healthy state.

LECTURE XXXVIII.

ON DISEASES OF THE MAXILLARY ANTRUM.

I SHALL draw your attention to-day to a case in one of the upper wards, that of Samuel Tovey, admitted on the 1st of this month.

Eight years ago he fell down as he was walking on the slippery pavement, by which his nose, and the whole left side of his face, were bruised. Ever since he has had pain of these parts. The left side of the face became swollen; the pain increased, and matter was discharged through the nostril. Matter also occasionally made its way through one of the alveoli of the superior maxillary bone; and he continued in this state at the time of his admission into the hospital.

On the 7th November I made an incision which separated the upper lip, or rather the cheek, from the jaw; and a probe having been introduced, it appeared to me that the extremity of it came in contact with a portion of dead bone, in the situation of the antrum maxillare. I then introduced a pair of strong sharp-pointed scissors, using them in their closed state as a chisel, to break down the thin plate of bone above the grinding teeth, so as to expose the cavity of the antrum, in which I could then feel small fragments of dead bone, some of which were extracted. On the following day some other small portions of dead bone passed through the nose. There were now

swelling and pain on the left side of the face, with a good deal of headache, and a frequent pulse. The patient was ordered to be purged. On the 9th, two days after the operation, he had shivering, and was delirious in the night. On the 10th, however, he was much improved, able to get up; and to-day, the report is, that the pulse is slower, easily compressed; the tongue clean; the bowels open.

Here was a patient who had met with a severe blow on the head and face eight years ago, who had been suffering ever since; and now I have made an opening into the antrum, and extracted fragments of dead bone which were lying in its cavity. No doubt there are other fragments there; and I expect that they will come away through the opening that has been made. There can be no question that, at the time of the injury, some mischief was inflicted on the bones, which caused portions of them to die, some of these afterwards coming away by themselves, while others could not be removed without this operation.

The occurrence of this case affords me the opportunity of speaking to you concerning diseases of the maxillary antrum generally. I am glad to draw your attention to this subject, because it is one of great interest, and also one of which I do not think there is in general any very clear account given by surgical writers. I may add another reason, namely, that cases of disease of the antrum are not sufficiently common occurrences for many of you to become masters of the subject by what you see during one or two years' attendance on hospital practice.

INFLAMMATION OF THE MAXILLARY ANTRUM, INDEPENDENT OF LOCAL CAUSES.

I have seen cases, and to these I shall first call your attention, in which there appeared to be inflammation of the maxillary antrum, independent of a local cause, arising out of something in the state of the constitution, and approaching in its character a good deal to that of severe rheumatic inflammation. I do not know that I can make you acquainted with the history of the disease of which I am now speaking, better than by describing to you the circumstances belonging to a particular case, of which I happen to have preserved notes. I was consulted with Mr. Clough, of Norton Street, respecting a young man who complained of excessive and constant pain referred to the situation of the maxillary antrum of the left side. There was some degree, but not much, of tumefaction of that side of the face; tenderness in the situation of the antrum everywhere; the very severe and constant pain which the patient endured being aggravated by pressure. In addition to these local symptoms, there was a good deal of febrile excitement of the general system. The disease had existed for two or three weeks, gradually increasing up to the time of my being consulted. Believing this, then, to be a case of inflammation of the maxillary antrum, and thinking it not improbable, from the time that the inflammation had lasted, that suppuration might have

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The occurrence of this case affords me the opportunity of speaking to you concerning diseases of the maxillary antrum generally. I am glad to draw your attention to this subject, because it is one of great interest, and also one of which I do not think there is in general any very clear account given by surgical writers. I may add another reason, namely, that cases of disease of the antrum are not sufficiently common occurrences for many of you to become masters of the subject by what you see during one or two years' attendance on hospital practice.

INFLAMMATION OF THE MAXILLARY ANTRUM, INDEPENDENT OF LOCAL CAUSES.

