

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

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 what ever 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 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