LIST OF PLATES.

TUMOURS OF THE BLADDER.

CHAPTER I.

DIAGNOSIS.

Necessity for systematic inquiry into and observation of symptoms—Scheme for examining them—Physical examinations—Relief of obscure and painful symptoms—A case—Tactile examination of interior of bladder—A case resulting in removal of vesical tumour—Considerations as to the best means of accomplishing it.

It is a fact which now begins to appear somewhat surprising, that, until a very recent period, the subject of tumours of the bladder has received a comparatively small share of attention, either from pathologists or from practical surgeons. The former have noticed these morbid products, chiefly to remark on their rarity; the latter have alluded to them chiefly, as, for the most part, beyond the power of art to remove. Yet there is little doubt that these growths are by no means uncommon, and recent experience is teaching us that surgical treatment may often greatly palliate, and sometimes successfully extirpate, the disease.

It must be admitted that these cases are almost invariably somewhat difficult to identify, especially in an early stage. Hence the reason why so little information has hitherto been acquired respecting them. But of late years, keener observation and analysis of the signs and symptoms of disease have led to the discovery of various morbid conditions not before suspected to exist; and it is owing to this fact that the presence of tumours in the bladder has been verified, and that the frequency of their occurrence has been demonstrated.

Before commencing a study of the various products which are grouped under the title of tumour, I shall consider the important preliminary inquiry of how best to ascertain their presence in the bladder, and separate the signs and symptoms proper to them from those of other affections, whether obvious and simple, or unusual and obscure.

In all cases of disease, whatever its seat or nature, our first object in examining a patient is to form a diagnosis of his disease by investigating its phenomena. The account which he gives of his sensations is critically received and noted; the physical signs which relate to the performance of function, as well as those which denote some change in form and structure, are observed, and the secretions are chemically and microscopically examined.

These data being obtained, the diagnosis is

generally clear. If it is not so, the defect is rarely due to our want of scientific knowledge of disease, but to our inability to obtain the facts required in the particular case. Thus the diagnosis of heart and lung diseases was very obscure, although their pathology was well understood, until the practice of auscultation and percussion revealed facts which had not been hitherto attainable during life. Hence it is now rare to meet with serious disease of those organs which, after adequate examination, can be termed obscure.

But in affections of the kidney and bladder, accessible as these organs are to inquiry, the one by sounding, the other through its secretion, it is still by no means uncommon to meet with a group of symptoms indicating serious disease, of which the diagnosis is by no means clear. The disease shall have existed for months, or even for years; careful examinations shall have been made by several observers, and yet, not only shall there be no agreement among them as to the nature of the affection, but differences of opinion may exist as to its locality; for example, as to whether the bladder or the kidney is the chief seat of the malady.

These obscure diseases, as already intimated, are for the most part chronic in their character. There is rarely any question of obscurity when dealing with acute disease, since the local pain and other signs, as

well as the condition of the urine, mostly suffice to indicate the organ which is affected.

It is for the purpose of facilitating the study of our subject, that I shall now endeavour to sketch, more fully than I have elsewhere hitherto done, a systematic mode of inquiry respecting those derangements of the urinary function which are to be regarded either as signs or symptoms of disease affecting any part, at least, of the bladder and urethra. My object is to enable the student to arrive, by the shortest route, first, at the true facts of the case; and, secondly, at the conclusions which those facts warrant.

In pursuance of this plan, let me premise that the male sex of the patient is always to be understood; modifications which are obvious and therefore not specified being requisite in cases of the other sex.

The first fact to be regarded in commencing an investigation relative to any morbid condition affecting the urinary organs is, that, with very rare exception, the act of micturition is always more *frequent* than natural. But it is particularly important to note whether that frequency is manifested more by night or by day, during rest of the body, or during movement, or any other circumstance which may thus affect the function.

Secondly, we are next to inquire whether *pain* is

felt in micturition, and if so, whether before, during, or after the act; what is its character—acutely smarting, evanescent, dull, or continuous; also, what is the precise seat of the pain—in the penis, above the pubes, or elsewhere.

Thirdly, has *blood* been seen in the urine? is it brownish and intimately mixed, or not mixed, and of a bright red colour? Has the stream been observed to commence with urine apparently normal, or with only a faint red tint, and to end in deep red, evidently charged with blood. Is the blood augmented by, or does it occur after, exercise?

Fourthly, the *character of the stream* is to be observed, whether it is small or full, irregular in form, feeble or forcible, continuous or the reverse, issuing in part or wholly by fistulous channels.

