

the gynæcologist. In many instances these symptoms are induced by disease of the uterus, ovaries, or vagina; the bladder being only affected by irritation propagated from its neighbouring organs, or being hindered in its function by pressure of these organs displaced or enlarged. *Proximus ardet.* In another series of cases, disease commencing in the uterus or vagina spreads to the bladder, when symptoms of bladder disease will, of course, be added to those of the primary disease. In a third series, the primary seat of disease is in the kidneys or bladder. I think it may be affirmed that cases of this last series are the least frequent. In these cases the chief symptoms will naturally be referred to the bladder, but uterine or ovarian distress will often be entailed.

As it does not fall within our theme to discuss the strict diseases of the kidneys and bladder, it may be useful to point out at the onset the leading indications by which they may presumably be distinguished from cases of the first two series, and especially from those of the first. Strict kidney and bladder diseases are recognised by functional derangement of those organs, by correlated constitutional disorder, by alterations in the characters of the urine, and by physical examination. Severe pain in the region of the kidneys, occurring in paroxysms, attended by vomiting, and the presence of pus, blood, gravel, or calculi in the urine, point to the kidney as the source of trouble. The presence of albumen, casts, uric acid, oxalic acid, sugar, pus, or blood, usually points to structural changes in the kidneys or bladder, or to functional disorder of the nutritive apparatus. This proposition is generally true; but pus and blood may find their way into the bladder through a fistulous communication with an ovarian cyst, or be formed in the bladder as the consequence of obstruction to excretion. So that even the most probable indications of strict kidney and bladder distress should not turn us away from the direct exploration of the neighbouring pelvic organs. Of course this exploration will be the more imperative if we learn that there are subjective symptoms referred to the ovaries, uterus, or vagina. If we follow the rule of systematically investigating the condition of all the pelvic organs when one of them shows signals of distress, we may now and then discover, *after the event*, that we have done something superfluous, but we shall always have the satisfaction of knowing that we have taken the best course to avoid error in diagnosis, and consequent risk of adopting useless or injurious treatment.

There are

Bladder complications due to mechanical conditions of the pelvic organs.

Of these the most important is *retention of urine* from obstruction of the urethra. This imperiously urgent symptom may come on suddenly, or it may be preceded by attacks of dysuria or partial retention. In almost every case retention of urine in women is the consequence of pressure arising outside the bladder. It is therefore a symptom, not of bladder disease, but of disorder of other pelvic organs. Retention from atresia or stricture of the urethra, or from blocking by a calculus, is extremely rare in women. The canal is short, of large bore, and easily distensible; in all these respects differing from the male urethra. Pressure may be developed in a few hours so as to completely compress the urethra against the symphysis pubis. The bladder filling above the obstruction, the symptoms of retention quickly follow. Or the pressure may be developed very slowly, as when a fibroid tumour is enlarging in the pelvis. So long as the pressure does not completely obstruct the urethra, the retention will be only partial. Or the retention may be intermittent. This may be due to changes in the position or size of the obstructing body. All pelvic tumours are apt to induce more pressure at the menstrual epochs than in the intervals. This is not necessarily because the tumours themselves are increased in bulk at these times, but more often because of the general increase of turgidity of all the pelvic structures.

The diagnosis of retention of urine is not always easy; at least, in practice it is occasionally not made out. This is because retention is rarely absolute. Under the enormous hydrostatic and expulsive pressure brought to bear when the bladder is greatly distended, a little urine will be

Clinical Lectures

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LECTURE I.—PART I.

WHEN a patient complains of pain in a particular organ, or of difficulty in the performance of its function, it does not necessarily follow that that organ is the real seat of disease. This is eminently true of the bladder in women; so true, indeed, that in the majority of cases of bladder distress the cause will be found outside the bladder. To estimate rightly the significance of subjective complaints referred to the bladder, we are therefore necessarily led to institute an objective examination not alone of the bladder but of the other pelvic organs as well.

The bladder is so intimately associated with the uterus and vagina, and so constantly participates in the affections of these organs, either directly or indirectly, that the clinical study of symptoms referred to it is daily forced upon

* THE LANCET, 1853, vol. i., p. 394. I made the most careful researches several years ago in relation to this subject with the result stated above. Encephaloid cancer of the prostate is far less rare.

driven along the urethra, and, escaping externally, impose upon patient and attendants the belief that the bladder empties itself.

Stillicidium or dribbling attended by that form of dysuria which may be called bladder-tenesmus or straining, is presumptive evidence of retention more or less complete. It may look paradoxical, but it is nevertheless true that the loss of control over the sphincter vesicæ, resulting in loss of power to hold the urine, is proof of retention.

Failure to recognise the significance of this state may involve the most disastrous effects. Retention cannot be endured many hours without involving the risk of serious damage to the bladder and kidneys, and the absorption of urinous elements into the blood.