I have seen cases, and to these I shall first call your attention, in which there appeared to be inflammation of the maxillary antrum, independent of a local cause, arising out of something in the state of the constitution, and approaching in its character a good deal to that of severe rheumatic inflammation. I do not know that I can make you acquainted with the history of the disease of which I am now speaking, better than by describing to you the circumstances belonging to a particular case, of which I happen to have preserved notes. I was consulted with Mr. Clough, of Norton Street, respecting a young man who complained of excessive and constant pain referred to the situation of the maxillary antrum of the left side. There was some degree, but not much, of tumefaction of that side of the face; tenderness in the situation of the antrum everywhere; the very severe and constant pain which the patient endured being aggravated by pressure. In addition to these local symptoms, there was a good deal of febrile excitement of the general system. The disease had existed for two or three weeks, gradually increasing up to the time of my being consulted. Believing this, then, to be a case of inflammation of the maxillary antrum, and thinking it not improbable, from the time that the inflammation had lasted, that suppuration might have

already taken place in the cavity, I made a perforation into it above the second molaris. (I shall speak of the manner of making the perforation presently.) No fluid, however, of any kind escaped through the aperture. I then recommended what I had found successful in some other cases, that the patient should take pills, composed of two grains of calomel and half a grain of extract of opium, three times daily. In about three days the gums were a little sore, the pain began to abate, and at the end of three or four days more the symptoms had entirely subsided. I believe that, when you are called to a case of this kind, you will seldom find the plan of treatment which I have here described to fail.

But inflammation of the membrane lining the antrum may end in suppuration, so that there may be a collection of pus in the cavity of the antrum, and I conclude that such acute inflammation as existed in the case just described might terminate in this manner, if not artificially arrested.

INFLAMMATION OF THE ANTRUM DEPENDENT ON LOCAL CAUSES.

However, where matter forms in the cavity of the antrum, I certainly believe that in most instances, there is some local mischief first, and that suppuration of the membrane lining the antrum supervenes as the consequence. The cause in which the disease originates is generally a diseased tooth. The patient has a bad tooth in the upper jaw, one of the molares, or perhaps one of the bicuspides (or it may even originate in the cuspidatus when the fang comes near the antrum). The tooth is carious, and by and by the patient has the toothache. He does not like either to lose the tooth or to submit to the pain of having it drawn, and so he submits to the toothache. The inflammation on which the toothache depends then terminates, as it always does, in the death of the pulp of the tooth. Then the whole tooth dies, and it is now like a portion of dead bone, or any other foreign substance, stuck in the jaw. Such a dead tooth may remain in the jaw for many successive years, exciting no irritation, and leading to no mischief. In other cases, however, the tooth begins, even at an early period, to operate as a cause of irritation, and it almost invariably does so ultimately. Then inflammation takes place at the bottom of the alveolus, and is followed by suppuration. The matter cannot readily escape; perhaps it makes its way downwards between the tooth and the alveolus, and presents itself in the gum, forming a kind of gum-boil. At other times the tooth is so firmly wedged in the alveolus, that the abscess cannot find its way in this direction. Under these circumstances it collects at the bottom of the alveolus, and occasions the patient extraordinary pain and suffering. The matter lying upon the bone destroys the periosteum lining the alveolus; the bone itself becomes absorbed; and the inflammation extends to the mucous membrane lining the antrum. Sometimes a small fragment of bone in the neighbourhood loses its vitality, and there is then a piece of dead bone separating the alveolus from the antrum, and producing suppuration in this cavity. Thus there is an abscess in the antrum, with a splinter of dead bone above, and a dead tooth also at its inferior part. While this process is going on, the patient suffers at first an extraordinary degree of pain from the matter pent up at the bottom of the alveolus; afterwards, when the antrum becomes affected, he complains of a dull constant pain in the cheek, with the addition of certain lancinating pains coming on as an aggravation of the pain which is constantly endured. There is then an effusion into the soft substance under the skin, rendering the face on that side œdematous, with a slight degree of red discoloration on the surface; and the patient may remain in this condition for a great length of time. In some cases matter is discharged by the nostril, but not always, for the inflammation of the antrum may have the effect of stopping up the orifice where it communicates with the nostril, between the two turbinated bones. When the opening of the antrum remains pervious, the patient will, of course, experience occasional relief from the matter passing into the nostril. I have said that sometimes there is, and sometimes there is not, a fragment of dead bone; but this, as far as I know, makes no difference in the symptoms, although when there is dead bone, the recovery of the patient may be expected to be more difficult and tedious.

Treatment.—In these cases you may relieve the symptoms for a time by applying leeches to the cheek, by the exhibition of purgatives, and by adopting what is called an *antiphlogistic* treatment of other kinds. But it is evident that such antiphlogistic treatment can only *relieve* the symptoms—it cannot strike at the root of the disease.

