and with a full appreciation of the probable dependence of the gleet upon the presenting strictures.

That this plan, intelligently pursued, has often cured gleet, no one will for a moment gainsay; but that it permanently removes the *cause*, no one at this day is likely to affirm. Nothing is more distinctly laid down in the writings of authorities in regard to the treatment of urethral stricture, than that the results of dilatation are *always* of a *temporary* character. So that it is well understood, in cases of the cure of gleet by dilatation of the stricture, or strictures, upon which it is dependent, *subsequent* dilatation must be kept up *indefinitely*, at varying intervals, in order that the gleet may not again be established. For a permanent cure, a complete division of the contracting stricture must be had, and any treatment which falls short of this will, of necessity, fail in doing more than to temporarily remove the obstruction which has been the cause of the gleet.

LESSON XLII.

COMPLICATIONS OF GONORRHŒA—BALANITIS AND BALANO POSTHITIS—PHYMOSIS — PARAPHYMOSIS—FOLLICULITIS—EPIDIDYMITIS— PROSTATITIS—CYSTITIS—STRICTURE—REFLEX IRRITATIONS AND NEUROSES.

Balanitis and balano-posthitis—Definition of—Nature of—When complicated with contracted preputial orifice—Liable to be mistaken for urethritis—Results from various causes—May be of simple or of contagious origin—Treatment. Phymosis—Definition of—Causes which produce it—Palliative measures—Radical cure. Paraphymosis—Definition of—Causes of—Early treatment important—Method of procedure—Symptoms of this accident—Liability of being overlooked—Importance of early recognition—Case in illustration. Folliculitis—Description of follicular sinuses—Situation of—Tendency of such sinuses to keep up a urethral discharge—Difficulty of treatment—Remedies and procedures found useful—Urethral stricture a common cause of folliculitis—Signs and symptoms of its presence—Extension of sinuses by suppuration—Urinary fistulæ resulting—Varieties of accident caused by escape of urine into the peri-urethral tissues—Cases in illustration, showing that while in some cases the accident is not important, in others it may result in urinary fistulæ, and sometimes in extensive extravasation of urine.

Balanitis, and *balano posthitis*, are terms applied to inflammation of the semi-mucous membrane covering the glans penis and its preputial reflection. This partaking of the nature of both the mucous membrane and the integument, when attacked in inflammatory process, presents some peculiarities common to both. At first permitting the exudation of cell elements through its interstices, but finally resulting in a stripping off of the epithelium, producing destruction of the superficial layers in patches. At this point, it is characterized by a free purulent exudation, which, as it always and only occurs in association with a redundant prepuce, may, when this is contracted at its orifice, be difficult to distinguish from the purulent discharge of a urethritis. It is termed *balanitis*, when the inflammation is confined to the covering of the glans penis, but when this extends

to the contiguous mucous membrane, reflected from the fossa glandis to the preputial orifice, it receives the title of *balano posthitis*. Like urethritis, it acknowledges several causes for its initiation. It may result from the irritation caused through retention of the normal sebacious secretions by a redundant prepuce, or through the occurrence of herpetic eruptions in this locality. Or, it may be caused by the irritating influence of vitiated simple secretions of vaginal or uterine origin, through sexual contact; or through the secretions of a gonorrhœa, either in the female with whom contact has been had, or through the retained secretions of a gonorrhœa, previously acquired by the subject of the balanitis. In these latter cases, it may be appropriately termed an external gonorrhœa. When from simple causes, it is readily cured by cleanliness and the application of some simple stimulant or astringent. When the result of the extension of a gonorrhœa, the difficulty is more rebellious, and as is usually the case when associated with a contracted prepuce, will require the cure of the gonorrhœa, as a preliminary measure. A solution of the sulphate of iron of the strength of 5 or 10 grains to the ounce, will usually cure the simple forms, in the course of a day or two, and the occasional application of cologne water, will usually harden the parts, sufficiently to prevent its recurrence. Circumcision is the only means by which the recurrence of this trouble may be permanently prevented.