Fifthly, is the *urine altered* in appearance from the healthy standard, or, as observed by precise tests, in its physical or chemical qualities? It is important to observe whether the first issue of the stream contains, or is preceded by, an obviously muco-purulent discharge. Is the amount of urine passed large or small in quantity? Are the normal constituents large or the reverse? or are any unnatural elements present, as albumen, sugar, &c.? What inorganic deposits, crystalline or other, are met with, and what organic materials are found as regular or occasional deposits in the urine?—leading to the whole subject

of urine analysis, which it cannot be necessary to pursue further in this place.[1]

Sixthly, inquiry must be made for the presence of pain in the back, loins, and hips, past or present, permanent or transitory, and for the occurrence of periodical attacks, obviously renal.

Lastly, signs of dropsy and other complications of imperfect renal function must be sought.

The prosecution of these inquiries, and especially made in this order, decides for a great number of cases the condition of the patient, but it will not do so in all. Physical examination is in some cases necessary : it is so when the stream of urine is habitually small, when micturition is frequent, painful, and difficult, when also it is feeble in elderly men ; if obstruction is manifest in any case, if the urine be persistently alkaline and muco-purulent, if red blood is passed in the urine, and especially if symptoms of irritated bladder are also present.

The steps of physical diagnosis are very simple, easy of performance, and, although often much dreaded by the patient, entail only a moderate degree of pain when properly executed, and rarely any risk of exciting febrile or other disturbance if they are employed under certain conditions, *e.g.* with exceeding gentleness, not during the presence of local inflam-

[1] See *Clinical Lectures*, by the Author, Lect. XXIV. 7th edition. London : Churchill, 1883.

mation, and with due precautions for the patient afterwards.

Adequate patency of the urethra is determined by passing a soft bougie of moderate size ; ability of the bladder to empty itself by the natural efforts by passing a flexible catheter immediately after the act of micturition ; the presence of a foreign body by introducing a small beaked sound and prosecuting the search in a systematic but delicate and gentle manner. The condition of the prostate and base of the bladder is ascertained by rectal examination with the finger, searching there for hypertrophy, cancerous deposit, and for calculus in exceptional circumstances, such as impaction, irregular situation, unusual size, &c. Examination of the perineum and scrotum, as well as palpation and percussion of abdomen in the suprapubic region, and in both renal regions, in the line of the ureters, for retained urine, tumour, enlargement, fluctuation, points of tenderness, &c.

The outline of an exhaustive scheme of research has thus been presented ; one which suffices for the solution of a very large proportion of all the cases which occur in practice. I think it may be fairly said to be adequate to the solution of ninety-nine out of one hundred, so far as a rough numerical estimate be possible.

But it follows that the most patient application of the inquiry described sometimes fails to reveal the

cause of symptoms ; although it may, and often does, arouse suspicions as to what that cause may be. Thus, the evidence available in an exceptionally obscure case may point in the direction of impacted calculus, which is associated usually with extremely painful and frequent micturition, and muco-purulent or occasionally blood-stained urine ; or may indicate the presence of a growth within the bladder (not cancerous deposit in its walls, which is readily recognised from the rectum), such growth being usually associated with long-continued or repeated bleeding, and sooner or later depositing in the urine organic débris, the structure of which may determine its character. In either case no permanent relief is attainable without operation.

Besides the conditions named, there may be, as in the cases of elderly men who are unable to pass any urine without very frequent catheterism, another cause, not very infrequent, of the most distressing cystitis ; one that is rarely amenable to relief by ordinary treatment, because the cystitis itself is maintained by the very agency, the catheter, without which the patient's existence is impossible. A vicious circle of actions is thus set going, which can only move from bad to worse. In all the conditions described the patient's fate is sealed ; but even this grave fact does not disclose all the severity of his lot ; since it is almost inevitable that the fatal event

must arrive through severe and protracted suffering. The painful experience which I have necessarily had of so much misery of this kind, and for which, in the later stages of disease, little relief is afforded except through the influence of narcotics, has long impressed me strongly with the desire and the hope of finding the means of escape for some of these patients, equally from the fatal issue and from the suffering which precedes it.

