## Course of the Disease and Complications

For purposes of clinical description and methodical treatment urethral inflammation (whether gonorrheal or other) must be distinguished as anterior and posterior and as acute and chronic in the anterior and posterior localities, since the treatment, notably the mechanical topical treatment, varies greatly with the locality. The general internal treatment, on the other hand, is not so essentially modified either by the intensity of the inflammation or the region upon which it manifests itself, being for all areas a proper balance between balsamics, alkalies, diluents, rest, and anodynes as required. Therefore the malady may be rationally presented here, as in a clinical study, all surface inflammations being considered together.

## Acute Anterior Urethritis

**Morbid Anatomy.**—Gonorrhea, the type of this inflammation, commences at the meatus and travels slowly backward. By the eighth day all the anterior urethra has become invaded. Its surface is congested, without polish, and covered with little bare spots like those seen in balanitis where the epithelium has exfoliated. There is no ulceration. These lesions tend to become localized at the bulb, in the fossa navicularis, or at some intermediary point where there may have been much chordee.

The gonococcus first gains lodgment upon the soft epithelium just within the meatus, rapidly multiplies and penetrates between the cells into the deeper epithelial layers, into the foramina and the ducts of the mucous glands, and into the subepithelial tissues. The minute foreign bodies act like the stings of so many countless nettles, and Nature enters at once into a fierce contest to get rid of the enemy.

Hence the inflammation and the running together of myriads of leukocytes which, possessing themselves of the microbic enemy, float them out to the surface of the mucous membrane and thence to the meatus, where they appear in a stream of creamy pus.

The pus is really Nature's method of cure—a method unfortunately slow, and when left to itself painful and not without its complications.

This bird's-eye view of the situation makes it at once clear why local treatment by injection and irrigation is so tardily effective, even when the agent employed is deadly to the gonococcus, unless it be set to work while all the gonococci are upon the surface and within easy reach of the destructive agent. When the microbes have worked their way beneath the surface, which they seem to



accomplish in a few hours to a greater or less extent, and each hour to penetrate more deeply, they become shut in and protected from the action of any germicide locally employed against them, and it is only by repeated and prolonged irrigation that they can be finally mastered. To expect to destroy them by one or two injections, however powerful in a germicidal way, is as sensible as to expect to drain a swamp with a broom.

A moment's contemplation of this idea intensifies one's appreciation of the truth of the fact that in an acute gonorrheal case local treatment to be promptly effective must be commenced very early—certainly within twenty-four hours of the appearance of the discharge. Every hour later makes the prompt efficiency of local germicidal treatment less brilliantly effective.

A thorough conviction about this rapidity of penetration of the bacteria is most valuable to the surgeon.

In three autopsies of cases of acute gonorrhea produced by inoculation,[1] it is shown that the pavement epithelium of the anterior urethra somewhat opposes the penetration of the gonococci, which, thirty-eight hours after inoculation, are found in groups upon the cells and commencing to penetrate between them.

It is through the foramina and foraminulæ of Morgagni and the ducts of the urethral follicles and of the glands of Littré that the germs find readiest entrance to the subepithelial tissues, and even as early as the thirty-eighth hour a certain number of leukocytes, having devoured some of the advance guard of the enemy, reach the surface and are found in the discharge, notably in the mouths of the foramina of Morgagni.

However, the germs soon get beneath the surface, and are there protected from the action of parasiticides even better than they are in laboratorial cultures.

And it has been found that antiseptics applied even for two minutes are not able to sterilize cultures. Finger made such experiments with permanganate of potash 1 : 10,000 to 1 : 1,000, carbolic acid 1 : 10,000 to 1 : 1,000, corrosive sublimate with salt 1 : 100,000 to 1 : 5,000, nitrate of silver 1 : 2,000 to 1 : 1,000, and all failed; a failure ascribed to the fact that the cultures cover themselves with an albuminous coagulation when in contact with these antiseptics, and in this way the central portions of the culture remain protected.

