LESSON XLIII.

Post-mortem demonstrations of Dittel, showing evidence of follicular uiceration in proof of extravasation of urine occurring in consequence of follicilitis—His claim that shreds and rings of mucus in the urine shows predisposition to such accident—Author's explanation of the cause of such shreds and rings—Examination of clinical case with view of ascertaining the presence of strictures of large calibre—Follicular ulceration and perforation of urethral walls, resulting in urinary infiltration, supported by ample clinical proof—Case in illustration of the manner in which such accident is sometimes overlooked—Other cases in proof of frequent occurrence of same errors—Operation of external perineal urethrotomy.

Dittel, of Vienna, was the first to demonstrate, through *post-mortem* examination, that in certain cases, when death occurred from urinary extravasation, the opening in the urethra, by which the urine escaped, was *through a single small ulcerated follicle of the mucous membrane lining the urethra*. He showed that a simple folliculitis, might result in perforation of the urethral walls, and that follicular inflammation and ulceration, was an accident, very likely to occur upon a previously diseased condition of the urethra, such as is manifested by the presence of mucoid shreds in the urine. Dittel did not appreciate fully the significance of these shreds, which are washed out of the urethra in urination. He recognized the fact that these mucoid shreds, which he describes as "inspissated mucus, sometimes single, sometimes ring-shaped," occur usually in persons previously the subject of gonorrhœa, and he claimed that they were evidences of *a diseased condition of the urethra, predisposing to follicular ulceration*. Since his recorded observations, however, it has been demonstrated, by means of the urethrometer and the bulbous sound, that these shreds of mucus are the accumulations, behind a *stricture*, which encroaches, often but slightly, upon the urethral calibre. It is readily seen, that such slight strictures as would permit the easy passage of a catheter might still be sufficient to catch the organic débris,

in the urine of a person suffering with lithiasis, and thus form a point of local irritation, finally involving one or more follicles in suppurative inflammation. Or even from the increased urinary friction, at a point made salient by slight stricture, a similar folliculitis might ensue, which, once initiated, should finally result in a perforation of the urethral walls.

Let us examine the urethra carefully in this case, with the view of ascertaining, whether or not, such a stricture is present. The easy passage of the catheter does not prove its absence. We must first ascertain the normal dimensions of the canal; then, and not until then, are we prepared to determine whether stricture is present or absent. The proportionate relation of the size of the penis to that of the urethra is ascertained to be as a rule about as $2\frac{3}{5}$ to 1. Here we find the penis measuring $3\frac{1}{2}$ inches in circumference. This multiplied by 25 reduces it to millimetres—in round numbers $87\frac{1}{2}$—divided by $2\frac{3}{5}=34+$. The urethra would then be 34 m.m. in circumference. I will say, however, that this proportionate relation was discovered by frequent use of the urethrometer (which registers size in *millimetres*). A large urethra was observed to be associated with a large penis, *as a rule*, and *vice versa*. Measurements of the penis were made with the ordinary English tape-measure, and thus it was found that the penis of 3 inches circumference was associated with a urethra of 30 m.m. circumference; a $3\frac{1}{4}$ inches penis with a 32 m.m. urethra; a $3\frac{1}{2}$ penis with a 34 m.m. urethra; and so on, the urethra increasing 2 m.m. in circumference for every $\frac{1}{4}$ inch increase in the circumference of the penis. The attempt to reduce this comparison, of millimetres with inches, makes an ugly fraction, and I usually content myself with a formula, which resulted from the accident of having two sorts of measures in my clinical work. Here, then, we have a urethra of 34 m.m. The meatus, however, is found by examination with the bulbous sound to be only 22 +. For further exploration, the urethrometer will be required. This we introduce readily to the bulbo-membranous junction. It is easily expanded to 34 + without pain to the patient. On

drawing it forward for an inch, its progress is arrested, and it requires to be turned down to 24, before it can be moved. Examining the figures on the shaft of the urethrometer, this point is seen to be at 5 inches from the meatus. It is hugged closely for half an inch and is again free. I now turn the screw until the indicator marks 34 on the dial—when the patient begins to complain. At this size it comes forward easily to ½ inch from the meatus, where its size requires reduction to 22 before it will emerge. If we now accept 34 as the normal calibre of the urethra in penile portion, we have here demonstrated, two prominent points of contraction or stricture; one at from 4½ inches to 5 of a value of 10 m.m., and one at the orifice of a value of 12 m.m., the interval between these points registering 34. It is then very evident that two important strictured points are present—the one at the meatus, and the other at 4½ to 5 inches. The deeper one, although permitting the easy passage of the largest instrument which can be passed through the meatus, is demonstrated to be a local point of obstruction exactly like that described by Dittel, and behind which shreds of mucus accumulate—are washed out in urination, and thus afford reliable diagnostic information of stricture; stricture which suggests the liability of follicular inflammation and ulceration, and a possibly resulting extravasation of urine. In whatever way we explain the cause or causes, which involve urethral follicles in ulcerative trouble, which sometimes goes on to perforation and urinary infiltration, we must accept the fact, as proven by *post-mortem* examination and ample clinical evidence.