It should therefore be established as a rule in practice, in all cases of stillicidium urinæ as well as of complete retention, to examine by catheter. The slight overflow or dribble should not be accepted as evidence that the bladder is free. We may know that the bladder is distended when the sense of relief is not complete, when pain is still referred to the pelvis, accompanied by recurrent attacks of irrepressible bearing down or straining efforts, and when a tense swelling has formed in the lower abdomen. When the swelling due to accumulation in the bladder has proceeded to some extent, we may fail to find distinct fluctuation; the tension is too great; but there will be dulness on percussion, extending as high as, or even above, the umbilicus, increase of pain on pressure; and the form of the tumour, if the abdominal walls are thin and yielding, is peculiar. The bladder keeps close to the anterior abdominal wall. It points more under the umbilicus than does the pregnant uterus or an ovarian tumour. Both these spread more laterally, and, of course, have other characteristics peculiar to themselves. The best practical rule to adopt is this:—Whenever hypogastric or pelvic distress points to the expediency of making a vaginal examination, and the vagina is found compressed forwards and the os uteri fixed close behind the symphysis pubis, whilst it is difficult to press in the fingers applied above the pubes on account of the pain produced, or the presence of a swelling, begin by passing the catheter. This will at any rate clear the way, eliminate one source of doubt, and assist the diagnosis. It is a case where a fault of omission is far more likely to be regretted than one of commission.

The quantity of urine retained is sometimes very large; it may amount to two or three quarts, or more. When the retention has lasted twenty-four hours or longer, the urine drawn off will usually be turbid, sometimes smoke-coloured from sanguineous exudation, ammoniacal, and, commonly, extremely offensive. Considerable relief follows the evacuation, but not so complete as might be expected. A low degree of cystitis may have been induced, and the extreme distension to which the bladder has been subjected will leave a degree of paralysis of the muscular coat. Hence the urine is apt to accumulate again, although the obstructing cause may have been removed. Hence the practice of passing the catheter two or three times a day at stated intervals should never be omitted until we get certain knowledge that the bladder has fairly recovered its tone. This is shown by the freedom from local distress, by the consciousness that urine is passed in a stream, and by our finding on passing the catheter that only a moderate quantity of limpid urine is drawn off.

The effects of retention of urine, if not relieved, are:—The bladder, it is said, may burst. This may be looked upon as a possible rather than a probable event. I do not know of a case in which this accident has occurred. Three compensating factors are always at work to obviate bursting. These are: stretching of the bladder, overflow by dribbling, and absorption of part of the urine; and long before bursting could take place the patient would die from exhaustion by pain, by the structural changes produced in the bladder and kidneys, and blood-poisoning. The first effect upon the bladder is irritation, which leads on to congestion, and then to inflammation, of the mucous coat especially. This is the most common cause of *cystitis*. The intense congestion leads to the effusion of blood into the urine. If the interior of the bladder is seen at this stage it looks swollen, pulpy, dark-red, or even black, and viscid mucus mixed with blood may be adhering to the mucous membrane. The swollen mucous membrane entangles the deposits which soon take place, so that it is often coated with triple phos-

phate. From a moderate degree of congestion and inflammation the bladder may recover; but if the retention be long continued the mucous membrane may be cast off. Several cases of complete exfoliation of the mucous coat are known. This, in itself, is not a fatal accident. Several patients have recovered. One of them I saw at the London Hospital. When it occurs as a consequence of severe labour the duration of the retention need not be very protracted. Twenty-four hours may be enough. But in these cases there is commonly superadded considerable contusion of the bladder from the pressure of the child's head or instruments. But where it results from simple obstruction of the urethra, usually a much longer time has elapsed. Protracted retention after severe labour has in several cases been followed by exfoliation of the mucous membrane. The membrane separates from the bladder in shreds, or as a whole, so that when extruded it represents a perfect cast of the bladder. In one specimen, which came from a woman who had suffered a severe labour, and which was given me by Mr. Nicholson, of Stratford, the substance did not represent the elements of mucous membrane; it was a tough fibrillated tissue coated with phosphatic crystals; it had been drawn out in shreds through a vesico-vaginal fistula, which bore evidence to the difficulty of the labour. But in other cases the true characters of mucous membrane have been distinctly recognised. Dr. Wardell* relates a case which occurred in the infirmary at Tunbridge Wells. A woman was admitted with retention of urine. Fetid urine was drawn off. A fœtus of three to four months was expelled, followed by its placenta. Then incontinence ensued. The urine was still offensive and loaded with mucus. Twelve days later she was seized with great pain over the pubic region. Next morning the house-surgeon was called to see her on account of excessive pain. He felt a substance being expelled, and saw a mass protruding through the meatus urinarius. This was expelled in half an hour. At the moment of expulsion the urine gushed out with great force and in large quantity. Instant relief followed, and she perfectly recovered. The substance looked as if it were the whole mucous coat of the bladder. Its inner surface was coated with gritty deposits. Its minute structure is not described. In this case I have little doubt the cause of the retention was retroversion of the gravid uterus. In other cases the structure of the substance expelled was more clearly made out. Mr. Spencer Wells relates two cases.† A woman, aged twenty-two, had a natural labour with her first child. The bladder was not emptied for sixty-two hours; five pints of turbid bloody urine were then drawn off. Cystitis followed, incontinence of urine, and a train of distressing cerebral symptoms, ending in death two months after delivery. The bladder after death was found to contain a detached cast, lying loose, covered with gritty deposits of urates and phosphates. The walls of the bladder were thick and contracted, the muscular fibres being distinctly visible. The cast resembled degenerate epithelium. On boiling a piece of it in dilute acetic acid much of the saline matter became dissolved and some of the tissue became clear, looking like smooth muscular tissue which has begun to degenerate by the deposit of fatty or albuminous particles in its substance. In Mr. Wells's second case the specimen was expelled six weeks after a severe instrumental labour. From the time of labour the patient suffered from severe cystitis and nephritis. Three weeks after labour the urine contained albumen, blood-corpuscles, pus-cells, chylous matter, and renal tube-casts. The urine, when quite fresh, was loaded with carbonate of ammonia. A hard swelling had been felt through the anterior wall of the vagina, and on the day before the specimen was expelled through the urethra shreds of sloughy membrane had been seen protruding through this canal. After it came away the patient improved, and ultimately got well. Dr. George Harley minutely examined this specimen. It formed a bag, the exterior of which was white, and even to the naked eye distinctly muscular; the fibres were of the involuntary kind, distributed in an interlacing manner, as in the urinary bladder; the interior was of a dark colour, everywhere covered with a gritty deposit, on the removal of which a smooth mucous surface came into view. The possibility of the whole lining membrane of the bladder being exfoliated is proved by a specimen in the College of Surgeons.