The first thing to be done is to extract the dead tooth; and it may be that this is all that is wanted. If, when the tooth is drawn, there is a free communication between the alveolus and the cavity of the antrum, the matter is discharged through the opening, and the patient is immediately relieved. In other cases, however, when the tooth is drawn, either the abscess of the antrum does not discharge itself at all through the aperture, or it does so only in an imperfect manner. The plate of bone between the alveolus and the antrum is generally very thin, and you may easily introduce a sharp-pointed instrument into the bottom of the alveolus after the tooth is extracted, and break it down, so as to establish the communication which is wanted. This must always be done whenever the extraction of the tooth does not leave any or a sufficient opening for the discharge of the matter from the cavity above.

The instrument with which you make the opening should be formed like a common hydrocele trocar, but a little larger (of course without a canula), and it should not be made of the best steel; for I once used a common trocar, made of steel, in an operation of this kind, and it broke while I was performing it. In this case, I extracted the broken portion very easily, but you can conceive that such an accident might occur, and you might experience great difficulty in extracting the point of the instrument. The steel, then, ought not to be very finely tempered, but such as would bend a

little instead of breaking. There is no occasion for its being otherwise; for you do not want a very sharp-cutting instrument. It is sufficient if it be strong, and will not easily break.

When the bottom of the alveolus is broken down, the matter will readily escape from the antrum, and you may introduce a probe and explore its cavity, so as to ascertain whether there be in it any dead bone or not. Sometimes there is a piece of dead bone at the bottom of the alveolus, and then you have only to wait patiently till an opportunity occurs for its removal. At other times you will feel the dead bone after the probe has entered the antrum, and the opening already made may not be sufficient for its extraction. Under these last-mentioned circumstances, the opening must either be enlarged or another made in a different place. When a free opening has been formed into the antrum, you should allow the patient at first to remain quiet, with a piece of bougie or gum catheter retained in it, in order to prevent its closing. This should be taken out two or three times daily, to allow the escape of the matter. After two or three days, being provided with a syringe having a slightly curved pipe, small enough to enter the opening, you should begin to wash out the cavity of the antrum by injecting some tepid water into it once or twice daily. The water injected will generally pass into the nostril, showing that the natural aperture of the antrum remains pervious; and if it be, then you are able to wash it out more readily and completely than you could do otherwise. If you find that the injected water does not pass out of the nose, you will know that the natural opening between the two turbinated bones is blocked up, and you will then have a little more trouble in washing the cavity of the antrum thoroughly out.

Let us suppose another case—viz.: that a dead tooth has been allowed to remain until it has produced suppuration of the antrum; that it has then been extracted; that nothing further has been done; and that the patient has been left either with no opening at the bottom of the alveolus or one that is insufficient. Under these circumstances, the bottom of the alveolus becomes filled up with new bone, the edges at the inferior part are absorbed, and the alveolar cavity no longer exists. It is absolutely necessary to the patient's recovery that an opening should be made into the antrum: but where, in such a case as this, would you make it? In the situation of the alveolus? This is an awkward place for the purpose, on account of the thickness of the bone which you have to penetrate. It may be a good situation when the tooth has just been drawn, but it is a very bad one when the jaw has become consolidated afterwards. The best mode of making the opening is this: raise up the cheek so as to expose the membrane covering the gum on the side of the face, and with a scalpel make a transverse incision down to the bone. Always make this incision through the membrane before you begin to perforate the bone. In one case I did otherwise, thinking the division of the membrane, as a separate part of the operation, was unnecessary; but the consequence was, that the blood escaped into the cellular membrane beneath, and there was an immense

ecchymosis, making the rest of the operation very difficult. Always, then, divide the membrane first, where it covers the jaw just above the alveolar processes of the grinding teeth, and then perforate the thin plate of bone as nearly as possible to what you suppose to have been the original seat of the disease.

What instrument is to be employed in making the perforation—a trephine? That is quite unnecessary. Nothing is better than a pair of sharp-pointed strong scissors; apply them to the bone in their closed state, using them as a chisel, and they will easily penetrate it, and go into the antrum. You have then only to press on the scissors, giving them at the same time a rotatory motion, and you will easily break away a circular portion of bone. If the opening be not sufficient, a broader pair of scissors may afterwards be used to enlarge it; which you may do easily, so as to make it of almost any dimensions. That is the way in which I performed the operation the other day, and you know that the finger easily penetrated through the opening thus made into the cavity of the antrum. The opening being completed, you may introduce a probe or your little finger, to ascertain if there be any dead bone. As the soft parts contract, it will become necessary for the patient to wear a plug in the orifice, to prevent it being closed. A piece of ivory or box wood answers the purpose very well. The plug should be conical in shape, so that it may not slip into the cavity of the antrum. It should be withdrawn twice daily, and a little tepid water injected into the antrum to wash it out. This practice may be continued as long as the discharge of pus continues, or as long as you have reason to suspect that there is any dead bone to come away.