Retention of urine, followed by perineal swelling and inflammation, independently of external violence, especially when occurring in conjunction with a urethra damaged by previous attacks of urethritis, points clearly to the occurrence of such an accident as the one alluded to, viz., follicular perforation of the urethral wall and extravasation of a greater or less amount of urine into the surrounding cellular tissue.

In the present instance, the conditions past and present, as ascertained by the history of the case and by

our examination, warrant the conclusion that this phlegmon is the result of a follicular ulceration of the urethra, through which, to a limited extent, urine has escaped. In this view of the matter, but one course is open to us, but one way is left by which we can arrest the difficulty and save the patient from the impending danger of an extensive and perhaps fatal extravasation of urine; and this is to incise the inflamed tissues freely down to and into the urethral canal.

The patient will now be etherized, preparatory to the performance of this operation, which is appropriately termed "*External Perineal Urethrotomy*."* In the meanwhile, I will endeavor still further to impress you with the importance and correctness of the proposed operation, in the present and in similar instances, by citing a case, published, some time since, in the hospital reports of one of the medical journals:

"A patient came in complaining of retention of urine. He was readily relieved by the catheter. He had a painful swelling in his perinæum, which was duly fomented for several days. The swelling increased; fluctuation was finally appreciated, but not thought to be sufficient to warrant incision, and it was determined to defer the procedure until the following day. During the night an extravasation of urine took place, extending into the cellular tissue of the scrotum, penis, and abdomen. On the occasion of the surgeon's visit the next morning, free incisions were made into the regions of extravasation, and every care taken to counteract the effect of the *accident* (?); but sloughing was extensive and the patient sank under its effects, and died a few days after." Such a swelling, associated with a *close urethral stricture*, would at once have suggested the probable nature of the trouble; but the easy passage of the catheter led to the fatal error of supposing that the phlegmon was not of urethral origin.

A series of cases was reported in the *London Medical Times and Gazette*, of January 4, 1873, where extravasation of urine and perineal fistulæ had occurred, *in*

* Gouley on "Diseases of the Urinary Organs" (Wood & Co.), p. 112.

which no stricture was found, No. 8 or No. 9 English catheter being readily passed in each case. The same verdict might have been rendered with equal propriety in the case before us, viz.:

In these cases we have seen retention of urine and perineal abscess, and no stricture found with No. 8 *and No.* 9 *English catheter*. But, on examination with efficient instruments, the urethra, in the case we have been considering, has been proven strictured to nearly one third of its normal caliber, at a point corresponding to the perineal swelling. With the same means of diagnosis here made use of, have you a doubt that stricture would also have been made out in the six cases above reported? I have not—nor have I a doubt but that extravasation would have been prevented in those cases by a *timely* external perineal urethrotomy such as we are now about to perform. Perineal swelling, without external injury, as a rule means urinary infiltration to a greater or less extent, and the only safe course is to make a prompt incision into it, and at least down to the urethra. Also examine for and locate, what you will be quite certain to find, namely, stricture of greater or less extent, at the urethral orifice, as well as at some deeper point, and remove these obstructions at the earliest available moment. If this is done promptly, it may not be necessary to incise the urethral walls. Pressure of the urine, during urination, at the point where the urethra has been perforated, is so much lightened by the removal of anterior obstructions that healing of the perforation may soon take place. The incision meanwhile, not only gives exit to accumulations of pus or other morbid fluids, but affords security against general urinary extravasation. If the strictures are not removed, however, and the excision has not been carried into the urethra, the probabilities are greatly in favor of a return of the trouble after the cavity of the abscess has been obliterated, and the external wound has healed. The operation will then require to be repeated, under additional and perhaps most serious disadvantages. An instructive case in point may be found on page 296 in my work on

"Urethral Stricture," published by Putnam's Sons. Several of Dittel's cases are also to be found in connection with the same.