Phymosis is that condition of a redundant prepuce which is so contracted at the orifice, that its retraction over the glans, is rendered difficult or impossible. This may result from congenital condition, or from inflammatory causes, recent swelling or cicatricial thickening of the preputial tissues. The former may result from inflammations from simple or gonorrhœal causes; the latter is usually incident to the deposition of cicatricial material, from chancroidal inflammation, or from syphilitic deposit. Simple balanitis may produce it. Gonorrhœal inflammation is very likely to, and this without the occurrence of balanitis. Hence, in many cases of gonorrhœa, complicated with a redundant prepuce, this

accident often occurs, and usually through the irritation of the gonorrhœal secretions confined in the preputial cavity. For this reason frequent injections of a weak antiseptic or astringent solution, becomes necessary to cleanse the parts. For this purpose 5 grains of the sulphate of iron to two ounces of water, or 2 or 3 grains of carbolic acid, combined with soakings in hot water, may be used, to reduce the inflammatory condition. If this does not prove effectual, slitting up the prepuce on the superior aspect may become necessary to give effect to the foregoing treatment.

Paraphymosis is that condition of a contracted preputial orifice, when, it having been retracted behind the corona glandis, cannot readily be drawn forward. The constriction thus produced, by consequent arrest of venous return, causes the parts to become engorged, increasing the swelling and inflammation. This, if not relieved, may go on to destruction of the preputial tissues by gangrene. Such an accident is not infrequent in the course of a commencing gonorrhœa. On its first occurrence, the paraphymosis may be reduced by the following method. First, lubricating the parts thoroughly with vaseline or sweet oil, then encircling the penis with the forefinger and thumb of one hand, compressing the glans with the concentrated fingers of the other, getting as closely under the constricting band as possible, push the glans through the ring formed by the tissues of the preputial orifice. Should this procedure fail after a full and intelligent trial, the constricting band must be lifted between the thumb and forefinger if possible, if not, by the pressure under it of a grooved director, and completely divided. The cut will immediately become transverse, and with or without a stitch or two, usually heal by first intention in a couple of days.

Sudden swelling of the preputial tissues, at any time, should call attention to the possibility of its being caused by this accident of paraphymosis, as from the mobility of the parts involved, the integument of the penis may easily roll forward, and conceal the point of constriction, as the following case will illustrate:

A general surgeon of many years' experience called upon me to ask a consultation in a case which he supposed to be a thrombus of the dorsal artery of the penis and a resulting gangrene of the anterior portion of the organ. The history was as follows: A young man of twenty-four, previously to taking a long walk, for convenience in walking, had swung up his testicles in his handkerchief, and fastened them by means of an india-rubber band, brought over the penis, at its junction with the body. He had worn it, in this position, during a walk of several hours, and before getting home, complained of a sense of discomfort from the tightness of the band. This was not so great but that he allowed it to remain for an hour or two after his return home, when, on taking off the band, he found quite a little redness and a deep crease was left. On rising in the morning, the penis was considerably swollen, and he sent for the surgeon, who, on hearing the alleged cause of the trouble, ordered rest and a saturnine lotion. The swelling and inflammation increased steadily, with some pain. By the third day, a spot of gangrene appeared on the redundant prepuce, at a point corresponding with base of the glans. Diagnosis was, gangrene, caused by thrombus of the artery of the dorsum. The whole penis was greatly swollen, and anteriorly, of a violet hue, with a black slough as large as a quarter-dollar about an inch from the extremity of a prepuce. The entire destruction of the glans had been accepted, by both the surgeon and the patient, and the latter, during the temporary absence of the surgeon in coming to see me, had, as he said, tried several times to screw his courage up to the point of jumping out of his fifth story window. On taking hold of the penis with thumb and forefinger, I made a little pressure inferiorly, and the uninjured glans penis readily protruded from the opening caused by the slough. Both surgeon and patient were greatly surprised and gratified to find that no damage had been done to the glans. The explanation of the trouble was soon made plain. A short time before taking walk previously spoken of, the young man had a connection. The anterior border of a narrow

prepuce, was forced back of the corona, during the act, and the redundant tissue had rolled forward, thus concealing the accident. The coincidence of the rubber band applied over the organ, but which had absolutely nothing to do with the subsequent trouble, caused the error in diagnosis. The attempt of nature to effect a circumcision in this case, was supplemented by an excision of the remaining portion of the prepuce, and the case went on to a satisfactory termination in a few days.

