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.

from the first. Individual peculiarity Oberländer believes to play an important *rôle*.

The papillomata are exactly like subpreputial warts, varying greatly in size. Oberländer considers that papillomatous urethritis is only a more pronounced stage of the hypertrophic urethritis that sometimes follows gonorrhea. In this I differ with him, having often seen urethral warts, either a few near the meatus or many sprinkled along deeper in the canal, while the general mucous membrane was soft and pliable, and in no sense the seat of hypertrophic urethritis.

The malady may last indefinitely, individual warts disappearing to be replaced by others. Oberländer cites a case of warts in the urethra of a patient who had had a discharge for twenty years.

Warts are not easily inspected through the urethroscopic tube, as they bleed upon the slightest touch. When they are not visible at the meatus a diagnosis may be made by urethroscopy or by inserting a bulbous bougie of fair size and not bullet-shaped, but with shouldered acorn tip. This being deeply introduced is pulled out against resisting pressure made by the thumb and finger upon and along the integument underlying the urethra just in front of the shoulder of the instrument. Upon this shoulder when withdrawn will be found some typical chunks of warty material, and hemorrhage from the urethra will follow.

Polypi.—Polypi (Fig. 19) are also found occasionally but very rarely in the urethra—oval, elongated, pedunculated masses made up of more or less fibrous and connective tissue, and covered with smooth mucous membrane. They are of varying lengths up to ¾ inch (Thompson), and have been observed in the fossa navicularis, occasionally in the pendulous urethra, and in the sinus of the prostate. They do not bleed on contact with an exploring instrument, their only symptom being a slight urethral discharge and perhaps diminution in the size of the urinary stream, with some real or fancied urethral neuralgia.

True polypi are exceedingly rare in the male urethra.

Other Tumours.—Cavernous angiomata and cysts have been observed in the urethral walls. They are mentioned only as curiosities, and might occasion a minute discharge.

For treatment of papillomatous urethritis, see page 128.

Morbid Anatomy

In chronic anterior urethritis there are congested, sometimes even semi-excoriated or frankly granular patches anywhere or everywhere along the pendulous urethra; but, by election, in the second

and third inches of the canal, and in the sinus of the bulb. When there is congestion at the bulb one may confidently infer that it extends backward into the membranous urethra or beyond (posterior urethritis). The urethral wall is often thickened, as evinced by the

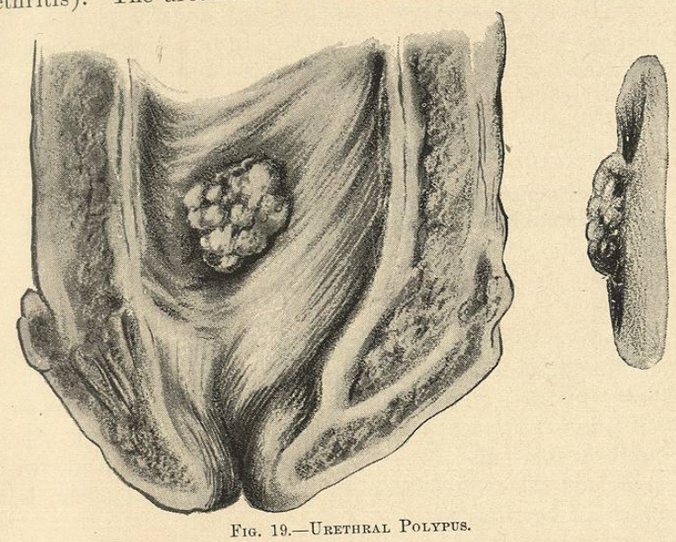

Fig. 19.—Urethral Polypus.

greater rigidity and the lack of suppleness and elasticity of the canal as it closes in upon the end of the urethroscopic tube during withdrawal. The colour of these patches is no longer the pale, boiled-salmon tint of the healthy urethra, but varies through many shades of brilliant red to dull, livid, purplish tints deprived of the customary urethral polish (from loss or alteration of epithelium), sometimes arborized with little blood-vessels, and often bleeding as the end of the tube is being withdrawn from the canal. The urethral follicles are dilated or occluded, perhaps occasionally oozing a drop of pus in severe cases, or the lesions may be quite superficial. There may, of course, be positive stricture, granular upon its surface, or with congested and granular patches behind it. This stricture the bulbous bougie will readily detect.