* British Medical Journal, 1871.

† Obstetrical Transactions, vols. iii. and iv.

It is the bladder of a man which Mr. Liston had cut into above the pubes to relieve retention, thus allowing urine and a membrane to escape. The specimen exactly resembles the mucous membrane of a bladder separated as a slough in one piece.

Dr. J. J. Phillips relates another case.* A young woman had a difficult labour, lasting, it is said, four days. Bladder distress followed, and a month after labour there was complete incontinence. The meatus urinarius was so dilated that it admitted the tip of the little finger. Next day there was expelled from the bladder a nearly complete cast. The patient recovered.

Dr. Schatz has related (*Archiv für Gynäkologie*) and figured another case of complete exfoliation by necrosis of the inner coat of the bladder consequent upon retention from retroversion of the gravid womb. The woman died, when the lining membrane of the bladder was found lying loose in the cavity of this organ. It is obvious that membrane so detached may fall into the urethra, and thus become a secondary cause of retention of urine.

The recognition of these cases is of great importance. One of Mr. Wells's cases, Dr. Wardell's, Dr. Phillips's, and one which I saw ended in recovery. Where obstruction to the voiding of urine is found from the pressure of some substance blocking the urethra from within, it would not be difficult to give relief by dilating the urethra, and drawing out the substance by forceps or a small blunt hook. Rest, demulcent drinks, and sedatives would diminish irritation whilst a new mucous membrane was forming.

The next effect of retention, and one which very quickly follows, is absorption of some of the fluid collected in the bladder. Then the retrograde pressure upon the ureters and kidneys leads to distension of these parts, and a difficulty of secretion. Congestion of the kidneys easily merges into nephritis; some degree of albuminuria is not uncommon; and the elements which ought to be excreted by the kidney being thrown back into the blood, the circulation is poisoned, and brain symptoms arise. It would be out of place here to discuss the theories that have been broached as to the particular noxious element which thus empisons the blood. I prefer the term *urinæmia* to *uræmia*, as more comprehensive, and as less definitely assumptive of a precise knowledge. Blood-poisoning in this way is the most dangerous consequence of retention. It is more frequently the cause of death than any other condition.

Chronic cystitis and *nephritis* is the next consequence of retention. After the retention is relieved, and the bladder has recovered some amount of power, the whole urinary tract is subject to chronic inflammation.

Peritonitis sometimes follows retention of urine. It will, of course, be sometimes difficult to assign this with certainty to the retention as the cause, where great disorder of other pelvic organs which led to the retention coexists. But in some cases there is reason to suspect that, under the enormous pressure exerted by the distension of the bladder, increased by the futile efforts of the organ to expel its contents, some degree of oozing or permeation of the urine may have taken place through the coats, and thus have produced irritation of the peritoneal investment.

Starting, then, with the proposition that retention of urine may be caused by compression of the urethra against the symphysis pubis, we may usefully pursue the subject by inquiring what are the various causes that may exert this injurious compression. It will assist our analysis if we attempt to classify these causes.

We may bring together into groups—

1. Conditions inherent in the uterus itself.
2. Conditions external to the uterus, but acting for the most part by driving the uterus against the bladder. The situation of these is of course behind the uterus. Other conditions have their seat in front of the uterus. Others, again, have a lateral position.
3. Vaginal conditions.
4. Conditions depending upon labour or the puerperal state.
5. Conditions, mostly dependent upon nervous disturbances, which do not fall under any of the preceding heads.

We will now proceed to the more particular discussion of the causes of retention, beginning with the first group of cases.

* British Medical Journal, 1871.

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LECTURE II.

HAVING reviewed the general symptoms and consequences of retention of urine, we may now seek to analyse the causes which induce this condition.

We may conveniently bring into one group those causes which are inherent in the uterus. These are: Certain displacements of the uterus, as—

1. Retroversion or retroflexion of the uterus, gravid or not gravid.
2. Prolapsus of the uterus, gravid or not gravid.
3. Anteversion or anteflexion of the uterus, gravid or not gravid.
4. Recent inversion.
5. Enlargement and locking in the pelvis, more or less displacement attending.
6. Hæmatometra, or retention of blood in the uterus, from atresia of the os uteri or vagina, or occlusion of the vulva.
7. Tumours in its walls or cavity.
8. General hypertrophy from hyperplasia.
9. Thrombus in the uterine neck.

We may next bring into another group those causes which lie externally to the uterus. Many of these act, partly at least, by producing displacement of the uterus. The chief of these are:

A. Bodies getting in front of the uterus—that is, between it and the bladder; as—

1. Ante-uterine hæmatocele or blood-effusion in the cellular tissue between the cervix uteri and the bladder.
2. Ante-uterine phlegmon, or abscess in the same tissue as the effusions of blood.
3. Rarely, an ovarian tumour, the dermoid variety being the more probable.
4. Malignant disease binding the bladder to intestine or other adjacent structures.