In some cases the patient recovers perfectly after the operation, and in others not. A lady consulted me, who had had symptoms of abscess in the antrum for many years, being otherwise in very ill health, and there was the greatest reason to attribute her ill health in part to the putrid matter collected in the antrum passing through the nostril into the fauces, and being swallowed during sleep. There was a carious tooth, which was extracted, and I then made a wide opening from the bottom of the alveolus into the antrum, and let out a good deal of pus. A plug was kept in the opening, and the antrum washed out night and morning—the fluid used in the injection flowing into the nostril. No dead bone ever came away, nor was any ever felt by the probe; but, nevertheless, the suppurative discharge continued. The patient, some few years afterwards, died of disease of the lungs, and I believe that to the day of her death the discharge of pus from the antrum had not ceased. Where there is extensive dead bone which does not come away easily, of course you will understand that suppuration must continue; but here it continued although there was no dead bone—at least none was ever discovered.

COLLECTION OF TRANSPARENT FLUID IN THE ANTRUM.

The next disease of the antrum of which I shall speak, is one of more rare occurrence; in fact, I have seen only two cases, and I can find only one or two instances of the kind on record. A lady consulted me with a large projection of one cheek. It looked as though she had a large plum in her mouth. I lifted up the cheek, and found a projection in the situation of the antrum of one side, elevating the membrane from the gum, and the flesh of the cheek also. This projection was as large as a pigeon's egg. The surface, where it was covered by the membrane of the cheek, gave way a little under the pressure of the finger. There was no distinct fluctuation, but a kind of crackling sensation communicated to the fingers, as if you pressed upon very thin horn, or dry parchment. This being the first case of the kind that I had met with, I did not know what it would turn out to be, and I thought it likely that there was some solid tumour in the antrum. I took a curved scalpel, not bent in the direction of the cutting-edge like a bistoury, but bent laterally, with a strong sharp point, (which I had found very useful on some other occasions), and introduced the point into what seemed the thin bony parietes or boundary of the tumour: having previously dissected the membrane of the cheek from the jaw. Immediately there escaped a large quantity of transparent fluid, like very thin mucus; something like what we find in cases of ranula. I then introduced a probe into the cavity of the antrum, and found that it might be passed in any direction. There was neither tumour nor dead bone, and the cavity seemed to be in a natural state, except that it was enormously dilated. I next enlarged the opening, cutting out a circular portion of thin bony shell formed by the expanded parietes of the antrum. After the operation the tumour subsided, and in the course of a few weeks the cheek was not larger than the other. The aperture made by the scalpel has continued pervious to this day, though it is ten years since I performed the operation. The lady wears a plug, which she takes out night and morning, and with her own hand introduces the point of a syringe, and washes out the antrum. I suppose that there can be no doubt that, in this case, from some accidental cause, the natural aperture into the nostril had become closed, and that the mucous secretion of the antrum, having no means of escape, collected and distended the cavity to this large size. The same thing happens to the gall-bladder when the ductus cysticus is obstructed: the gall-bladder then becomes enormously distended—not with bile, but with transparent mucus.

This last summer I was consulted, with Mr. Lawrence, concerning a case exactly similar to the one which I have just described, but it occurred in a boy. Mr. Lawrence made an opening into the tumour, and let out a large quantity of transparent fluid. I have not heard of the patient since, but I have no doubt he completely recovered.

POLYPUS OF THE ANTRUM.

Surgical writers describe polypi as arising from the mucous membrane of the antrum;—nay, some have gone so far as to tell you how you are to apply a ligature round the base of this polypus, so that it may wither and drop off. The history and treatment of such a polypus is, however, altogethor hypothetical. No polypus, I believe, ever existed in the antrum, around which a surgeon could put a ligature; and I never heard of the operation being performed, though it has been described by some writers.

MALIGNANT TUMOURS OF THE ANTRUM.