If there be urethral chancre as a cause for the sero-purulent gleety discharge it may generally be felt upon the outside as a palpable lump, and the urethroscope will plainly show the ulcer, while the discharge, although moderate, is often slightly bloody.

If there be polyp the urethroscope will make the diagnosis.

If there be multiple pointed condylomata (so-called venereal warts) one or more may usually be seen at or just within the meatus

by distending it with the thumb and finger, while those more deeply seated may be detected by the urethroscope.

The Urethroscope.—The urethroscopes upon which I rely are two, both electric in their illumination—that of Leiter, which has long been before the profession and needs no special description here, and that of my associate Dr. Chetwood. In the country, where electric equipment is hard to keep in repair—and it will get out of order—the simple Klotz tube (Fig. 20) and head-mirror for reflected lamp or sunlight will answer all purposes. In city practice electric illumination is more convenient and more brilliant.

FIG. 20.—KLOTZ'S URETHROSCOPIC TUBE.

There are two types of electric illumination, indirect from an external lamp—and perhaps the most excellent of this variety is the Otis urethroscope—and direct illumination, the lamp being within the canal; and the most convenient of these, in my opinion, is the instrument of Dr. Chetwood.

There are many other excellent urethroscopes in the market, and the selection of this or that model is a matter of personal preference.

Brown's urethral speculum (Fig. 21) is an instrument of considerable merit for some examinations, as is also its prototype, the old-fashioned wire urethral speculum (Fig. 22 *a*) for use at the meatus and for the tissues just within.

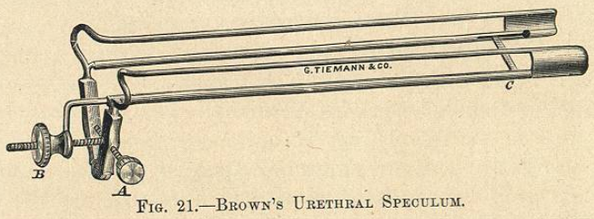

FIG. 21.—BROWN'S URETHRAL SPECULUM.

It may be added here that to look into a urethroscope and to interpret what is seen are two very different matters. It requires an educated eye to see anything intelligently through this instrument, just as through the microscope.