**Symptoms.**—The symptoms of anterior urethritis are the same as those of gonorrhea. Repetition is unnecessary. When the inflammation is traumatic, chemical, or of any non-virulent variety,

[1] Cited by Sée, p. 117, from Finger, Gohn, Schlagenhaufer.

the discharge varies in intensity even down to a moderate seropurulent oozing of short duration with little else to stamp the catarrhal character of the attack or to render it worthy of the qualification acute. The only point of prime importance is this: Does the discharge contain true gonococci, or not? If so, it is a gonorrhea and should be treated with unrelenting zeal; if not, temporizing with it is justifiable.

For treatment, see page 119.

## POSTERIOR URETHRITIS

When urethral inflammation passes the hole in the triangular ligament and enters the membranous urethra posterior urethritis exists. It was formerly believed by every one that the membranous urethra is the natural terminus of many, perhaps of most gonorrheas; but there is no reasonable reason why the gonococcus should stop at the bulb. It doubtless always travels backward into the membranous urethra, but there finds an uncongenial home, for this relatively narrow portion of the canal is not luxuriously furnished with mucous glands to harbour the gonococci, and is swept fiercely by the outflowing torrent of urine, all of these conditions being unfavourable for a lodgment of the invading foe. But in a certain proportion of cases the gonococcus effects a lodgment beyond the membranous urethra and reaches the prostatic sinus, the neck of the bladder, even the bladder itself, and the inflammation occasionally mounts to the kidney; or the invasion may be propagated downward through the ejaculatory ducts into the seminal vesicle and the epididymis on one or both sides.

In this way we have as true evidences of posterior urethritis, and therefore logically to be considered as part of the urethral inflammatory picture, prostatitis, follicular and parenchymatous, acute urethrocystitis or gonorrheal cystitis, and seminal vesiculitis with or without an accompanying prostatorrhea or urethrorrhea; and all of these maladies must here receive a few words of description in their acute and in their chronic aspects.

## ACUTE POSTERIOR URETHRITIS

Acute posterior urethritis is practically always gonorrheal in origin. This is obviously true when the gonococcus has worked its way backward through the membranous urethra; but it is generally none the less true in those very common instances of acute posterior urethritis following unwonted alcoholic potations, prolonged



sexual excess, local violence (bicycle); for in these cases the immediately active factor in lighting up what seems to be an acute spontaneous posterior urethritis (without accompanying anterior urethritis) is, as a rule, only an adjuvant, the real underlying etiological factor being a previous condition of mild latent posterior urethritis left behind by a former gonorrhea and kindled into sudden activity by the new provocation. The same remark holds good of the more or less acute posterior urethritis so often accompanying urethral stricture; unless, haply, the stricture owes its origin to traumatism and not to gonorrhea.

That acute inflammation of the virgin posterior urethra may occasionally occur from prolonged, repeated, excessive sexual strain or masturbation is possible, but nearly phenomenal in its rarity. Prostatorrhea and subacute inflammatory conditions are more likely to result from these causes.

The posterior urethra may also become acutely inflamed in connection with enlarged prostate, from local traumatism, retained stone, tubercle, cancer, etc.; but these non-specific inflammations of the posterior urethra soon assume a chronic character or go on to abscess formation. In either case they, together with the acuter forms of follicular and parenchymatous prostatitis and prostatorrhea, all belong to the group of maladies classed as chronic posterior urethritis. They will be considered later.

For present purposes, then, acute posterior urethritis is really gonorrheal urethrocystitis, and when well pronounced it is nothing less than gonorrheal cystitis. Yet there are grades in the extent of area invaded by the inflammation and in its individual intensity.