Tumours of a malignant kind, however, grow in the antrum, partaking partly of the nature of fungus hæmatodes, and partly of carcinoma. They are attached to the mucous membrane, and soon grow so as to fill up the cavity. I suppose that at first they produce but little pain, and that the patient has scarcely any symptoms of disease; at any rate there are no symptoms by the description of which the surgeon would be able to recognize the existence of disease in its very early stage. But it is otherwise as the disease advances. The tumour, growing larger, presses upon the inner surface of the antrum, and causes its bony parietes to become dilated. By and by it makes a projection in the cheek, just like that which I described in the last case, where there was a collection of mucus in the antrum. After a time there is another projection in the situation of the bony palate—that is, the tumour presses upon the floor of the antrum, as well as at the sides. Then another projection occurs at the inferior part of the orbit; and there is another still blocking up the nostril; in fact the antrum becomes distended everywhere, causing an enlargement of the cheek, bringing the bony palate to a level with the grinding teeth below, and diminishing the cavities of the orbit and nostril. The bony substance of the antrum becomes absorbed under the pressure of the tumour; the base of the alveoli is destroyed; the teeth are rendered loose, so that they merely hang in the jaw by flesh, and you can extract them with a pair of forceps, or they drop out of themselves. The tumour goes on increasing until the antrum will admit of no further distension; ulceration takes place, and the malignant growth projects through the ulcerated opening. Generally it projects, in the first instance, under the cheek. A large ulcer is formed there, and the tumour appears through it. It then makes its way by ulceration into the mouth and orbit; sometimes it pushes the eye upwards, and at other times forwards, so that it is quite out of its natural place; and in either case it occasions blindness. As the disease makes still farther progress, it forms a large tumour in the mouth, compressing the tongue, and preventing mastication.

The malignant growth having made its way externally, and being

freed from the pressure of the neighbouring parts, increases at a still more rapid rate than before. There is profuse discharge, occasional hemorrhage; and the patient is worn out partly by these causes, partly by misery and anxiety of mind, and by starvation: for now he is unable to masticate solid food; and as the destructive process of the parts in the neighbourhood goes on, there is at last great difficulty in swallowing even liquid nourishment, only a small portion of which goes down the throat, while the greater part passes out at the aperture in the cheek. I do not know anything more miserable than the death-bed of a patient who dies from this horrible disease. Such is a brief history of its progress; but if you wish for further information on the subject, you will find an excellent and very graphic account of it in Mr. Travers' paper on Malignant Diseases, published in one of the volumes of the Medico-Chirurgical Transactions.

I suppose that it is this disease of which some surgeons have conceived that it might be removed by ligature. Others have imagined that it might be got rid of by other means; that we might make an opening into the antrum before the tumour acquired a very large size, turn it out with the fingers, and apply the actual cautery to the surface from which it grew. I believe there is a case recorded by Desault, where this operation was performed, and it is spoken of as being successful. But if I remember right he gives the history of the case no later than three months after the performance of the operation; and you all know that a malignant disease may appear to be cured for a twelvemonth, and yet return. The circumstance of the patient appearing to be tolerably well three months after an operation of this kind, by no means proves that it produced a permanent cure.

I did attempt to destroy a tumour of this kind formerly, in the following manner: It was in the early stage of the malignant growth; but the cheek bulged out over the dilated antrum, and the bone of the antrum was absorbed. With a common scalpel I cut out a large portion of the membrane, which now formed the only boundary of the antrum. I then found a large tumour suspended, as it were, in the antrum, appearing to grow from a broad surface. The outer part of the tumour was of soft consistence, which I broke down with my fingers, and I then turned the tumour out, so that the antrum appeared to be perfectly empty. But this was not done without an enormous and indeed frightful hemorrhage. I introduced a quantity of what we call *blue lint*—that is, lint dipped in a solution of copper, and then dried, and filled the cavity of the antrum with it, hoping that this might make the base of the tumour to slough off. Sloughs did come away, but, nevertheless, there was no destruction of the disease. I applied caustic afterwards, and the actual cautery very extensively, but without at all checking the growth of the tumour, which went on in spite of all the plans I adopted with a view to restrain it: in short it grew faster than I could destroy it, the cheek ulcerated, and the patient died in the miserable way that I have just described.

LECTURE XXXIX.

ON ENCYSTED TUMOURS.

In this lecture I shall make some observations on the case of a little girl who was in one of the upper wards with a large encysted tumour, containing watery fluid, and occupying a considerable portion of the left hypochondrium. The following are briefly the notes of the case:—

"Harriet Copeland, æt. 9, was admitted on the 12th of March, with a firm elastic tumour in the left hypochondriac region, pushing forwards the integuments, and extending backwards, beneath the lower ribs to the left side of the spine. No pain was felt on pressure. The appearance of the neighbouring skin was perfectly natural, and the patient's general health was good. Her mother states that about twelve months ago the child had received a severe blow in the left side from her schoolmistress. The pain which immediately followed soon subsided; and the occurrence was forgotten until about three weeks before she was admitted into the hospital, when, in the act of running, she struck her side with much violence against a post. Great pain followed the accident; and on examining the part, her mother first discovered the tumour, in the situation above described. At this time it was equal in size to a hen's egg, but it rapidly increased in growth, and it is now as large as an orange."