The Chetwood urethroscope (Fig. 22) is an application of the

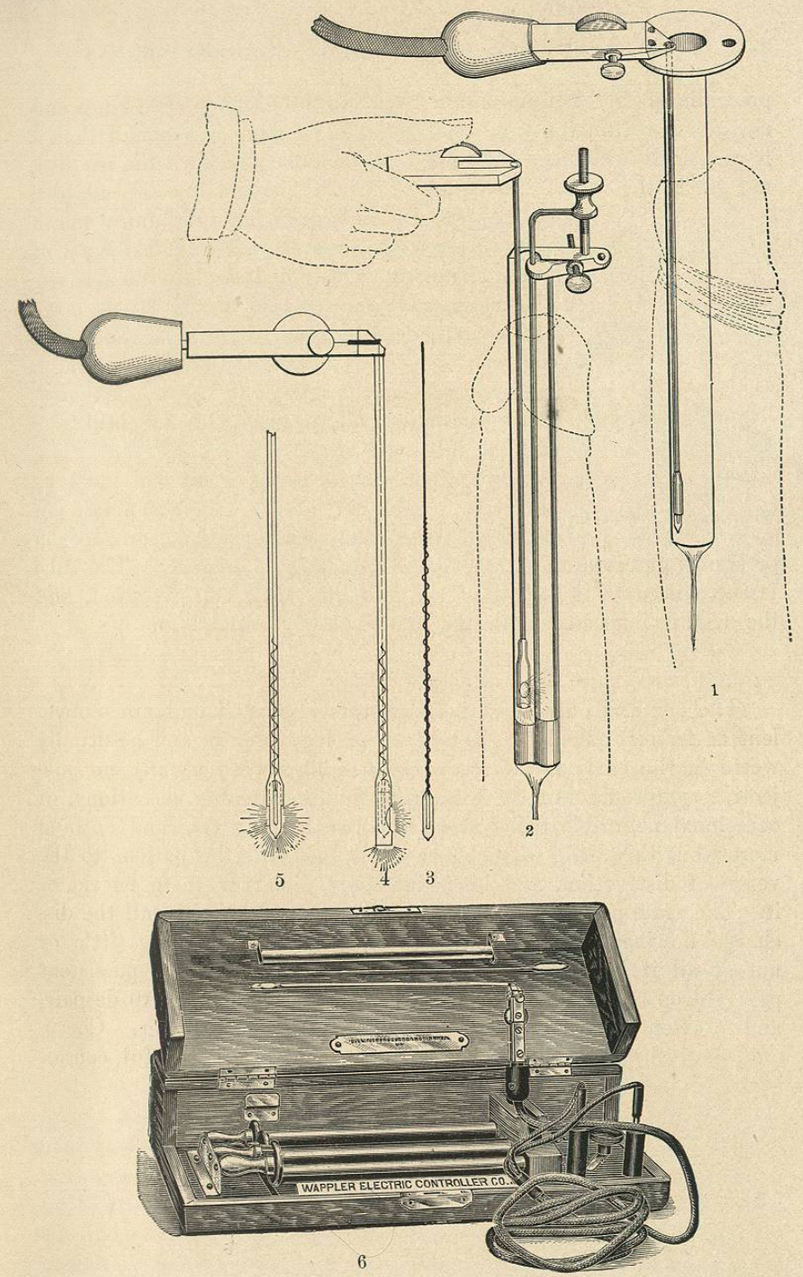

FIG. 22.—CHETWOOD URETHROSCOPE.

1, instrument in use with endoscopic tube; 2, same, with wire speculum in place of tube; 3, Mignon incandescent lamp; 4, protected lamp used in wire speculum to avoid burning the urethra; 5, unprotected lamp; 6, apparatus complete, with battery; dimensions, 10 in. × 5½ in. × 2¼ in.

principle of direct illumination by a minute incandescent lamp carried down within the tube to its end. The lamp is so small that it is practically cold, and does not heat the tube nor burn the urethra, nor get in the way of instruments. Dr. Chetwood has also adapted his lamp to Brown's urethral speculum, a manifest aid in many cases. The various parts of the instrument as depicted explain themselves. The endoscopic tube should always be as large as the urethra will readily admit without discomfort, to insure a large field for inspection.

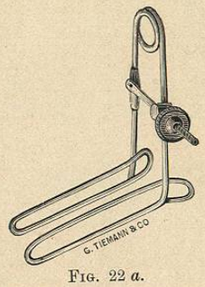

Fig. 22 *a*.
Wire Meatus Speculum.

The tube must always be introduced very gently with its end protected by an obturator, and the lubricant employed should be one without any grease in its composition and must be perfectly soluble in water. Lubrichondrin in sterilized tubes meets these conditions, or a drop or two of glycerin and water will serve in an emergency. The tube is introduced to the sinus of the bulb, the obturator removed, and the urethra inspected while the tube is slowly withdrawn.

