LESSON XLI.

Henle on the size of the meatus urinarius—Errors of previous observers—Meatus urinarius no guide to the urethral calibre—Relation of the size of the meatus to the circumference of the flaccid penis—Stricture long recognized as a cause of gleet—Imperfect means formerly in use for examining the urethra for stricture—Use of the endoscope not efficient in discovering the real cause of gleet—Case in illustration—Gleet as a rule dependent upon stricture—Efficient exploration of the urethra always capable of discovering and locating stricture of the urethra—Complete division of stricture results as a rule in the cure of gleet—Degrees of gleet—Description of—Explanation of the mode of its production—Treatment by bougies, without exact knowledge of locality of stricture, empirical—Temporary results of such treatment—Complete division of stricture and suitable after-treatment the only plan through which gleet may be permanently cured.

Henle* has demonstrated the meatus urinarius to be of uniform size with the fossa navicularis, and thus from an anatomical stand-point, has demolished the error which has been disseminated by so many authorities, and which has achieved so much fictitious importance as a guide in urethral examination, viz., that the *meatus urinarius* is a *measure of the size of the normal canal.*†

What I desire now to make prominent is the fact that the best recognized authorities have long appreciated the value of stricture as an agent in the prolongation of urethral inflammation and irritation. Whenever it could be demonstrated by the imperfect means used, it

* Handbuch der systematischen Anatomie des Menschen, von Dr. J. Henle, p. 417.

† A constant relation appears to exist between the urethral calibre and the size of the penis with which it is associated. This is a fact demonstrated by careful measurements with the urethra-meter in several hundred cases, without a single exception being met. The proportion runs as follows: When the flaccid penis measures 3 inches in circumference, the size of the urethra will be 30 millimetres in circumference, or more. When it is 3¼ inches, it will be 32 or more; 3½ inches, 34; 3¾ inches, 36; 4 inches, 38; 4¼ to 4½ inches, 40 or more millimetres. When the urethra-meter is not available, this proportionate relation may be relied upon as not *over-estimating* the *normal* urethral calibre in any case.

was at once accepted as the probable cause of the gleet, and it was only when no stricture could be found that the surgeon was driven to the use of internal medication and topical application. The urethra was vainly explored for stricture, because the instruments in use were insufficient. The endoscope was the result of an intelligent effort to clear up the diagnosis in cases of gleet, where no stricture was found. Désormeaux, Cruise and others, discovered the granular spots studding the urethra in such cases, and the secret was apparently manifest. Topical applications through the endoscopic tubes apparently cured some, and gave temporary benefit to many; then an army of young endoscopists followed *en train*, believing, as taught, that the granular sensitive spots in such cases would, if not subjected to frequent ocular inspection and intelligent cauterization, result in true organic stricture. And yet after months of faithful work in this direction, the return of gleet, without new contagion, made it evident that the true cause of gleet had not yet been reached in such cases. I have the record of at least a dozen instances* where the difficulty was shown to

* The following is the record of a typical case of this sort:

Mr. W., aged 25, came under my care December 1st, 1872. Contracted first gonorrhœa early in June, 1872, was treated by injections locally, and alkalies internally, until August 1st, during which time he had no freedom from the discharge, nor from the acute suffering. At about this time, the vesical neck became involved, and he suffered most from frequent and painful micturition. Came under the care of Dr. ——, a skilled endoscopist, who discovered numerous granular patches in the course of the canal, extending quite into the prostatic portion, and applications of a strong solution of nitrate of silver were made through the endoscope, which afforded temporary relief; urination still painful every hour. By September 1st, the discharge decreased to a slight mucus, following the use of pencils of tannin and glycerine. A spell of damp weather brought back the purulent discharge, with a return of perineal pain and frequency of micturition. Tannin pencils again used, but after continuing for four weeks, and no improvement, patient was put to bed, and hot hip-baths were administered every two hours, etc., etc. After five weeks of various kinds of treatment, local and general, he came to me from his bed, December 1st, 1872. On examination I found no difficulty in introducing No. 20 F. bulbous sound, and discovered a firm cartilaginous stricture extending from just within the meatus to half an inch back. This I freely cut with Civiale's bistouri caché. Immediately following the operation, he expressed himself as feeling "like a new

be a stricture near the meatus, which nevertheless admitted the usual-sized endoscopic tube (22 or thereabouts), and where the dependence of the granular spots upon this condition was proved by their complete disappearance, upon the cure of the contraction, without the aid of any other treatment whatever. This premises a conclusion, arrived at by the experience gained in a very large number of cases, viz., that *gleet is always dependent upon stricture:* that, while stricture may be present when there is no gleet, whenever there is a gleet (in the sense of a chronic urethral oozing or discharge), an intelligent and thorough exploration, with suitable instruments, will *invariably* discover a *distinct* contraction of the meatus urinarius, or a *readily recognized* coarctation of the urethra at some point; and further, that the complete restoration of the urethra to its normal calibre and suppleness, at the contracted points, will be required to warrant the statement that a *permanent cure* has been effected.

The complete division of stricture has, in my experience, resulted *uniformly* in its complete disappearance within a period varying from three months to one year, and the *cure of gleet has, as a rule, followed the complete division of stricture within a period varying from twenty-four hours to four weeks after the final operation.*

Let us now consider the various degrees in which gleet is presented to the surgeon.

First. When it is just sufficient to form shreds of inspissated mucus, which are observed on examination of the first washings of the urethra during the act of urination.

