CHAPTER III.

SIGNIFICANCE OF SYMPTOMS CONNECTED WITH BLADDER AND URINARY DISORDERS IN RELATION TO UTERINE AND PERI-UTERINE AFFECTIONS:—RETENTION OF URINE; ISCHURIA; 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; DYSURIA. SIGNIFICANCE OF SYMPTOMS CONNECTED WITH RECTUM AND BOWEL-DISORDERS IN RELATION TO UTERINE AND PERI-UTERINE AFFECTIONS, HEMORRHOIDS, FISSURE, DYSCHEZIA, CONSTIPATION, RETENTION OF FECES; COPRÆMIA; BLOOD, PUS, MUCUS IN THE FECES; HAIR, TEETH, BONES, FŒTAL ELEMENTS.

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 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 neighboring 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 recognized 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 neighboring 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 tumor 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 tumors are apt to induce more pressure at the menstrual epochs than in the intervals. This is not necessarily because the tumors 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 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. Since 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, early recognition of this state is of primary importance. It should therefore be established as a rule in practice, in all cases of stillicidium, as well as of complete retention, to examine by catheter.

We may know that the bladder is distended when the sense of relief is not complete; when pain is still referred to the pelvis and hypogastrium, and accompanied by recurrent attacks of impressible bearing-down or straining efforts; and when a tense swelling has formed in the lower abdomen. When the swelling due to accumulation is great, 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 shape of the tumor, 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 tumor. Both these spread more laterally, and, of course, have other characteristics peculiar to themselves. Vaginal examination will commonly give confirmatory evidence. If there is obstruction from a retro-uterine mass, the os uteri will be found jammed close behind the symphysis pubis. In other cases, the distended bladder throws the uterus backwards, especially the fundus; and thus the brim of the pelvis is felt through the vaginal roof to be occupied by a smooth tense body, the base of the distended bladder. On pressing this with the finger, whilst the other hand presses upon the abdominal swelling, some urine will be forced out of the urethra. When the catheter is passed, in proportion as the urine runs off, the tension being lessened, fluctuation becomes more distinct; the abdominal tumor subsides; and the vaginal roof-stretching is relaxed.

The quantity of urine retained is sometimes very large. It may amount to three quarts or more. When the retention has lasted twenty-four hours or longer, the urine drawn off will usually be turbid, sometimes smoky 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 liable to accumulate again, even although the obstructing cause may have been removed. Therefore the practice of passing the catheter two or three times a day 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 timely 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

catastrophe has happened. Three compensating factors are at work to obviate it. These are: stretching of the bladder, overflow by dribbling, absorption of part of the urine. 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 by 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 form of cystitis. The intense congestion leads to exudation 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 and viscid mucus entangle the deposits which soon take place, so that the inner surface is often coated with triple phosphates.

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 are known. This, in itself, is not a fatal accident. Several patients have recovered. One of them I saw at the London Hospital. When the exfoliation occurs as the result of severe labor, 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 by instruments. But if where it results from simple obstruction of the urethra, usually a much longer time has elapsed. Protracted retention after severe labor 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 labor, and which was given me by Mr. Nicholson, of Stratford, the substance did not present the elements of mucous membrane; it was a tough fibrillated tissue coated with phosphatic crystals. It had been pulled out in shreds through a vesico-vaginal fistula, which bore evidence to the difficulty of the labor. But in other cases the true characters of mucous membrane have been distinctly recognized. Dr. Wardell relates a case.[1] Spencer Wells relates two cases.[2] Dr. J. J. Phillips gives another.[3] Dr. Schatz has also described and figured one.[4] Where obstruction to the voiding of urine is found from the presence 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 by 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. Hence symptoms of urinæmia are rarely wanting. But this absorption will not avert retrograde pressure upon the ureters and kidneys. This leads to distension of the ureters and pelvis of the kidneys, and then to arrest of secretion. Congestion of the kidneys easily merges into nephritis. Some

[1] British Medical Journal, 1871.
[2] Obstetrical Transactions, vols. iii., iv.
[3] British Medical Journal, 1871.
[4] Archiv für Gynakologie.

degree of albuminuria is not uncommon; and the elements which ought to be secreted from the kidney, thrown back upon the blood, the circulation is further poisoned, and brain-symptoms arise. This, I think, is the most common cause of death.

If the patient survive, *chronic cystitis and chronic nephritis* are very probable events. After the retention is relieved and the bladder has recovered some amount of power, the whole urinary tract is liable to chronic inflammation.

Peritonitis sometimes follows retention of urine. It will, of course, be sometimes difficult to assign this with certainty to the retention, 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 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 which may exert this injurious compression.

We may bring these causes into the following groups:—

I. Conditions inherent in the uterus itself.

II. Conditions external to the uterus, but acting, for the most part, by driving the uterus against the bladder, and this against the pubic symphysis. The situation of these is, of course, behind the uterus. Other conditions have their seat in front of the uterus. Others have a lateral position.

III. Vaginal conditions.

IV. Conditions depending upon labor or the puerperal state.

V. Conditions, mostly dependent upon nervous disturbances, which do not fall under any of the preceding groups.

I. If we analyze more precisely the conditions that fall under these several heads, we shall find in the *uterine* group:—

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. Tumors in its walls or cavity.
8. General hypertrophy from hyperplasia.
9. Thrombus in the uterine neck.

II. *Causes external 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 tumor, 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 tumors, 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 feces in the rectum.
6. Tumors 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 tumors.
3. Other tumors in the broad ligaments.
4. Tumors or distension of the Fallopian tubes.