Symptoms

The one and only objective symptom is a persistent muco-purulent or frankly purulent gleet, more or less intense, and habitually worse in the early morning on rising. There are usually no subjective symptoms, but there may be tickling, itching sensations, or occasional neuralgic pains along the canal—only this and nothing more; but this little disturbance often torments the patient to the verge of distraction, and he is intensely importunate to be rid of it. The same patient with a chronic posterior urethritis, all the discharge flowing backward into his bladder, will complain little or not at all if he have no subjective symptoms, but the persistent pearly drop at the meatus, which he can see, drives him to despair, and is often rated as a malady only just short of cancer. Consequently it becomes a serious matter worthy of respectful consideration.

Diagnosis

The diagnosis of urethral discharges covers a differentiation upon two questions: First, what is the lesion in the anterior urethra? Secondly, is there also posterior urethritis?

The first point can be decided by the gentle use of the bulbous bougie and by inspection through the urethroscope. Yet it is well to emphasize the fact here that these exploring instruments should not be introduced into the urethra when the discharge is abundant,

though chronic and technically a purulent gleet. The traumatism likely to be occasioned in such cases by improper instrumentation may greatly intensify the inflammation and lead to folliculitis, abscess, stricture, and the like.

Therefore, in chronic anterior urethritis, when the discharge is abundant, the grade of the inflammation and the abundance and quality of the discharge must be first reduced by general and local treatment (irrigation and injection) before the bulbous bougie or the endoscopic tube be called into use for a finer definition of the ultimate lesion—stricture, granular spot, chronic suppurating follicle, polyp, wart—keeping up the discharge.

When the discharge is reasonably moderate two simple means may always be used to decide whether all the pus comes from the anterior urethra or some of it also from the posterior part of the canal.

Two-glass Test.—The first of these means is to cause the patient to urinate into two glasses. The first glass, to contain about two ounces, will hold the washings of the entire urethra, anterior and posterior. The second, if cloudy with pus, either shows sufficient posterior urethritis to have furnished pus enough to tinge the entire vesical contents by flowing backward into the bladder, or indicates that the source of pus supply is above the vesical neck, in the bladder, ureter, or kidney, in which case the first flow is usually but little more purulent than the second.

If, however, the second urinary flow is perfectly clear it does not necessarily exclude the participation of the posterior urethra in the catarrhal process, because the first urinary gush washes the posterior as well as the anterior urethra.

But if the anterior urethra down to the bulb be washed out with a hot boric-acid solution, introduced through a small, soft-rubber catheter, and the first urinary gush is still full of pus, the presumption that this pus comes from the posterior urethra becomes a conviction.

Injection Test.—The second means of differentiation consists in using an injection capable of permanently colouring the anterior urethral shreds. The one I prefer is the permanganate of zinc, about 1: 500.

If the patient, not having previously urinated, be told to inject his urethra with an ordinary blunt-nozzled syringe and to retain the injection in the canal for about twenty seconds, and then, half an hour or more later, to present himself for examination, it will be found, if he have chronic anterior urethritis, that some of the urethral shreds will be coloured brown, plainly indicating that the

patches yielding these soft scabs have been bathed in the colouring solution, and consequently must have been in the anterior urethra.

The bulbous bougie may now be used, and upon its shoulder on withdrawal will be found other coloured clots of pus which had adhered to the urethral wall and had not been washed away by the escaping stream of urine, a further evidence that the anterior urethral wall is in a damaged condition.

Finally, when the urethroscope is used, and the back part of the sinus of the bulb is found livid in colour (perhaps bleeding) up to the hole in the triangular ligament, then it may be confidently assumed that over and above the anterior urethritis posterior urethritis also exists.

Shreds (Tripperfäden).—The trained eye comes to recognise a certain individuality in urethral shreds as passed in the first urinary gush. There are five main varieties, any one of which may exist alone or all together. They are: small granular flakes, threads, the tadpole shred, angular pieces, cottony shreds, and for the most part may be safely interpreted as follows, whether occurring in company with free pus and bacteria in the urine or not.