The prostatic sinus becomes engorged as the acute inflammation invades it. Its follicles grow edematous and yield pus, the prostate sometimes congests in its substance and swells, causing reflex spasm of the cut-off muscles and retention of urine, perhaps necessitating the use of a catheter. With this there is usually a diminution of the anterior urethral discharge, and generally more or less urinary urgency and precipitancy. A finger in the rectum detects some heat and engorgement of the prostate, which may throb so that the patient's pulse may be counted by the rectal finger. Possibly the intensity of the inflammation now expends itself upon the substance of the prostate, and multiple small abscesses form in that organ, or one large abscess; or again the course may be downward into the seminal vesicle, yielding acute catarrhal inflammation there, possibly abscess, or the epididymis may inflame—even (very rarely) suppurate.

The more usual course, however, for acute posterior urethritis is for the inflammation to remain upon the surface of the mucous

membrane, in the membranous urethra and the prostate, or to travel backward into the bladder, localizing itself about the neck and yielding often the fiercest symptoms of urinary urgency and insistence, true gonorrheal cystitis, and finally simmering down to a chronic posterior urethritis.

For treatment, see page 131.

## GONORRHEAL CYSTITIS

This malady when acute is a specific urethrocystitis—an acute posterior urethritis legitimately prolonged. It is, strictly, for clinical purposes, a malady of the urethra. When it has lasted long uncontrolled, and resulted in contracture of the vesical neck, it leaves the category of urethral maladies and becomes a true cystitis —a disease of the bladder and not of the urethra—to be controlled by operative measures and not by medicines and local applications (p. 317).

**Etiology.**—Fortunately some co-operative cause over and above a simple gonorrhea is usually required to yield gonorrheal cystitis, and these causes are well known and for the most part easily avoided. The narrow membranous urethra, with its intermittent urinary torrent, is the natural guardian of the bladder, just as the contracted vesical mouths of the ureters are the guardians of the kidneys, protecting the latter from many an ascending invasion of bacterial hordes.

A common adjuvant cause of gonorrheal cystitis is the use of a strong injection in the anterior urethra, notably if forced too deeply into the canal. Any instrument passed beyond the membranous urethra is another potent agent for evil, *à fortiori* if the instrument be large or roughly used, since a traumatism of the mucous membrane is the best possible preparation of the soil for invasion, and the instrument itself is quite liable to carry in the gonococcal seed.

For the same reason—preparing the soil for invasion by bringing the blood to it and congesting it—potent factors for evil are sexual excitement with or without attempt at intercourse during the existence of an anterior gonorrheal urethritis even when the latter is well on the decline, active physical exertion, dancing, running, tennis, horseback or bicycle exercise, etc., and, finally, the use and notably the abuse of liquor, since this congests the urethra and renders the urine dense and acrid.

Anything that locally bruises the parts (even serious constipation), anything that renders the urine dense and overacid, anything that congests the prostatic sinus, even erotic thoughts, must be set down as a legitimate contributing cause to the lighting up of gonorrheal cystitis, provided always the gonococcus be at hand to avail itself of its opportunity. These last-named causes alone may produce non-specific urethrocystitis, but only when there is some other co-operative agent, such as stricture, prostatic disease, active anterior urethritis (not gonococcal), and the like.



Gonorrheal cystitis, in the natural course of events, is not to be expected before the third week of a gonorrhea, but it may be brought on very much earlier by efficient co-operative causes. Gonorrheal cystitis, as a rule, confines itself to the posterior urethra and the bladder area just within the neck. It practically never, or very rarely, involves the entire mucous lining of the bladder. In my opinion such an involvement does not commonly occur unless the prolonged duration of acute gonorrheal cystitis leads to the chronic form with contraction of the vesical neck—a surgical condition to be considered elsewhere.

Finally, in those rare cases in which violent, virulent gonorrheal cystitis mounts during the acute stage to the kidney, the specific pyelo-nephritis there set up becomes a general systemic malady and needs little consideration in this section, which deals only with the urethral mucous membrane, its maladies and complications.