Second. When it is in the form of a simple, transparent exudation, only sufficient to glue the lips of the meatus

man." The discharge ceased within twenty-four hours, the perineal pain and frequency of micturition, and the *ardor urinæ* also ceased, and he returned to his duties, which were most active, on the following day, after having been laid up for over five months. *The urethral granulations subsided and finally disappearcd within a few weeks without* any local or general treatment. His recovery was absolute and complete, and the only solution afforded was the *division of the stricture at the meatus*, to which the granular spots in the posterior part of the canal were undoubtedly due.

urinarius together, and not even enough to stain the patient's linen.

Third. When, on squeezing the penis and subjecting the meatus to pressure (as patients afflicted with gleet are very much in the habit of doing), a single drop of semi-opaque or creamy purulent fluid may be made to ooze out.

Fourth. When it is met as a thin, profuse, nearly or quite painless discharge, easily reduced in amount by astringent injections, but as readily returning on their withdrawal, and, even if apparently cured, returning promptly on the least vinous or sexual indulgence.

Fifth. When the discharge, thicker, decidedly yellow, and persistently profuse, exudes from an inflamed and pouting meatus, usually causing much redness and irritation upon contact with the preputial tissues.

Each and all the grades or varieties of gleet above enumerated and casually described may, it is believed, be proved to owe their persistence, if not their *ex*istence, to simple, localized, mechanical obstruction to the passage of urine.

The impetus which is given to this fluid during an ordinary micturition is of no insignificant character. The muscles of the diaphragm, abdomen and perineum combine to bear down, press against, support, and steady the bladder, while the active agents, the detrusor muscles, which interlace over the entire organ, exert an expulsive force sufficient to overcome the resistance of the sphincter vesicæ, and to project the urine in a full, smooth stream through the urethra, to a distance of several feet. This, however, gives but a faint idea of the effect which a prolonged resistance to the power of the muscular apparatus concerned in emptying the bladder may produce. In order to be fully appreciated, this should be observed in a person laboring under some obstruction to the passage of urine, such as occurs in urethral stricture. If the stricture is a slight one it may be apparent only in producing a want of rhythm in the muscular action of the urethra, which prevents a prompt and complete emptying of the canal. Thus it is that *dribbling*, after the act, is occasioned. When the strict-

ure encroaches to a somewhat greater degree, the stream is no longer full and strong, but becomes twisted, and is projected with less force, and now that the patient often finds himself exerting a pressure of many extra pounds in bearing down upon the bladder, the beginning of the effect of stricture begins to be realized. But let the case be one where the stricture has closed the urethral lumen, so that a continuous stream is no longer possible: the pressure becomes so great, that, after a time, not only does the urethra become permanently enlarged behind the stricture, but the urine is pressed backward, from the bladder, through the ureters, resulting in dilatation of the delicate tubes to many times their normal size, the pelvis of the kidney also participating in this forced dilatation, until a positive sacculation may be produced. This power by which the urine is propelled, certainly furnishes the requisite conditions necessary to establish a point of irritation in a urethra when stricture is present. It is only necessary to establish the fact, that the *normal resiliency* of the urethra is diminished at a given point, to prove that, during micturition, a perturbation in the stream *must* occur at such point, even if it is not sufficient to attract attention in any way. Hence the slightest contractions assume an importance which could not be inferred from the *apparent* freedom from trouble in passing the urine. They establish a localized point of friction, and, of necessity, an increased excitement in the vessels of the part, possibly only enough to disturb the complete elaboration of epithelial material, and to cause the shreddy deposit of the clear normal secretion to take the place; and this may occur, with very slight, or not even the least abnormal sensation being present. The presence of the mucoid shreds in the urine may be the *only* evidence of commencing trouble. But a permanent point of friction, once established, greater than the natural conservative power of the surrounding parts is able to counterbalance, obstruction is increased by the natural aggregation of plastic material at the point of irritation. In this way the tendency to recovery is combated, and a permanent point of inflammatory action is established.

Thus the difficulty, which commenced simply as an obstruction to the resiliency of the urethral walls, progresses naturally and certainly, to the point of narrowing to a greater or less degree the calibre of the urethral canal.

The second point of importance is the incomplete emptying of the urethra after micturition, which occurs as a necessary consequence of anterior contractions. If the muscular structure is embarrassed, its function is imperfectly performed, and instead of completely emptying the canal of its irritating contents, a drop or more is retained, either to dribble away slowly within a few minutes after urination, or to be held, behind the contraction, by a spasmodic action (always readily set up in the vicinity of urethral irritations) until chemical changes heighten its irritative action, and it becomes capable of establishing new points of irritation, such as are seen in *granular urethritis*, so-called. It is not impossible or improbable that, as Desormeaux and Cruise have taught, the granular spots found in the urethra in cases of gleet *may* be the beginning of stricture; but it is positively true, that they may be, and most frequently are, the legitimate progeny of an *already-formed stricture*, anterior to the point of their location, and it is equally true that unless stricture has already occurred as a result of the granular urethritis, the cure of the anterior co-arctation will result, without other treatment, in the disappearance of the granulations, and a complete restoration of the canal to its normal condition. The treatment of gleet by a systematic introduction of sounds and bougies, medicated or otherwise, is based upon the idea of a possible co-arctation of the urethra at some point. Ordinarily this plan is resorted to in the most empirical way, simply because the introduction of sounds and bougies is recommended by authorities for the cure of gleet. By our most intelligent surgeons, it is directed to the dilatation of strictures, which have been suspected, or detected by the bulbous sound or bougie,

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