The small granular flakes, a sort of urethral dust, are usually made up of pavement epithelium and more or less pus cells intermingled. They generally come from the anterior urethra, are not very heavy, and settle slowly in the glass.

The threads look like bits of cotton thread. They are very white, of greatly varying length, dense in structure, and settle at once. They are composed of a dense aggregation of pus cells, and if the gonococcus be contained in them it can be detected by careful double staining. They come from the anterior urethra.

The tadpole shred is a similar white thread with a globular head. It has the same general characteristics, and settles at once. It means that a small exulcerated or granular spot or an ulcerated follicle exists yielding the pus that constitutes the head of the tadpole, the rest of the shred forming as usual along an inflamed line of urethra or in a fold of mucous membrane. Such shreds often come from the deeper parts of the urethra.

The angular broken pieces of irregular size (not threads) are usually an indication of chronic inflammation (often stricture) at the hole in the triangular ligament, and of chronic inflammation in the membranous urethra behind. They settle quickly and are little masses of pus.

The fleecy, cottony, filmy shreds often seen single and alone in otherwise nearly or absolutely clear urine come from the prostatic sinus about the colliculus seminalis. This filmy mass floats a long

time in the urine, and sometimes rises to the top instead of settling to the bottom, sometimes dissolving in the urine. Microscopically it is found to be thin, striated mucus entangling in its meshes leukocytes, prostatic round cells, squamous epithelia, sometimes sympexions, and rarely a stray spermatozoön or a few crystals of oxalate of lime, with possibly some bacteria, but seldom, if ever, gonococci.

For treatment, see page 125.

CHRONIC POSTERIOR URETHRITIS, INCLUDING THE INFLAMMATIONS OF THE PROSTATE GLAND

It is convenient to group under chronic posterior urethritis all the inflammations of the prostate, since however widely these latter may diverge in the acuteness, intensity, or importance of their symptoms from the comparatively benign (though intractable) aspect that chronic posterior urethritis commonly presents, nevertheless the urethral inflammation is, clinically, the *fons et origo* of every one of them. The inflammation begins and ends in the posterior urethra, and is in a great majority of cases of gonorrheal origin.

These various inflammations may be classed as follows:

1. Chronic non-specific posterior urethritis.
2. Chronic gonorrheal posterior urethritis.
3. Acute parenchymatous prostatitis.
4. Chronic parenchymatous prostatitis.
5. Periprostatitis, acute and chronic.

The human imagination has not sufficient breadth to grasp such a group of inflammations collectively. They must be treated separately and consecutively; yet be it understood they are all phases of one general condition, viz., chronic gonorrhea, and it requires the keenest diagnostic acumen to differentiate them one from the other. In order to set each in as striking opposition to its neighbour as possible, I shall endeavour to render my descriptions as brief as consistent with clearness, and shall close the description with a *résumé* of the clinical varieties of the disease in order to sketch in outline the usual clinical pictures resulting from the various combinations of lesions described below.

Chronic Non-specific Posterior Urethritis

Simple (non-specific) chronic posterior urethritis, or surface prostatitis, might be termed a secondary inflammation. Its underlying cause is always some other disease. It is usually a direct consequence of gonorrheal posterior urethritis, from which it can only be distinguished by the absence of gonococci from the discharges.

It is also encountered under the form of recurring urethritis (p. 69), and is then often associated with some prostatorrhea (p. 95). Again, it is met with—and under a more acute form—as the result of slight injuries, usually at the hands of the surgeon. It is a negligible phenomenon in many cases of stricture. It may be due to habitual sexual excess. Finally, it occurs in the hypertrophied prostate, and is an epiphenomenon in prostatic tuberculosis and cancer.