Operative measures will be initiated here by dividing the meatus to the full size of the urethra, viz., 34+. This accomplished, I pass a large grooved sound readily into the bladder. The instrument is held, lightly but firmly, directly in the median line, as a guide to the urethra, when we approach it. Now the parts having been shaved, with this broad-pointed scalpel I make a deep incision into the tumor, exactly following the raphe, from a point at the junction of the scrotum with the perinæum, downward, to within an inch of the anus. This has divided the integument and superficial fascia and gone well into the swollen cellular tissue. Another incision in the same line carries us through the deep layer of the superficial fascia, and gives exit to a small quantity of pus and bloody serum which has been confined beneath it. Now, with my finger, I distinctly feel the sound in the urethra. We might have paused at this stage of the proceedings, having laid open the abscess and emptied it of its contents. But there was good reason to believe the origin of the trouble to be a perforation of the urethra, and that the cause of it, the stricture, previously demonstrated at five inches, still remained capable of continuing the mischief already commenced. I therefore carefully continued my incisions until the point of the scalpel entered the groove of the staff. This accomplished, the urethera was laid open for the space of half an inch, with the intention of giving free vent to urine during urination, and thus allow the perforation, through which the infiltration occurred, to close. This is doubtless so small that we are not likely to find it at present, and it may have been included in the incision, or be situated at a point close to the stricture. In either case, after the removal of the stricture, it will probably heal within a few days. Now introducing the 34 bulb into the incision, as I push it toward the meatus, it is arrested at about 1 inch. Introducing it at the meatus it passes readily to 4½ inches. This space between 4½ and an inch anterior

to the incision is the strictured point which is believed to have caused all the difficulty. I now introduce a narrow probe-pointed bistoury and divide the stricture on the superior wall of the canal completely, as shown by the easy passage of a full-sized bulb through the canal and out of the perineal opening.

Reëntering the canal through the incision, I pass the instrument readily back into the bladder, thus clearing up any suspicions of stricture in this locality. The after-treatment in this case will be very simple, and will consist in: first, raising and supporting the testicles by a broad band of adhesive plaster laid upon the upper surface of the thighs. This is placed so as to form a sort of shelf upon which the testicles may rest and the scrotal tissue be free from any danger of urinary infiltration. Secondly, in keeping the parts clean and well disinfected, by syringing the wound gently with a 1 to 60 solution of carbolic acid about three times a day. The introduction of a small soft-rubber catheter through the wound and into the bladder serves to draw off the urine without discomfort to the patient, and prevents its contact with the freshly wounded tissues. The catheter may be retained for the first 48 hours, or even four or five days, to advantage, and the urine directed into a suitable glass vessel—a female urinal for instance—which not only conveniently retains the urine, but allows the attendant to see at once whether the flow of urine continues, or if the tube is stopped; in the latter case the tube should be cleared at once and the bladder washed out with a little tepid water; after the removal of the tube or catheter the patient may void his urine, at will, upon a large sponge provided for the purpose, or into an ordinary bed-pan. A pledget of lint soaked in the carbolic solution and changed after each urination will be all the dressing required. In all operations on the deep urethra I am in the habit of following them by the introduction of a suppository, composed of 10 grains of quinine and ¼ grain of morphia, in order to counteract the nervous shock likely to be occasioned by the operation, also to prevent the accession of urethral fever.

LESSON XLIV.

Another case in illustration of follicular ulceration and urinary extravasation — Operation for relief in this case — Secondary hæmorrhage occurring—Mode of procedure in such accident—Extravasation of urine into the tissues of the groin and abdominal walls—Treatment of such accident—Manner in which extravasated urine finds its way into tissues at a distance from the point of urethral rupture—Anatomical relations of the deep and superficial faciæ explained as accounting for the direction an extravasation of urine may take—Another case in illustration of the accident of follicular ulceration and consequent urinary infiltration—Mode of treatment—Necessity of opening into the urethra in such cases—Another case in illustration of the various accidents which may result from urethral perforation through an antecedent folliculitis.

CASE VI.—*Illustrating the same form of trouble, and the treatment necessary in case of urinary extravasation.* The patient, a young Irish laborer of 27 years, presented himself with a well-marked swelling in the perineum, which had been coming on slowly for several days. It was painful on pressure. The tumor was quite hard and resilient, but no fluctuation could be discovered. The scrotum was quite œdematous, bright pink in color, and almost translucent. The coincidence of this condition with perineal swelling indicated to me that an extravasation of urine, from rupture of the urethra, was the most probable cause of the œdema. Recognizing that the probable cause of the trouble, was a follicular rupture of the urethra, with extravasation of urine, I advised immediate operation. This the patient would not consent to, although the danger of delay was pointed out to him, and he was urged, with an earnestness born of the consciousness of his peril, to embrace perhaps the only chance for life remaining to him. The chief of staff, also, deeply impressed with the certainty of a fatal result, if the extravasation was allowed to continue, pleaded with the patient and appealed to his common sense, and love of life, but in vain. I was obliged