B. Bodies getting behind the uterus. These are more common and more important than the preceding. The principal ones are—

1. Retro-uterine hæmatocele.
2. Collections of inflammatory effusions, serous, fibrinous, or purulent, the result of peritonitis, general or pelvic, or of cellulitis.
3. Ovarian tumours, dermoid or cystic, of such moderate size that they can, wholly or in great part, be retained in the pelvis.
4. Extra-uterine gestation-cysts.
5. Collections of fæces in the rectum.
6. Tumours in the rectum, or springing from the pelvic walls.

C. Bodies on one or other side of the uterus. These, generally, when they cause retention of urine, get somewhat behind the uterus also. The principal are—

1. Inflammatory effusions, the result of peritonitis, general or pelvic, or of pelvic cellulitis.
2. Ovarian tumours.
3. Other tumours in the broad ligaments.
4. Tumours or distension of the Fallopian tubes.

Certain conditions of the vagina form a sufficiently characteristic group. These are—

1. Tumours formed in the walls of the vagina, or contained in the canal, as dependent uterine polypi, or the inverted uterus.

2. Phlegmon or abscess in the walls of the vagina.

3. Plugs introduced to arrest uterine hæmorrhage.

The group of puerperal causes would include some of the causes stated in the foregoing groups, but it is of especial clinical convenience to consider these in their relation to labour and childbed.

There remain yet other causes of retention of urine which do not fall within any of the preceding groups. Some of them may be traced to nervous disturbance or aberration, as—

1. Retention following upon operations upon the neck of the uterus. This is strictly analogous to the retention which sometimes ensues upon operations upon the rectum in the male subject.
2. Retention, partly voluntary, induced by dread of pain during micturition when neighbouring organs are diseased.
3. Hysterical retention.
4. There is a form of temporary recurrent paralysis, which cannot be called hysterical, in which, the proper moment for the evacuation being lost, it is found that the bladder refuses to act at a later time, and the catheter has to be resorted to. In some cases I have seen there was no neighbouring disease and no disorder of the urine.
5. Paraplegic, or from progressive general paralysis.

Lastly, we must be careful not to mistake suppression of urine for retention. Suppression rarely occurs except in association with fever. The catheter, by showing that the bladder is empty, establishes the diagnosis.

Mere retention of urine can, of course, be relieved for the time by the simple use of the catheter. But as this does not touch the cause, retention will recur. It becomes, therefore, indispensable to determine what is the particular cause. For this it is necessary to institute a thorough physical examination of the pelvic organs. The history of the case may help, and it may mislead; for in medicine, as in politics, trustworthy history is not easily found. We may, indeed, at once eliminate some of the causes we have enumerated by noting the age and other conditions of the patient. Thus we shall exclude the probability of causes depending upon pregnancy in women whose age is incompatible with that state. By similar reasoning we may in most cases quickly dispose of a considerable number of causes, and be enabled to reduce the problem within narrow limits. But in the end we must fall back upon local examination, not only to establish an accurate diagnosis, but also for the purpose of treatment.

The chief means of diagnosis are: the touch, vaginal, rectal, and abdominal; the sound; the catheter; the aspirator-trocar. The speculum is rarely useful in these cases, and in many it could only be introduced with difficulty and pain.

The first step in diagnosis and in treatment is to pass the catheter. This, by emptying the bladder, reduces the case to a simpler condition, and facilitates the application of other modes of exploration. The vesical tumour removed, we can immediately, by percussion of the abdomen down to the level of the symphysis pubis, and by pressing the fingers back towards the spine, determine whether any tumour or solid body exists in the abdomen; or, this point being negatived, we have traced the difficulty to the pelvic cavity, and may then concentrate our attention upon the study of the causes which we know to be of pelvic origin.

The observations almost inevitably made during the passage of the catheter may alone sometimes almost settle the question. If, for example, on passing the guiding finger along the urethra we ascertain that there is no pressure upon it, and if the vaginal canal and the uterus be in normal relations, we infer that the retention is due to paralysis or other nervous disorder. If, on the other hand, we find the vagina compressed, the os uteri difficult to reach high above the symphysis pubis, and the catheter difficult to pass because the urethra and its meatus are dragged up from their normal seat, we may presume with great confidence that the case is retroversion of the gravid uterus. But to determine this point with certainty further examination is necessary. And we may usefully set before ourselves the possible conditions between which we have to decide.

The great practical question lies between retroversion or retroflexion of the gravid uterus, retro-uterine hæmatocele, other tumours—as ovarian, dermoid, fibroid,—abscess, or distortion with enlargement of the uterus from fibroid tu-

mour. In most of these cases, irritability of the bladder, marked by occasional partial retentions, has preceded the more complete retention which has necessitated medical assistance. This premonitory distress is less frequently marked; that is, the retention is more sudden in retroversion of the gravid womb and in retro-uterine hæmatocele. And these are the two conditions which I have known to be most frequently confounded. Let us briefly differentiate these conditions. First, take note of the characters they possess in common. In both there is apt to be retention of urine; but this is more constant in retroversion. In both, the examining finger, on passing the vulva, is directed forwards by a prominent rounded mass felt filling the hollow of the sacrum, compressing the posterior wall of the vagina against the anterior wall, and reversing the normal direction of this canal. The finger cannot go backwards as usual under the sacral promontory—the mass described is in the way; the vaginal canal runs forwards, and the finger searching for the os uteri finds this either close behind the symphysis pubis or immediately over it. The distinguishing features are: (1) in retroversion, the hand pressed in above the symphysis towards the spine meets with no resistance from any intervening solid body; (2) there is usually more prominence or bulging of the perineum, more pressure upon the anus, and hence more frequently urgent reflex expulsive pains; (3) the os uteri is pointed forwards, even upwards, looking to the umbilicus, and is more difficult to reach, and this up-dragging of the cervix uteri pulls up along with it the base of the bladder and urethra, smoothing out the rugæ of the anterior wall of the vagina, and even carries the meatus up behind the symphysis pubis, making it difficult to find.