Fifteen years ago (January, 1869), for a man about 60 years of age, in University College Hospital, I first opened a bladder with the sole view of affording relief in a case of painful cystitis of the kind described, no crisis of retention being present ; by making a suprapubic opening and maintaining a tube there during some weeks, in order to drain and relieve the bladder. I repeated this proceeding in six other cases, affording some relief, but with less of permanent benefit to patients than I had hoped to attain. The opening was ill-placed for drainage purposes ; it became very sore from contact with urine, and kept the patient for the most part confined to his room. But the last case in which I did this operation was so remarkable, and impressed me so strongly, that from that time I determined on a different course for the future ; and this at length issued in the plan which I have now put in practice nearly four years, and the results of which I shall lay

before you without any reserve to-day. But first, I shall ask you to listen to a very brief report of the case just referred to.

Mr. C. was aged 31 when first seen by me in 1870. During the previous six years has had occasional attacks of bleeding. The urine always more bloody at the end of the stream than at the beginning. The vesical origin of the blood was on this ground suspected at that time.

After two or three visits, he took a sea voyage for his health, and thought himself cured. But he came again in October 1874, having had several fresh attacks recently. I sounded him, and felt nothing; some fusiform cells were observed in the urine, and are sketched in the note-book at that visit.

1876. Has continued to bleed, and more frequently. Found three ounces of residual urine, and advised use of catheter daily; which was found to check bleeding, as when there was no straining there was no blood.

1877. Passes shreds of organic tissue; sounded, nothing felt; weaker; micturition frequent and painful.

1878. Sufferings so great in micturition that I resolved to make a suprapubic opening into the bladder to rest and drain it, and enable him to obtain some sleep, which has been terribly broken by constant straining. The operation afforded some relief, but he gradually became weaker, and sank about a month afterwards.

At the autopsy a single pedunculated tumour was found in the bladder; it resembled in form and size an ordinary fig. It could have been easily removed had the suprapubic opening been enlarged (see fig. 1).

It was clear to me from this case that the ordinary sound, 'a lengthened finger' in practised hands, as I had often and truly termed it to my class, had proved

incapable of giving me sufficient information relative to the presence of a considerable growth within the

FIG. 1.—Fimbriated Papilloma, with narrow peduncle. From case of Clark, æt. 38. (Museum of University College, No. 1,500.)

bladder. Supposing that I could but once have put my real finger there, instantly discovering, as I should have done, that easily removable tumour: how different would have been the issue of that unhappy case! He might have been enjoying life and health to-day. What then was to prevent me in future, under circumstances of equal gravity and like obscurity, from determining the presence or absence of such a growth, by the direct sense of touch, as I could so easily have done there, had the necessity for applying it ever occurred to me? The questions therefore naturally presented were: Might it not be possible to examine with my finger the whole interior surface of the bladder; and, if so, from what region could such exploration be most easily and safely accomplished—from the perineum, or from above the pubes? After experiment on the dead body the answer seemed not doubtful. With a small

opening into the membranous urethra from the perineum, just large enough to admit the finger to arrive at the neck of the bladder, and making at the same time firm suprapubic pressure, I could explore without difficulty every portion of the surface described. If then by means of anæsthesia I could attain that degree of flaccidity and inertia in the living body which is natural to the dead subject, why should I not be able to effect as easily the exploration in the former case as in the latter?

Opportunity for making the experiment soon occurred, partly in the course of a lithotomy case or two; and finally in the person of a patient who came under my care in 1880, with severe and obscure symptoms. At the outset of this case I met with a small calculus and crushed it, but subsequently found another, as I thought, impacted, not being able to remove it by the lithotrite. It was with the object of ascertaining the real state of the case that I decided thus to explore the bladder, and did so in November of that year. I invited Dr. Seegen, of Vienna, and Dr. Paggi, of Florence, who happened to be in town, as well as Mr. Ceely, of Aylesbury, to be present. Having made the median incisions, and complete flaccidity of the abdominal muscles having been attained by the influence of ether, I felt as soon as the finger entered the bladder that there was no difficulty in exploring the whole interior, and soon detected the

presence, not of a stone, but, to my surprise, of a single pedunculated tumour of considerable size, with a thick coating of phosphates deposited on the surface. It had been this coating, together with the immobility of the mass as previously determined by a lithotrite, which had suggested to me the presence of impacted calculus. I seized the tumour with a small lithotomy forceps and twisted it off at the neck. The patient, contrary to my expectations, made a rapid recovery; had no return of the growth or any sign thereof, and has enjoyed excellent health and activity ever since, as he does at this day. That operation took place in the autumn of 1880, now nearly four years ago. I waited a year and a half before presenting this man and his history to the fellows of the Royal Medical and Chirurgical Society, and before proposing also to make his case a precedent to be followed systematically in obscure cases for the future, having at this second date adopted the operation in three other cases of chronic bladder disease, which, however, were not examples of tumour in any form. The case, with diagram of the growth removed, forms No. 1 in the Table of Cases at the end of this volume.