Folliculitis.—One of the possible causes of a continuance of a gonorrhœal, or gleety discharge, is the engagement of the follicular sinuses which open into the urethra in the various parts of its course. At the bottom of these sinuses, which are of varying size and depth, are the glands peculiar to mucous membrane, the so-called mucous glands of Littre. The minute sinuses leading from these, perforate the mucous membrane obliquely; some looking forward, and some in the reverse direction, having a diameter from one fifth of a millemetre downwards, and varying from one half millemetre to several millemeters in depth. They terminate in follicular, or bag-like pouches, or in racemose dilatations, which are imbedded in the substance of the corpus spongiosum. These coming to be involved in any inflammatory process of the mucous membrane, when, as sometimes occurs, they are of considerable length, may hasten the inflammatory process, from various causes, long after the remaining portions of mucous membrane have, through varied treatment, been restored to a healthy condition. This is one of the most difficult troubles to reach, by local measures, of all the conditions which tend to keep up a chronic urethral discharge. Very thorough cleansing of the urethra is necessary to free these crypts and sinuses from the unhealthy secretions which accumulate in them, and, inflammation in them creeping out, doubtless, often reinfect the mucous surface in their vicinity. Irrigation of the urethra, in these cases, by means of a bulb syringe (Davidson's), to which a four or five inches of soft rubber catheter is attached, and using half a pint, or more, of medicated fluid, at each sitting as originally recommended by Mr. Harrison of Liverpool, I have

often found serviceable in clearing up the remaining disease in such cases.

The sulpho-carbolate of zinc, as suggested by Mr. Harrison,* in the proportion of two or three grains to the ounce, has, in my experience, proved perfectly efficacious in a considerable number of cases. Great care, however, must be taken to prevent the forcible impingement of the injection against the deeper urethra, and to make sure that the return stream is not obstucted. I have seen several cases where an acute prostatitis or an epididymitis could be readily accounted for in no other way than that above suggested. The use of a large perforated pipe, attached to an ordinary hard rubber syringe, as recommended by me several years since, has also formed a successful aid to cure in many cases. The pipe is made to correspond in size with the normal urethral calibre in any given case. In this way, the folds of the urethra are obliterated, and the injected fluid is thus more certainly brought into contact with the diseased follicles and sinuses. Any one of the many astringent injections in common use for arrest of gleety discharges may thus be used, and often with prompt benefit. It will, however, be found, that failure of the means above alluded to will frequently result. In the majority of such cases, a careful examination will discover, that the folliculitis is kept up, by localized points of stricture, often only slightly narrowing the urethral calibre. Behind such strictures, mucus accumulates, and is discharged at every urination, in the form of shreds or rings of inspissated mucus. In certain cases the follicular sinus may be closed, and the suppurative process burrows into the adjacent tissue, and may thus find its way, by a fistulous canal, opening at some point, either in the vicinity of the frenum, which is common, or on the under surface of the penis, further back. Or it may stop at any point, and form a hard bunch, a neoplasm, which remains stationary for months or years. Or, again, suppuration may occur, and, opening back

* Harrison on "The Surgical Disorders of the Genito-Urinary Organs," London, 1880, page 12.

into the urethra, permit subsequent passage of more or less urine into its cavity, increasing the inflammatory and suppurative action, in proportion to the amount of urine exuded. This accident is more likely to occur during the acute stage of gonorrhœa; the neoplasm is more common in long-standing gleet.