All these forms of the inflammation, while varying in degree, are comparable in their morbid anatomy and symptoms to the gonorrheal process. The only variety sufficiently characteristic to delay us is that form of simple urethritis, or surface prostatitis, as it is more appropriately termed in this connection, which occurs in the hypertrophied prostate. This inflammation is commonly due to instrumentation, and when once it has set in, the vulnerable condition of the prostate makes of this simple trouble a malady even less amenable to treatment than the notoriously intractable chronic gonorrheal inflammations of the unhypertrophied gland. Moreover, in its tendency to complications, this simple inflammation, instead of exhibiting a benign aspect, shows a virulence exactly comparable to that of the specific disease.

Chronic Gonorrheal Posterior Urethritis

This is chronic gonorrhea. The German school has a tendency to exaggerate the importance of chronic anterior urethritis. Many American authors have insisted upon the importance of stricture, which is a special form of chronic *anterior* urethritis. But it has been my experience that chronic gonorrhea, with its cardinal symptom, viz., gleet, is nothing more nor less than chronic posterior urethritis. There is, practically, always some anterior urethritis, whence the gleety discharge; but to insist solely upon that discharge, and to relegate the inflammation of the posterior urethra to a position of secondary importance, while making every effort to cure the inflammation of the anterior canal, is a position unwarranted by science and unsupported by practice, for the anterior urethra is a comparatively smooth canal. Every urination flushes its deepest crevices. Unless there is stricture, or follicular abscess, or papillomatous growth—and a careful examination of a series of patients will convince the surgeon how relatively infrequent these conditions are—the urethral walls present few lodging places for the gonococcus once the acute inflammatory stage is past.

But in the posterior urethra all is different. Posterior urethritis is synonymous with surface and follicular prostatitis. The canal is here nothing more than a tunnel through the thousand-mouthed, suc-

culent prostate. The gonococci once established in the ducts of the prostatic glands—and they are not slow so to establish themselves—are not swept by the urinary stream, and are all but inaccessible to the surgeon's irrigations. This is pure theory, but practice bears it out. The recognised tenacity of all prostatic inflammations, the futility of anterior injections to cure these cases, the evil wrought by sounds, which only irritate the sensitive prostate, and the presence, in practically every case, of pus in the second flow of urine, prove, I believe, the importance of posterior urethritis. I feel justified in asserting, therefore, that with a few exceptions, among which stricture is the most important, chronic gonorrhea is posterior urethritis.

Morbid Anatomy.—The essential lesion in chronic posterior urethritis is a catarrhal inflammation of the mucous membrane of the prostatic urethra, the prostatic glands, and the orifices (at least) of the ejaculatory ducts. Thus the inflammation may easily spread in several directions—viz., up the seminal canals to produce vesiculitis and epididymitis, deep into the prostate to produce parenchymatous prostatitis, forward into the bulb to produce gleet or perhaps to light up an acute urethritis, and backward into the bladder to set up cystitis or contracture of the neck (p. 317). It is to some one or more of these complications that the symptoms are due. Yet the essential underlying lesion is usually found in the prostatic urethra.

Symptoms.—Chronic gonorrheal posterior urethritis is commonly encountered towards the end of an acute attack of the disease. It is characterized by but two symptoms. There is pus in both urinary flows (p. 83)—rarely only in the first—and there is more or less gleety discharge; a morning drop or a fairly free flow, varying from day to day, and dependent upon the degree of inflammation of the anterior canal. Be it clearly understood, gleet almost invariably accompanies posterior urethritis; but local treatment may stop the gleet by curing the inflammation of the anterior urethra without so much as affecting the posterior inflammation. Any stoppage of discharge will be hailed by the patient with delight as evidence of a cure; but so long as the urine is hazy with pus the surgeon must recognise that the enemy is only repulsed, not conquered.

Beyond this there is usually nothing. Prostate and vesicles feel normal to rectal touch, though the expressed contents of either may be found to contain pus and gonococci. There may be prostatic neuralgia. There are often some symptoms of parenchymatous prostatitis, even though no enlargement of the gland can be detected.