Having inquired into this little girl's case, I was led to believe that she had an encysted tumour in the abdominal cavity, and that it was probably connected with the liver. I determined, however, to keep her for some time in a state of quiet, in order that we might watch the undisturbed progress of the disease, and that I might be able to judge whether this opinion was correct. On the 30th of April the tumour had considerably increased in size, and presented to the fingers a distinct sense of fluctuation. I now punctured it with a small flat trochar, and drew off about eight ounces of a clear watery fluid, in which was found no coagulable matter. It will be unnecessary to occupy your time with the minute details of this case, the more so as they may be seen in my Clinical Book, to which you have all access. The principal facts may be thus briefly stated:—

After the operation, the patient vomited. Inflammation, beginning at the seat of the tumour, followed, and extended to the neighbouring parts. Bleeding, purging, and other antiphlogistic remedies were of course employed. In spite of all, however, the belly became swollen, tympanitic and tender. Shortly after a swelling, which was attended with considerable pain on pressure, showed itself, occupying the place of the original tumour. On the 19th this had increased in size, and the fluctuation of fluid was perceptible in it; but in a few days more it had altogether disappeared, and pus mixed with

freed from the pressure of the neighbouring parts, increases at a still more rapid rate than before. There is profuse discharge, occasional hemorrhage; and the patient is worn out partly by these causes, partly by misery and anxiety of mind, and by starvation: for now he is unable to masticate solid food; and as the destructive process of the parts in the neighbourhood goes on, there is at last great difficulty in swallowing even liquid nourishment, only a small portion of which goes down the throat, while the greater part passes out at the aperture in the cheek. I do not know anything more miserable than the death-bed of a patient who dies from this horrible disease. Such is a brief history of its progress; but if you wish for further information on the subject, you will find an excellent and very graphic account of it in Mr. Travers' paper on Malignant Diseases, published in one of the volumes of the Medico-Chirurgical Transactions.

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feces came away from the bowels. On the 29th a membranous cyst, of which the parietes in their contracted state were of considerable thickness, was found in one of her evacuations. From that time the patient began to mend, and was soon convalescent.

The important parts, then, of this case may be thus briefly summed up:—There was a tumour in the left hypochondriac region filled with fluid. The tumour was punctured. The fluid, when drawn off, resembled clear water, and was found to contain no coagulable matter, or so little as to be scarcely perceptible. Inflammation ensued. A swelling, having the character of an abscess, then formed, which soon disappeared, and disappeared exactly at the same time that a purulent discharge came away from the intestinal canal. From all these circumstances, conjoined with the final separation of the cyst, it would seem, that after the operation, the cyst suppurated, and that having discharged its contents through the bowels, it afterwards made its way into them by ulceration.

The opinion which I at first formed respecting the nature of this disease, was in a great measure deduced from two cases which were under my care some years ago. I was consulted respecting a lady who had a considerable fluctuating tumour in the right hypochondrium. It was larger than the one of H. Copeland, but in every other respect was similar to it. The only symptoms which seemed to accompany it, were some slight pain in the side, and some difficulty of breathing, in consequence of the pressure which it made on the diaphragm. A most intelligent physician who was in attendance, thought that there was an abscess in the liver; and the first appearance of the tumour was anything but unfavourable to such a supposition; but, then, there were none of those severe constitutional symptoms with which abscess of the liver is usually accompanied. The tumour went on increasing in size, and at last I proposed that it should be punctured. Accordingly this was done; and about three pints of a clear watery fluid were drawn off, containing no coagulable matter, and little animal matter of any kind. The edges of the wound were brought together with sticking plaster, and a bandage applied. After the operation, the patient was annoyed by a most violent and incessant cough, which, as it was attended with no constitutional symptoms, and with no other pulmonic symptoms, I was led to think depended either upon hysteria, or upon the sudden abstraction of pressure from the diaphragm, or on these two causes combined. In three weeks, whatever was its cause, the cough entirely left her. No pain was felt in the situation of the puncture. She got quite well, and to my certain knowledge continued well for at least the space of six years. Indeed, I have every reason to believe that she is so still. A few months afterwards, a little boy was admitted into the hospital with a tumour also in the right hypochondrium, smaller than the last, but in every other respect closely resembling it. I treated it in the same way, that is, by puncturing it with a trochar; and the clear watery fluid which came away was exactly similar to that which had been drawn off in the other case. No inflammation, nor any troublesome symptom, followed, and the

boy left the hospital as cured. Whether he remained well for any length of time, or whether the disease returned, I cannot positively say; but it is most probable that, if it had returned, I should have known it.