It will thus be seen that we may have three varieties of accident resulting from a folliculitis: 1st, a simple extension of the sinus, from burrowing through prolonged inflammation of a low grade, finally opening, in some cases, externally, about the meatus, or in the vicinity of the frenum; 2d, the exudation into it, of a trace of urine, sufficient to cause a plastic exudation, and a hard bunch, varying from the size of a small pea to a filbert. The connection with the urethra being cut off it may thus remain for months or years; 3d, when the processes are more active from instillation of an increased amount of urine, an acute abscess results, or through the ulcerative process, an extravasation of urine into the surrounding tissues, may occur, so extensive as to cause extensive infiltration and sloughing.

Thus as illustrative of the first variety:

A young man came to me presenting a pustule the size of a pin's-head, on the right side of the meatus urinarius, midway of the glans, and about one-third of an inch from the orifice. Believing it to be the result of a vicious connection four days previous (as it had quite the appearance of a follicular chancroid), I cauterized it with a fine glass point charged with nitric acid, and felt warranted in giving the assurance of speedy cure. Two days following, the patient presented himself, with the lesion cicatrized, but a similar pustule had developed about a quarter of an inch above the site of the first. Confirmed by this, in my view of the chancroidal origin of the difficulty, the second was likewise touched with the nitric acid. On the following day my patient again presented himself, announcing that the first pimple had again broken out, and that he also had the *clap*. Making pressure of the glans, a drop of creamy pus exuded from the meatus, and also a minute quantity of the same sort from the two little orifices on

the site of the pustules. Struck with the similarity in location and appearance of these little openings with those of Case I., I at once set about exploring them. A fine silver-wire probe passed readily into one and out at the other; the lower seemed superficial. Into the upper, however, I succeeded in passing the probe nearly half an inch backward and upward, on a plain parallel with the urethra. Feeling certain that a communication existed, through this sinus, with the urethra, I introduced as far as I was able the blunted point of a fine hypodermic syringe; and, having previously insinuated a bit of lint into the fossa navicularis, I injected a solution of indigo. After several unsuccessful trials, at last, on the withdrawal of the lint, it was found slightly but distinctly stained with the indigo. Shall we infer in this case that the trouble was originally a simple folliculitis creeping along an accidental sinus—possibly producing it—opening on the surface of the glans, and finally breaking also into the fossa; or was it of gonorrhœal origin, having its initial point in the external follicular opening, and after seven or eight days cropping out into the urethra? No solution of continuity could be detected in the fossa navicularis, nor was there much tenderness at any point. A ten-grain solution of the nitrate of silver was injected into the fistula, with the apparent effect of closing it entirely. The passage between the two points was slit up and cauterized. The gonorrhœa (if it was a gonorrhœa) extended very little beyond the fossa navicularis, ran a very mild course, and ceased under astringent injections in about ten days.

A second case was in a Mr. D., who came to me two years since complaining of a little boil on his penis. Examination disclosed a small purulent-looking collection between the folds of loose tissue, a little to the right of and behind the frenum. Both the surrounding inflammation and the swelling were very slight; there was but little accompanying tenderness; the deposit was covered only by transparent cutis. A slight touch with the bistoury caused it to discharge three or four drops of laudable pus. As there were no venereal antecedents in the case, I remarked that it was probably a little sebaceous follicle which had become obstructed, and that he would have no further trouble from it. Several weeks after Mr. D. called to inform me that he was quite well of the boil, but that when he urinated the water came out of the side of his penis. On examination, I discovered a fine opening, like a pin-hole, at the bottom of a small, funnel-shaped depression on the site of the old difficulty. A fine silver-wire probe readily penetrated it, parallel with the urethral canal, for about half an inch. Failing to find my way into the urethra by this means, I introduced the blunted hypodermic syringe, and, on driving in the piston, the fistulous communication was demonstrated by free dripping of water from the meatus.