In retro-uterine hæmatocele the signs just mentioned do not exist, or only exist in a much less marked degree; and there are positive distinctive signs: (1) the os uteri always points downwards; (2) it is usually lower in the pelvis, often as low as the lower margin of the symphysis pubis; (3) the urethra therefore is not dragged up, nor the meatus displaced; (4) the uterine sound can be passed into the uterus for the normal length of two and a half inches or even more, and then the fundus of the uterus, supported on it, can be felt by the hand outside close behind the abdominal wall and above the level of the symphysis. This latter sign is conclusive against retroversion of the gravid uterus. The downward pointing of the os uteri is found, however, in *retroflexion* of the gravid uterus—a condition which I believe is more frequent than pure *retroversion*. In this condition the uterus is distorted rather than displaced, bent like a reftort; the cervix, preserving more nearly its normal direction, does not pull up the urethra, and the retention of urine is not so sure or complete as in retroversion. But although the os uteri occupies nearly the same position as in retro-uterine hæmatocele, the two cases are readily distinguished by the uterine sound, which can be passed into the uterus in the second case, and not in the first.

Next we have to distinguish the retroverted uterus and retro-uterine hæmatocele from a small retro-uterine ovarian tumour. Here, again, the sound is of essential service. In the case of ovarian tumours the uterus is bodily pushed forward; the os looks downwards; the sound passes the normal length forwards; and the uterus, thus supported, may be felt above the symphysis by the hand outside. The proof is thus clear that the case is not retroversion or retroflexion of the uterus. The mass felt behind the cervix uteri is therefore a hæmatocele or other tumour. An ovarian tumour of such moderate size as to be locked in the sacral hollow below the promontory will have grown slowly, and signs of irritation of the bladder and rectum will have preceded retention. At this stage the tumour is almost always nearly spherical; it is felt tense and elastic; it is, to some extent at least, *movable*; the uterus is also movable; the tumour is nearly or quite central, having no lateral extension towards the sides of the pelvis. Now hæmatocele differs in almost all the above features. It is generally *fixed*; and often extends to the sides of the pelvis, even rising out of it into the abdomen; and the attendant adhesions fix the uterus.

Extra-uterine gestation-cysts and dermoid cysts getting behind the uterus will be hard to distinguish from ordinary cystic tumours of the ovary. The tubal gestation-cysts, however, do not usually get into this place; they commonly burst whilst still occupying a lateral position. The tubo-ovarian and abdominal cysts develop in great part in the

abdominal cavity; it is only a portion that gets into Douglas's pouch; and the growth and local distress are of gradual rise. Again, the aspirator-trocar affords the most signal service, not alone in diagnosis, but in treatment. It may be used in all these cases; and the fluid drawn off will at times clear up the mystery. For example, in one case I recently drew off a pint of clear oily fluid, which on cooling set firm like dripping; and in another case, through the small opening thus made, I insinuated a small blunt hook, which drew away teeth and masses of hair. The dermoid nature of the tumours was thus made clear.

A fibroid tumour lying loose, or attached by a narrow pedicle to the uterus, in Douglas's pouch, is a possible, though rare thing. It might be difficult to distinguish from an ovarian tumour. Its greater density would assist in the diagnosis; and the aspirator-trocar plunged into it and extracting no fluid would strengthen the suspicion that it was fibroid.

The uterus itself enlarged by fibroid tumours and locked in the pelvis may usually be distinguished without difficulty. The mass is irregular, knobby, dense; the os uteri may be deviated from its proper place; the cervix is often distorted; but the sound or a flexible whalebone may usually be passed the normal distance, or more perhaps, in a tortuous course; and the fibroid masses felt to move with the uterus are identified as part of this organ.

The condition most difficult to be distinguished from hæmatocele is retro-uterine abscess. Indeed this sometimes is the issue of hæmatocele. It holds the same relations, is of similar shape, may feel like it, so that nothing but the aspirator-trocar drawing off pus or blood, as the case may be, can give absolute evidence.

The effusions of pelvic cellulitis or peritonitis may, for the most part, be distinguished as follows:—(1) The os uteri is more central and lower in the pelvis than in the pure retro-uterine tumours; (2) the uterus is fixed by dense brawny deposit on one or the other or on both sides of the cervix, as well as behind; (3) the finger in the rectum traces the brawny deposit from the side of the uterus to the pelvic wall. Here, again, the aspirator-trocar is sometimes of great service in detecting suppuration deep in the mass.

I once saw retention of urine in an old woman caused by a compacted mass of faeces in the rectum; it filled the hollow of the sacrum and pushed the uterus forwards against the symphysis pubis, turning the vagina forwards in much the same manner as retro-uterine hæmatocele. The mass yielded like putty before the finger; the indentations made remained; there was no elasticity in it; and the finger in the rectum became embedded in the mass. Copious enemata washed away the tumour and relieved the bladder.