I shall give my reasons presently for believing that these membranous cysts were connected with the liver. But similar cysts may exist elsewhere. They are not very uncommonly met with in the breast. Not that every encysted tumour of the breast is of this kind: far from it. Sometimes, on cutting into a mammary encysted tumour, you find that the fluid, instead of being clear, like water, has the appearance of dark brown turbid serum, containing much coagulable matter. In these cases there is generally, in addition to the cyst, more or less of solid substance, approaching to the character of a malignant disease: I do not mean that it is actually carcinoma; in fact, it is less liable to return after it has been removed than carcinoma, but still, if left to itself, it runs the course of a malignant tumour, and is incurable, except by operation. The species, however, of mammary encysted tumour which I first mentioned, in which there is merely a thin cyst containing nearly pure water, is altogether independent of malignant disease. If, after puncturing one of these cysts, and letting out the fluid which it contains, you do nothing more, you will find that when the wound heals, the cyst again fills. But if you dissect it out, taking great care to leave none of the cyst behind, there will be no return of the disease. Sometimes stimulating applications will succeed in effecting a speedy and a permanent cure, so that an operation may be avoided. I have known this to happen in more than one instance.

A lady, having one of these encysted tumours of the breast, consulted me. It was as large as a small orange. I punctured it, and drew off a considerable quantity of clear watery fluid. The wound healed up and the cyst again filled. I then advised her to have the tumour removed by excision. She made no objection, but requested me, for certain reasons, to defer the operation for a fortnight or three weeks. This being settled, I advised her in the meantime to apply to the breast an embrocation, which was much used by Sir Everard Home, and, as I believe, before him by Mr. Pott, and which I have found of so much service, that I will give you the prescription. It consists of proof spirit and camphorated spirit, of each ℥iiiss; Goulard's extract, ℥j. A flannel is to be dipped in this, and to be applied to the part several times daily, being allowed to remain there. Well, then, to return to my case: this treatment was followed for three weeks, at the end of which time the lady said that she was quite prepared for the operation. But now, on examining the breast, I found that the tumour had altogether disappeared. This case is the more interesting, inasmuch as the tumour was of a large size. Exactly the same thing happened in another case of mammary encysted tumour for which I proposed the operation, and which differed from the last only in being somewhat smaller in size. I do not say that in such cases the embrocation will always succeed. But it never does harm, and has succeeded quite often enough to entitle it to a

fair trial before resorting to excision. Probably some other stimulating application would answer the same purpose.

Tumours of the same kind occur in connection with the testicle. The encysted hydrocele of the testicle, which is sometimes erroneously supposed to be a double or lobulated testicle, consists of nothing but one of these cysts situated between the inner layer of the tunica vaginalis and the fibrous membrane of the tunica albuginea. A similar cyst occurs every now and then in the epididymis, between its convoluted tube and the tunica vaginalis, by which it is invested. Then, again, it is one of the same cysts which constitutes the encysted hydrocele of the cord, in which disease the tumour is extremely loose and movable; so much so, that it may, when of a moderate size, be pushed up through the external ring, not into the abdomen, but behind the tendon of the external oblique muscle, and hence it is sometimes confounded by an inexperienced surgeon with inguinal hernia. In all such cases the fluid which the cysts contain, is sufficiently characteristic of their nature. It is a clear watery fluid, the cases in which it is serum, like the fluid of a genuine hydrocele, being very rare indeed. In examining bodies after death, my attention has been often attracted by small membranous cysts situated between the glandular structure of the liver and its peritoneal covering. Sometimes I have seen them as large as a walnut, at other times as large as an orange; but there is no reason why they should not attain to any magnitude. Now, as we know that these tumours do occur in connection with the liver; that they occur but very rarely indeed in the spleen, and as far as I know, still more rarely in the other abdominal viscera; and as the position of this tumour in each of the cases which I have described, made its attachment to the liver by no means improbable; I suppose this was the real seat of the disease; and I think that you cannot doubt this to be a legitimate conclusion.