The foregoing cases, taken together, appear to me to warrant the inclusion of follicular sinuses among the possible causes of persistent urethral discharge; and, although I find no mention made of such complications in the literature of urethral disease, I venture the opinion that analogous cases have occurred in the experience of many practitioners.

Case III.—Illustrative of the second variety, is a case of a young man, 23, who not long since came complaining of an unusual moisture of the body of the penis at the under surface, together with slight swelling, and redness. No especial pain had been complained of, but the constant sticky moisture annoyed him. His history was of repeated gonorrhœas of slight character which yielded to a few injections, but always left a slight gleety discharge. A year previous he had consulted a very well-known surgeon, who on examination found a hard bunch on the under surface of the penis just behind the frenum, and evidently involving the urethral tissues. After much consideration it was pronounced an initial lesion of syphilis, and a systematic mercurial course was prescribed. The treatment had been faithfully pursued for a full year, and was still kept up. No other evidences of syphilis had manifested themselves, and the induration had not appreciably lessened. Examination showed an erythematous spot, the size of

a quarter-dollar, on the integument of the penis inferiorly and about an inch behind the base of the glans. On palpation, superficial fluctuation was distinct, and a little pressure caused an oozing of pus from a central opening, not larger, apparently, than the point of a pin. Introducing an Anel's probe it passed directly forward, until it struck the bunch, which was a dense neoplasm about the size of a large pea. The origin of this was evidently a folliculitis, for pressure upon the superficial abscess caused slight oozing of pus from the meatus urinarius. What had caused the reopening of the sinus resulting in the suppuration in the tissues contiguous to the neoplasm was uncertain. It was very evident, however, that the diagnosis of syphilis was an error, and the mercurial was discontinued. The abscess was opened freely its whole length, and healing occurred without difficulty. The fistulous tract was finally closed by a 60 gr. sol. nit. argent, introduced by means of a fine blunted hypodermic syringe.

CASE IV.—A merchant, aged thirty-five, was seen in consultation, in the third week of a sharp attack of gonorrhœa, associated with a very contracted meatus urinarius: a swelling, chiefly of the under surface of the penis, was discovered. Pain and difficulty of urination were very great; the œdema was very considerable; fluctuation was distinct. About an ounce of grumous, ill-smelling pus was evacuated by a free incision, and charcoal and iodoform poultices were alternated with soakings with very hot water. Notwithstanding this, the whole roof of the abcess sloughed out. There could be no question from history and behavior of this accident that the abcess was of urinary character, and caused by a leakage at a point which could not be discovered, but which in all probability was behind a stricture of large calibre at two and a half to three inches from the urethral orifice. No subsequent communication with the urethra could be made out, and the case went on to complete recovery without further difficulty.

In illustration of the latter, the third form of trouble resulting from urethral folliculitis, is the clinical history and treatment of a classical case which was made

the subject of a clinical lesson at Charity Hospital in 1879, a report of which was made by Dr. Brynberg Porter, as follows:

CASE V.—This is of a laborer, twenty-eight years of age. He was born in Ireland, but has been in this country for the last eighteen years. He is unmarried, a laborer by occupation, and was admitted to the hospital three days ago. His family history is moderately good. In 1863 he had an attack of typhoid fever, and in 1875, while at New Orleans, suffered from intermittent fever. In 1866 he had gonorrhœa; since then he has suffered from gleet. He has for a long time been a hard drinker, but has not taken much of late. About a month since he noticed a fresh discharge from the urethra, although he had had no recent venereal connection. He said, however, that just before this discharge made its appearance he had been drinking spirits, and beer, very freely, for several days in succession. The difficulty resembled an ordinary gonorrhœa, and he suffered a good deal from burning in passing his water, although he had no difficulty in urinating.