There is now in the Adelaide ward a woman, who applied as an out-patient, suffering from retention of urine. On vaginal examination, we found the cervix uteri pressed near the symphysis, and a hard mass flattened in form protruding the posterior wall of the vagina. If the examination had been carried no further, it might have been concluded that the case was one of retroversion of the gravid uterus. We should have committed a serious clinical error, and done wrong to the woman's character, for she had long been a widow. By extending the examination to the rectum, we traced the deposit of pelvic cellulitis from the uterus to both sides of the pelvic wall; and then by the sound we ascertained that the uterus was of ordinary size and lying in its normal axis.

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LECTURE III.

Partial Retention. Incontinence. Cystitis. Abnormal matters in Urine: blood, pus, feculent matter, hair, fat, bones, albumen—significance of. Malignant Disease of Bladder, primary and secondary.

A CONDITION allied to retention in nature is *partial retention*. Although rarely so dangerous in its effects, death may result. The bladder is never completely emptied; and the desire to empty it is left unsatisfied, frequently inducing more or less futile straining efforts. A familiar cause of this is *procidencia* of the uterus. The bladder, intimately connected with the neck of the uterus, is dragged down by the uterus in its descent. A pouch is thus formed below the ordinary level of the urethra and its meatus. In this pouch urine accumulates, and the retention is apt to give rise to phosphatic and lithic concretions. This condition is easily verified by passing the sound or catheter into the urethra. The instrument passes directly downwards in front of the *procidens cervix uteri*, and its point may be felt near the *os uteri*, quite outside the vulva. The worst consequences of this condition are generally averted by the variable state and degree of the uterine prolapsus. In the recumbent posture, and often during rest, the uterus rises into the pelvis, carrying the urinary pouch up with it, when the urethra comes into a position to drain it. In many cases the woman overcomes the difficulty by pushing up the *procidens uterus* with her finger during micturition. These facts indicate the importance of keeping the uterus at its

proper level by means of suitable pessaries or operations. In extreme cases the most disastrous results may follow neglect. Thus the late Dr. J. J. Phillips related* a case in which fatal hydronephrosis ensued. The uterus protruded externally, the fundus being under the symphysis pubis. The woman died of typhoid symptoms, the result of gradual disease of the urinary apparatus. The ureters were dragged down below the arch of the pubes, where they were obstructed and became enlarged; the kidneys were wasted; purulent urine filled the urinary passages. The preparation is in Guy's museum.

A similar retrograde hydronephrosis may be due to long-continued partial obstruction and retention from cancer of the uterus invading the bladder. The consequent atrophy of the kidneys in the end leads to suppression of the secretion, and, as in Dr. Phillips's case, to uræmic coma and death.

Next to retention of urine, perhaps, the most troublesome complaint is a too frequent desire to empty the bladder. In some cases the want is irresistible and incessant. And yet there may be no disease of the bladder or kidneys. All may be due to abnormal conditions of proximate structures.

It may be stated generally that all the causes which ultimately lead to retention, commonly in their earlier stages cause irritation of the bladder, expressed by frequent desire to empty it. Hence the paramount importance of taking this symptom as a warning to institute a local physical examination. Thus I have known a woman die from the consequences of retention caused by retroflexion of the gravid uterus, who for two months previously had been attending a surgeon for irritation of the bladder, the cause not being suspected.

Cystitis, subacute or chronic, is almost sure to ensue sooner or later from partial retention of urine, just as we have seen acute congestion and inflammation ensue from complete retention. And since most of the causes of retention, partial or complete, arise externally to the bladder, we might easily fall into error if we sought exclusively in the urinary apparatus for the cause of cystitis.

Subacute cystitis arising from lesser degrees of retention or other causes—such as an irritating condition of the urine—may pass also into chronic cystitis. This is sometimes due to tubercular deposit in the urinary mucous tract. It is possible that this may exist independently of tubercular matter in the genital tract; but it is rare for the urinary tract to be affected alone. Evidence of other organs—as the lungs—being involved will seldom be wanting. Dr. West, however, thinks that inflammation of the kidneys and bladder may occur as secondary to tubercular deposit when yet no other symptom of tuberculosis is present; and, further, that such a disease may run its course to a fatal issue without phthisis supervening, even without any deposit of tubercle in the lungs or elsewhere than in the bladder and kidneys, and the absorbent glands in their immediate vicinity. I think I have seen subacute or chronic cystitis arise out of puerperal fever apart from any direct injury from severe labour or retention. It may also take its origin from exposure to cold whilst the organ is in a susceptible condition.

Chronic cystitis or irritation may arise from vesico-intestinal fistula, giving passage to portions of fecal matter into the bladder. The case is rare, but I detected this communication in one instance by microscopic examination of some semi-solid matters passed in the urine. The case was that of a young lady who had recovered from typhoid. No doubt ulceration of the intestine had occurred, attended by peritonitic adhesion to the bladder, and thus perforation was effected into this organ, instead of the more usual escape into the cavity of the peritoneum.

In another case feculent matter was frequently found in the urine. A tumour was detected in front of the uterus, and apparently between this organ and the bladder. On post-mortem examination, we found a dense mass of fibrinous substance gluing the small intestine to the fundus of the bladder. This mass had been perforated by a fistulous communication between the two organs. The cause of this appeared to be malignant disease beginning on the mucous surface of the small intestine. Blood and pus had preceded the appearance in the urine of feces. The use of the microscope here was very manifest. Dr. Ord, to whom I gave samples of the urine, without telling him anything of the

* Brit. Med. Journal, Oct. 5th, 1867.

† Phil. Med. and Surg. Reporter, 1861, and Med. Times, Nov. 2nd, 1861.