In the two cases of this kind which first fell under my observation, no bad symptoms followed the operation. In this last case, however, inflammation and suppuration were the consequence of it. The cyst seems to have contracted adhesions to the colon, and having discharged its contents into it, escaped, by ulcerating its way probably into the transverse arch.

As soon as I saw that the tumour had returned, my determination was to make an opening into it, and to give exit to the confined pus; but, while I was waiting for a good opportunity of doing this, a purulent evacuation from the bowels took place, and of course it was then too late for what I had intended.

There can be no doubt of the propriety of puncturing cysts of this kind, when they have attained such a magnitude as to be inconvenient from their bulk. There is no reason for puncturing them sooner, and there are good reasons against it. The object of the operation is simply to draw off the watery contents of the cyst, and if these should become again collected, the puncture may be repeated. In Copeland's case, however, there can be no necessity for any second operation. The cyst having suppurated, and afterwards sloughed,

there must be a radical cure of the disease: but we must acknowledge that this advantage has not been obtained without the patient having incurred a certain degree of risk, which we should endeavour to avoid in future. In the two former cases I merely drew off the water, without taking any great pains to empty the cyst completely. In this last I *now* think that I was over anxious to obtain this last object; and to the pressure which was in consequence made on the cyst, while the canula remained in it, I cannot but, in great measure, attribute the inflammation, suppuration, and sloughing of the cyst, which followed.

You will perhaps inquire, for what reason did I puncture the cyst with a trochar instead of using a lancet? The answer is plain enough. The cyst is more readily emptied by means of a canula than without it; and if there were no adhesions of the cyst to the peritoneum lining the abdominal muscles, and you were to puncture it with a lancet, the fluid would escape into the cavity of the abdomen,—an evil which must be avoided when the operation is performed with a trochar.

It has been my endeavour [in the preceding lectures] to give you some information, which, of however little value it may be to those experienced in surgery, may, I hope, be of use to you who are younger men. But I have had another object in view in the construction of these lectures. They have been entirely practical, and, with hardly any exceptions, have been drawn from my own observation and experience. I wished to set you an example of what your own mode of study ought to be. In these times there is a great quantity of medical literature, such as it is. There are books on specific disease, dictionaries, cyclopædias, compendiums, and manuals, of all kinds; and nothing is more easy than for a person with a tolerable memory to look into books and learn by heart the prevalent doctrines and opinions of the day, and then to be able to discourse on those subjects as if he really understood something of them, and to go and pass what is called a good examination; that is, to answer every question that is put to him. You may be successful in qualifying yourselves in this manner, but, depend upon it, it will be of no avail to you in future life. A man who gets up this sort of knowledge from books is good for nothing. He goes to the bedside of a patient, but he knows nothing either of the disease or of its treatment, and he is, therefore, in doubt about it. He has not that confidence in himself which enables him to take every responsibility, and which medical practitioners must do in difficult cases. You must, in order to be qualified for the situations which you are hereafter to fill in life, gain your knowledge, not from books, but from your own investigations. I do not say that you are not to look into books and to read them, but it should only be done in conjunction with prac-

tice. If you have a particular case before you, refer to a good book, and that will enable you to examine it far better than you would otherwise do; but the principal thing is to observe for yourselves. This remark applies to anatomy, to surgery, and to physic. You may get up anatomy by being examined by your teachers, by learning books by heart, and appear a very good anatomist to the man who examines you; but that knowledge will be of no service whatever in practice. No anatomical knowledge is of any use excepting that which you obtain by seeing the parts in the lecture-room and then examining them for yourselves, and by your own hands in the dissecting-room. I can assure you that there is no other anatomical knowledge worth having, and the man who has qualified himself merely to pass an anatomical examination in the way to which I have referred will find that he has no chance whatever when he comes into competition with one who has made himself an anatomist in the proper way. So it is with respect to hospital practice; you must look at the cases and study them for yourselves. Examine the cases in the morning and refer to books in the evening, otherwise you will have no useful knowledge. Consider the observations which drop from the medical officers, compare what they say with the living person, and take notes with your own hands. No person can learn either medicine or surgery who does not take notes, for it is the only way to obtain that knowledge which is necessary in practice.

I take the liberty of making these observations, not that you particularly need them, but they may be of use to younger persons in the profession. The way which I have pointed out is the only one in which you will be enabled to succeed in your profession, and to practise it with comfort to yourselves and advantage to the public. In fact, I think that very few will get into practice at all who do not pursue the study of the profession in the practical manner which I have suggested. I offer these remarks with an entire feeling of friendship, and with the most earnest wish that you may be successful in your profession and do honour to this school.

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