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

1. Tumors 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 hemorrhage.

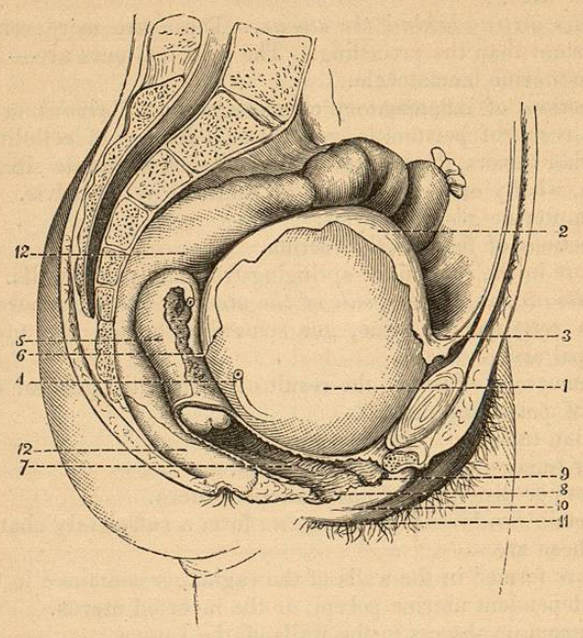
IV. The group of *puerperal causes* would include some of the causes stated in the foregoing groups, but it is of especial clinical convenience to consider these in their relation to labor and childbed, a study beyond the scope of this work.

V. 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 the dread of pain during micturition when neighboring 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 neighboring disease and nothing abnormal in 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.

FIG. 38.



Showing the Situation, Direction, and Relations of the Uterus when the Bladder is full—(after Sappey).

1, bladder distended with water; 2, fundus of bladder rising 1½ inches above the symphysis pubis, and remaining well behind the abdominal wall; 3, cul-de-sac of peritoneum formed by passing from abdominal wall to bladder. It comes down close to the upper edge of the symphysis; 4, end of right ureter; 5, uterus driven back as well as the vagina, 7; 6, utero-vesical cul-de-sac; 8, lower end of vagina; 9, meatus urinarius; 10, 11, labia of vulva; 12, rectum much depressed by uterus.

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.

Fig. 38 is introduced to illustrate the effect of artificial distension of the bladder. Like all illustrations drawn from the dead body, it must be accepted with some qualifications. The conditions in the living are often very different.

Charcot describes *hysterical ischuria*,[1] and vindicates the claim of this affection to restoration to the place in pathology from which scepticism had discarded it. In ischuria of hysterical patients the obstruction is not situated in the urethra or in the bladder. It lies higher up, either in the ureters or in the kidneys, or still more remotely. The principal fact is that the quantity of urine secreted in the twenty-four hours, and withdrawn by the catheter—for hysterical ischuria is almost always complicated by urethral retention—is remarkably under the normal amount. It is even frequently reduced to zero, and during several days there is absolute suppression of urine.

As Laycock wrote,[2] *oliguria*, or even *total suppression of* urine may be only a transient phenomenon. This we occasionally observe in hysterical patients, especially at the catamenial periods, a complete suppression, which does not last more than twenty-four or thirty-six hours. There may, perhaps, be some feeling of uneasiness, and the pulse may be quickened; but after a short time a few spoonfuls of urine are expelled, and the normal state is restored.

In other more serious cases the ischuria is protracted. For several days there is no secretion. In these another phenomenon is superadded. Repeated vomitings occur so long as the ischuria lasts. The vomited matter occasionally, it is said, presents the appearance and exhales the odor of urine. Charcot points out that in experiments on animals a vicarious elimination (of urea) is effected by the intestine; and that so long as this elimination takes place the animals seem to suffer little inconvenience; that it is only when they become enfeebled, and the supplementary excretion ceases that grave phenomena appear. But in hysterical women the alternation between renal excretion and vicarious excretion may continue for weeks and months, without any visible disturbance of the general health.

The great point, of course, in a clinical point of view, is to distinguish ischuria from retention. The catheter is the indispensable means of solving this difficulty.

It is important to remember that ischuria may happen in women quite independently of hysteria. It is one of the immediate causes of death where cancer, spreading from the uterus, invades the bladder, and retrograde obstruction induces compression and atrophy of the glandular structure of the kidneys.

Irritable bladder, by the uncontrollable reflex forcing pains induced, may cause subjective signs which the patient may readily ascribe to prolapsus of the uterus.

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.

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[1] Lectures on Diseases of the Nervous System, New Sydenham Society, 1877.
[2] A Treatise on the Nervous Diseases of Women, 1840.

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 tumor 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 tumor 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.

To pursue this diagnostic analysis here would be to anticipate the subject-matter of future chapters.

A condition allied in nature to retention 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 procidentia 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 uretha. The instrument passes directly downwards in front of the procident 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 procident uterus with her finger during micturition; and this is more effectual if practised in the knee-elbow posture.

Irritable Bladder.—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. Ordinary irritability of the bladder is distinguished from cystitis by the absence of mucus in the urine.

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 labor 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 tumor 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 glueing 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 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 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 anteflexion 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 hemorrhoids 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 labor. The opening is rarely 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.

Dysuria.—Painful micturition is frequently a symptom of bladder or urethral disease. It is pretty sure to attend the vascular excrescence of the meatus urinarius; and the presence of this condition is rendered more probable if a little blood attends micturition. Dysuria again may be due to urethritis, simple or gonorrhœal, or syphilitic. If attended by copious muco-purulent discharge, specific infection may be suspected. In rare instances stricture of the urethra may be the cause. In instances also rare the cause may be calculus in the bladder or urethra. In any case persistent dysuria is an indication for local exploration of the pelvic organs.

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.

Hæmaturia.—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 tumor of the meatus urinarius, or to a vascular state of the urethra. And