‡ Vanzetti: Gaz. des Hôp., 1862, p. 519.

* Obstetrical Transactions, 1870.

case, gave me a correct account of the food upon which the patient had been sustained.

The characteristics of chronic cystitis are usually: great irritability of the bladder, marked by frequent and urgent calls to pass urine even when there is no accumulation; the presence of mucus or pus in the urine; and pain above the pubes. Mere irritability may be due to proximate disease, as in the uterus; but where the quantity of mucus in the urine is large the mucous membrane of the bladder is affected. Local examination made by the catheter brings out pain when the point of the instrument touches the wall of the bladder, and the finger applied to the anterior roof and wall of the vagina evokes the same symptom.

The consequence of this distressing complaint is frequent spasmodic contraction and gradual thickening of the muscular coat. The bladder seems to contract upon itself; it is no longer able to hold urine enough to be distended to its normal dimensions. After a time ulceration of the mucous membrane is apt to follow; then the muco-purulent admixture is increased, blood may appear, and the irritability and pain become more severe.

The treatment consists in the employment of all those means best calculated to diminish the irritating qualities of the urine. The digestive organs will therefore demand care. Everything known to promote dyspepsia and lithiasis or oxaluria must be avoided. Demulcents and then tonics will be useful. Where lithiasis is present, alkalies, as soda, potash, or lithia, will be serviceable; but more commonly the condition to be remedied is the phosphatic, with tendency to ammoniacal urine. Here moderate doses of mineral acids and tonics will be most useful. Advantage has sometimes been gained from washing out the bladder by injecting weak acid solutions or demulcent and sedative fluids; but in some cases the irritability of the bladder is so great that this treatment is resented, and must be given up. Warm baths offer great relief when the pain or spasm is urgent.

In retention, partial or complete, it is of the utmost importance to use a male elastic catheter. The ordinary silver female catheter is quite inadequate. It may indeed draw off a considerable quantity of urine, and yet leave the patient unrelieved. In many of these cases the bladder seems to be compressed into two loculi or pouches. You may empty one, and think your work is done. The short catheter may never have reached the more distant pouch. Now a long flexible male catheter will worm its way along a tortuous channel, and run into the furthest part of the bladder. On the principle that the greater includes the less, doing all that the lesser can do, and more, I have come to the conclusion that the male catheter should always be used. For many years I have not possessed a so-called female catheter. The flexible male catheter has the further advantage of having a longer portion protruding beyond the vulva, thus conducting the urine more easily into the receiving vessel.

Irritability of the bladder, apart from cystitis and catarrh, is a very common symptom or effect of uterine disease. Hypertrophy, congestion, and inflammation of the cervix uteri especially cause it. Malignant disease of the cervix is almost sure to produce it. It is a frequent consequence of anteversion and ante flexion of the uterus, especially if the body be much enlarged, so as to press upon the bladder. This is a familiar symptom of early pregnancy, in which condition the enlarged uterus is commonly anteverted. It may happen that the bladder-distress becomes the most troublesome effect of the uterine disorder, so that attention is concentrated upon it to the neglect of the primary condition.

Inflammation of the uterus not seldom entails, through the disturbance it causes in the digestive function, an altered condition of the urine. Thus we see an excess of phosphates and lithates and mucus, and the irritation attending the abnormal character of the urine aggravates the local suffering from the disease of the uterus.

It may also cause irritation of the bladder, manifested in incontinence and dysuria by mere contiguity, just as inflamed hæmorrhoids in the male may irritate the contiguous bladder. This is further illustrated by the increased dysuria, sometimes amounting to partial retention, which occurs at the menstrual periods.

Incontinence of urine may be due to a fistulous communication between the bladder and the vagina. This is usually discovered some days, perhaps a week or a fortnight, after

labour. The opening is not made immediately by direct force, but is established gradually as the result of necrosis and sloughing of the part which was subjected to greatest pressure. This process takes some days to be completed. It not seldom attends cancer, being due either to perforation of the bladder or to loss of sphincter-power from extension of the disease.

But incontinence may be the result of disease of the nervous centres. Thus I have been consulted in a case of incontinence where it was suspected that a fistula existed, but the infirmity was really due to progressive general paralysis. Of course, in advanced cases of paralysis, other nervous symptoms are so predominant that the bladder infirmity is readily referred to its true cause. But the interesting point in relation to our present theme is that the bladder infirmity may be the earliest symptom to attract attention, and then it is likely to mislead.

Abnormal excretions from the bladder are usually more characteristic of functional disorder or disease of the nutritive organs of the kidney or bladder than of retention, irritability, or incontinence. But we should often be led astray if we assumed that this was universally the case. Thus blood in the urine may be symptomatic of calculus in the kidney, or of malignant disease of the bladder; but it may be simply a form of vicarious menstruation. Blood in the urine, again, may accompany albuminuria induced by pregnancy, as I saw in a case at the London Hospital. She applied on account of hæmaturia; when this intermitted we found albuminuria. There was dropsy throughout.

Not seldom blood mixed with the urine may be traced to a vascular tumour of the meatus urinarius, or to a vascular state of the urethra.