**Symptoms.**—From a little teasing urinary frequency, with urgency and insistence, felt at first only by day and relieved upon lying down, the urinary call may become fierce and uncontrollable night and day even to the point of incontinence. Emptying the bladder does not relieve urinary desire. Straining and tenesmus come on mechanically, aggravating the already existing inflammation, and this in all grades of intensity in different cases. In sharp attacks the urine is always tinged with blood from the excoriated vesical neck, and pure blood in a small stream or in drops not infrequently follows the urinary act.

Meantime the anterior urethral discharge, if present before the onset of the acute posterior urethritis, has become greatly reduced, perhaps it has ceased entirely, and the patient, deceived by this ostrich-act, congratulates himself that at least this enemy (his discharge) has been vanquished. Vain hope! The gonococcus still lurks in the anterior urethra, and a return of the anterior discharge may be expected as the bladder symptoms subside.

There is moderate suprapubic and sometimes perineal or rectal pain, weight, and pressure. The prostate may congest and swell. If so, the urinary stream will be small and there may be retention,

complete or partial, notwithstanding intense urinary desire and tenesmus.

The urine is commonly acid in gonorrheal cystitis and full of free pus. It is often tinged with blood whether passed in one, two, or three portions, but the blood is most marked in the third portion. The pus is evenly distributed throughout the urinary specimens, and is not found in gouts and shreds and chunks of stringy muco-pus, with ammonio-magnesian phosphate and bacteria, as in the ammoniacal urine of chronic cystitis.

The general symptoms attending acute posterior urethrocystitis are often seemingly disproportionate. There may be considerable suppuration and perhaps even urinary urgency without notable constitutional reaction of any kind, while on the other hand, even with superficial inflammation, there may be chilly feelings followed by active fever and great mental depression.

Uncontrolled by treatment this malady may run on to the permanent detriment of the bladder, yielding a weakness of that organ, which persists indefinitely, due to contracture of the vesical neck, or even perpetuating itself as chronic general cystitis. Active treatment, on the other hand, usually controls it with comparative ease, leaving the bladder sound. Gonorrheal cystitis may last only a few hours, while its results may last a lifetime.

For treatment, see page 139.

# CHAPTER VII

## *CHRONIC URETHRITIS AND PROSTATITIS*

### CHRONIC ANTERIOR URETHRITIS

This malady is a chronic catarrhal state of the mucous lining of the pendulous urethra. As a rule it is the sequence of a gonorrhea, the canal being left in a subacute catarrhal condition upon the subsidence of the acute inflammation.

#### Etiology

A gonorrhea, well handled in a healthy subject, should leave the mucous membrane of the urethra sound after recovery, but if the inflammation has penetrated deeply beneath the mucous membrane and been protracted there, and notably if the patient be of the catarrhal, gouty, or strumous type, or if there shall have been follicular abscess, or if stricture shall have formed, or warts or polypi—then chronic anterior urethritis is the result.

In debilitated, gouty, and strumous subjects, particularly if such be dyspeptic, with dense acid urine, and notably if they be masturbators or indulge in sexual excess, or subject themselves to prolonged sexual excitement without relief—such subjects, in connection with the posterior urethritis (which these causes are liable to occasion), also suffer sometimes from moderate chronic anterior urethritis without antecedent gonorrhea.

A congenital or a traumatic stricture may be a cause, as may urethral chancre or chancroid, polyp, or a crop of so-called venereal warts (papillomatous urethritis).

For treatment, see page 127.

**Papillomatous Urethritis.**—An admirable study of this condition has been made by Oberländer.[1] He does not believe that pointed warts under the prepuce or in the urethra are due to gonorrheal infection, yet he does consider them contagious. The urethral discharge in papillomatous urethritis is light in quality, and chronic

[1] Sajous's Annual, 1888, ii, 212, from Vierteljahresschrift f. Derm. u. Syph.