He further stated, that some six days since, on going to bed, he urinated without the least difficulty. After a comfortable night's rest he arose, and attempted to pass his water as usual, but found himself entirely unable to do so. During the day, suffering with pain and alarm, he called upon a surgeon, who readily inserted a catheter into his bladder and relieved him. This disability continuing, he was relieved in the same manner by catheterization, on the second and also on the third day, when he presented for admission into this hospital, complaining of pain in the perineum and inability to urinate.

He was found to have a distended bladder, the line of dullness extending fully two inches above the pubis. He was unable to void a drop of urine. An ordinary gum catheter was passed, without difficulty, by the house surgeon, and the bladder emptied of nearly two pints of urine. A distinct but diffuse swelling was found in the perineum, which was also the seat of some tenderness and pain, as complained of by the patient.

Since then he has been on his back, with warm poultices to his perinæum, and has had his urine drawn regularly twice a day.

This is the sixth day since the occurrence of his retention, and the third of his stay in the hospital. We now find him considerably below par in his general condition, and presenting pretty clear evidences of chronic alcoholism. His tongue is furred and tremulous; his skin is dry, dusky, almost jaundiced; his temperature somewhat elevated (101° Fahr.); his pulse is quick, not strong, and about 100.

The moderate febrile disturbance present is readily accounted for by the presence of the phlegmonous swelling in the perineum, previously referred to. This is seen to extend, from the attachment of the scrotum, to near the anus; fully an inch and a half in height, inflamed, tender to touch, hard and inelastic, yet not imparting to the fingers a sense of fluctuation at any point. The evidences are quite clear that an inflammation has been going on, in the tissues of the perineum, for several days, and that suppuration is imminent, or has already occurred, although not yet to the extent of presenting the physical signs, which we usually rely upon to determine the presence of a localized accumulation of pus, viz., fluctuation.

The depth and course of the tumor would indicate that the inflammatory process is here deeply seated, and is not a superficial phlegmon from general causes. There is no history of any local injury. The first intimation of trouble was *not pain*, such as initiates a simple cellulitis, but sudden and complete retention of urine. Then came a "feeling of fullness," as the patient describes it, which did not bring with it any sensation of pain, until the following day, and, even then, no external swelling was recognized.

If, you may ask, the evidences are here opposed to the idea of an idiopathic origin of the trouble, how shall we be able to explain the matter? The closure of the urethra, undoubtedly from a mechanical cause, was the first sign of trouble. This leads us to consider whether the cause might not have been in the urethra

itself. Impaction of a calculus, or the sudden swelling of mucous membrane from urethral irritation, may be suggested, but the easy passage of an ordinary catheter is opposed to this; and besides, the cause which closed the urethra continued to act, and was soon manifest as a progressive inflammation, involving, iu a short time, all the perineal tissues. What, then, is the cause of this sudden local trouble and subsequent inflammation?

We are assisted in our answer by reference to the progress of events in similar cases. When allowed to take their own course, the result, almost invariably, is an acute abscess. This, when opened, discharges pus, more or less unhealthy in character, and presents evidences of admixture with urine, in greater or less quantity; and, at a period varying in different cases, from the date of the opening of the abscess (either spontaneously or by operation), up to two or three weeks, results in a urinary fistula.

A rupture of the urethral wall, has been followed by the leakage of urine into the surrounding cellular tissue. Sometimes this is so slight, that its only effect, is to set up a low grade of inflammation, which produces but a limited œdema. Again, in other cases, the urinary infiltration is sudden, and so extensive that nothing but the promptest surgical measures will save the patient from speedy death. The occurrence of a minute extravasation would explain satisfactorily the trouble in the present instance. But how are we to account for a perforation or rupture of the urethral walls in a case like the present, when the urethra is sufficiently free from stricture to permit the easy passage of an ordinary catheter? We are accustomed to associate urinary fistulæ with the results of external violence, or with the rupture of the urethra behind a close organic stricture, occasioned by pressure of urine from urgent action of the *detrusor urinæ* muscles. Evidently neither of these causes obtained in the present instance, and the perforation of the urethral walls can only be explained through the insidious progress of a sinus, originating in an antecedent folliculitis.