Pus, again, may denote disease of the kidney or bladder; but it may find its way into the bladder from the most singular and unsuspected sources. Thus I am now attending a case with Dr. Crisp, in which, for many years, large quantities of pus are occasionally passed in the urine. The source of the pus is not the bladder. It finds its way into the bladder from a dermoid cyst, which has made for itself another opening near the umbilicus. Pus frequently comes from this external opening. A probe passed into it finds its way into a cavity downwards for a distance of four or five inches, whilst another sound passed into the bladder runs up an equal distance, so far, indeed, that the points of the two instruments cross each other. Although they did not touch, there can be no doubt that both run into the same cavity. This patient was seen twenty years ago by the late Dr. Ramsbotham, and the case was reported by Dr. Coward in THE LANCET at the time. It is remarkable how in this case the bladder retains its healthy state, notwithstanding the irritation it is subjected to. The day after passing a large quantity of pus, clear urine is voided, and irritation subsides.

Hair, fat, teeth, may find their way into the bladder and urine. They afford conclusive evidence that a dermoid cyst has contracted adhesions with the bladder and established a fistulous communication. Bones of foetal character may arise from an extra-uterine gestation-cyst. In these cases, signs of dysuria, of incontinence, of irritability of the bladder, perhaps the appearance of blood or pus, will have preceded the discharge of the hair, fat, teeth, or bones. And in most cases the tumour whence these matters proceeded may be made out by careful vaginal, rectal, and abdominal palpation, aided by the sound.

The most unequivocal indications of disease of the kidneys or bladder are the alterations in the chemical qualities of the urine. Thus, excess of phosphates or lithates, or the presence of albumen, of sugar, of oxalic acid, points to disorder of the nutritive functions. It must not, however, be forgotten that these conditions are sometimes secondary upon conditions of the ovaries and uterus. For example, metritis, acute or chronic, frequently induces such a disturbance in nutrition that phosphates and lithates appear in superabundance in the urine. So mucus and pus may follow an acute or chronic cystitis ensuing upon retention of urine from any of the causes we have discussed. And albuminuria may sometimes be traced back to pregnancy, even in cases where eclampsia was not manifested. The excretion of sugar also may have begun under the influence of pregnancy. It is true that albumen and sugar usually disappear from the urine soon after pregnancy has been brought to a term, but occasionally the morbid process,

once started, persists after the cessation of the original cause. Bearing in mind this association of albuminuria, sugar, and pregnancy, we should not omit, when these abnormal ingredients are found in the urine, to institute a careful examination to determine the presence or absence of pregnancy.

Primary malignant disease of the bladder is very rare in women. Dr. West relates one observation so complete that I am induced to quote it in lieu of giving an abstract descriptive of the affection. A woman, aged sixty-two, had suffered for a year previously from pain in the region of the bladder, aggravated after passing water, the calls to which became more frequent than natural, while at the same time her urine grew turbid, and deposited a thick sediment. Blood now frequently appeared in her urine; sometimes in small quantities, sometimes in clots, and once in very large quantity. She had of late suffered from pain in the back. A surgeon introduced a catheter, which was followed by considerable hæmorrhage, which lasted for several days, and was apparently stopped by gallic acid. On admission the pulse was 80, soft. No tumour was perceptible in the abdomen, but firm pressure immediately over the pubes caused some pain. The uterus was high up, small, healthy. In front of the uterus, pushing it into the posterior half of the pelvis, was a firm, somewhat irregular growth, reaching from the anterior half of the pelvis in the situation of the bladder. This growth was perfectly immovable. It seemed to be connected with the pelvic walls; was somewhat tender on pressure. It occupied the whole anterior half of the pelvic brim, though not dipping much into the cavity. The urine was pale, alkaline, depositing ropy mucus, and showing crystals of triple phosphate and cells of nucleated epithelium. Shortly afterwards the woman met with an accident, and died of erysipelas. The uterus and vagina were found perfectly healthy; but the whole posterior half of the bladder was occupied by a medullary growth, with an irregular surface, which projected into the cavity of the organ, its substance being in part firm, in part almost semi-fluid. The anterior half of the bladder was quite healthy, as was also the substance of both kidneys, except that the right ureter, being involved in the diseased mass, was dilated to three or four times its natural size, and the infundibulum of the right kidney was enormously enlarged.

In this case the distinctive character of malignancy was the hæmorrhage. The tumour felt in front of the uterus might be due to a blood-mass in the cellular tissue connecting the uterus and bladder, or in the vesico-uterine peritoneal pouch. The profuse bleeding also distinguishes the disease from the other causes of *hæmaturia*. These are:—
1. *A calculus*. In this case the blood is seldom more than a few drops, and the catheter will detect the stone. 2. *Foreign bodies*. The most inconceivable things have found their way into the bladder; hair-pins. These give rise to cystitis; phosphatic deposits collect around the foreign body. The sound will detect these as well. 3. The hæmorrhage may be *vicarious of menstruation*. Here the quantity is not so great as in malignant disease; it occurs in comparatively early life, and the menstrual irregularity is marked by other symptoms.

Secondary malignant disease of the bladder is unfortunately too common. It arises mostly as an extension from cancerous disease of the cervix uteri. The invasion of the bladder is then marked by cystitis, but this symptom, although adding much to the patient's distress, is now but of subsidiary importance. Often the bladder is perforated from without by the advancing necrotic or ulcerative process, so that the urine escapes involuntarily. But this symptom, Kiwisch rightly observes, when occurring in the course of cancer of the uterus, is not to be regarded as certain evidence of perforation of the bladder, for this symptom is frequently only the consequence of carcinomatous infiltration of the neck of the bladder, and especially of that part corresponding to the sphincter, by which it is hindered in the performance of its functions, and thus permits the urine to run off.

Opium in some form or other is indispensable in the treatment. It may be given by the mouth, by vaginal pessary, by rectal suppository, or by subcutaneous injection.