I then determined to regard the systematic examination of the bladder by means of the finger as a desirable, and indeed as a necessary, proceeding in obscure disease believed to affect the bladder, when

other means, including careful sounding under ether, had failed to detect the cause. And in order to distinguish the new method, I termed it 'Digital Exploration of the Bladder,' and under this name I made the first published account of it, not in this country, but in *La Semaine Médicale* of Paris, in June 18, 1882; specifying also the cases in which it might be deemed applicable.

In the surgical proceeding itself there is nothing new, nor did it ever occur to me that it could be claimed in that sense by any modern surgeon. Like others I had often opened the urethra from the perineum for stricture, for chronic and obstinate urinary fistulæ, for impacted calculus, for calculus sacculated in front of the neck of the bladder, and once after lithotrity when the patient could pass no urine except by catheter, and was unable to introduce the instrument, &c. But the object with which I have recently proposed to operate is a new one, inasmuch as it is solely the exploration of every part of the bladder with the end of the finger, in order to diagnose its condition, and not by any means necessarily to perform any further operation, unless indeed this should turn out to be required by the discovery of a tumour or other condition admitting of surgical treatment. To effect this purpose, then, it was extremely important to determine what is the shortest and easiest route for the surgeon, and at the same time by what

method would the smallest amount of risk to the patient be incurred.

At first sight it appeared that an incision involving the neck of the bladder must be necessary, and that the operation must therefore be some form of cystotomy. Happily experiment proved that no such extended incision would be required, and that a section carried from the perineum to the urethra, in other words 'external urethrotomy,' would suffice for my purpose.[1] Now, this is a procedure almost without risk. The mere section of parts from the perineal surface in the median line, down to any part of the urethra anterior to the prostate is one of the simplest and least dangerous of surgical operations. If in addition to the section, the prostatic urethra together with the wound have to form a route for the repeated introduction of instruments, and for the removal of a tumour, the risk is increased in proportion to the amount of work to be done; but even then the fresh danger incurred does not arise from the urethral lesion so much as from the process of detaching the growth from the walls of the bladder.

[1] It fell to my lot to write a brief history of that operation for my earliest Jacksonian prize essay in 1851, and I recorded there that it was practised in the end of the seventeenth century by Richard Wiseman in this country, and that at about the same period, and subsequently, it was known and practised in France, under the name of the 'boutonnière,' by Tolet, Colot, Petit, Ledran, and others. By all these it had been adopted to give an outlet to retained urine, and to relieve impassable stricture. My purpose, however, was wholly different, as is seen above.

In lithotomy the urethral route, and particularly the neck of the bladder, are injured by forcible extraction of a large and rough calculus, but nothing analogous to that dangerous process occurs in the remo[illegible] of tumour.

Old, however, as is the surgical proceeding in question, whether in modern language it be termed 'external urethrotomy,' or, as with the older French surgeons, the quaint term of the 'boutonnière' be adopted (the term itself shows how very simple even at that period they considered it), the mode of performing it appears to me, after a considerable experience, not altogether a matter of indifference. I shall in the first place, however, premise that there is no longer any doubt that the median incision of the perineum opens a shorter road to the neck of the bladder than an incision commenced from any lateral part of that region, although the question has been raised. Considering this point to be determined, I shall describe in the succeeding chapter the steps of the proceeding which appear to me the most desirable to be followed in order to attain the end proposed with ease and safety.

CHAPTER II.

DIGITAL EXPLORATION OF THE BLADDER.

Mode of performing—Conditions which may be met with—Draining the bladder—Exploration in women—Results of exploration in forty-three cases—Brief reports of each.

THE OPERATION.—The position of the patient, and the general accessories necessary, are those required for lithotomy.

After ether has been given, a median staff with a short curve, wide and deeply grooved, is passed into the bladder, and the patient is brought down to the edge of the table, the feet and hands are attached by anklets and wristbands and held by two assistants in the usual manner, another holding the staff. The surgeon, being seated, introduces into the rectum his left forefinger, so as to feel with its tip the position of the grooved staff, separated by intervening tissues, and to verify the apex of the prostate, on which he may place the point of his finger as a guide. He may take the handle of the staff with his right hand and place it in the position required, before returning it to the hand of the assistant. Maintaining his left