extra blade is made of steel, nickel-plated, and is maintained in the lower blade of the forceps by two small pins and the slight tension put on the spring of the metal. It is easily inserted and as readily thrown off by elevation with the thumbnail. The mode of operation is very simple. It is well to first adapt the forceps when the patient is in the erect position, as a better idea is gained of the amount of scrotum to be excised and of the proposed line of incision. Care must be taken that only the scrotum is included between the blades. An anæsthetic having been given, the forceps are held in the median line, and the parts are cut off on their convex border by means of a strong pair of scissors curved on the flat. The object of the extra blade is to leave a small rim of scrotal tissue, beyond the blade proper, in which the continuous suture may be applied. In my experience this amount of tissue does not allow the sutures to be placed deeply enough, a point which must never be forgotten, since the traction of the dartos muscle is considerable, and the success of the operation depends largely upon the continuous coaptation of the lips of the wound. It is well, therefore, to always use the extra blade and insert the sutures—using, preferably, the interrupted—about half an inch apart, after the patient is anæsthetized and before the ablation is performed. Care must be taken to check hæmorrhage; to prevent it, the operation should not be hurriedly performed, and the patient should be watched for some time afterwards. In general, acupressure needles and *serre-fines* are the only appliances necessary to control hæmorrhage. After the operation, a band of adhesive plaster may be applied around the base of the scrotum, while a number of narrow strips of the same, about two inches long, may be placed between the sutures. Then, the parts being supported by a pad of oakum, which is renewed from time to time, the wound may be covered with a strip of lint saturated in a ten-per-cent. solution of carbolic acid. The subsequent treatment is upon general principles. In favorable cases union occurs by first intention within a few days, while in other cases it is delayed as long as a fortnight. Occasionally, the healing process is attended with certain complications, such as a varying amount of infiltration of serum or blood into the scrotal tissues, or one or more abscesses. Secondary hæmorrhage may also occur, and occasionally causes considerable trouble. Erysipelas rarely occurs when the operation is done upon a healthy subject, though it is to be feared in persons suffering from any constitutional dyscrasia, such as Bright's disease, and chronic alcoholism. Of course, such an operation is wholly inadmissible in patients in the early and active stages of syphilis and in those of the hæmorrhagic diathesis. Surgeons are not of one mind as to the final results of this operation, some think it merely palliative, others radically curative. My own opinion is that in most cases it produces a cure, while, in some, subsequent elongation of the scrotum certainly does occur. The propriety of performing it, therefore, depends upon the nature of the case and other circumstances connected with it.

CHAPTER XIV.

GONORRHŒAL PROSTATITIS.

Acute Prostatitis.

Acute prostatitis may be due to violence from sounds, catheters, or lithotrity instruments; to the application of caustics to the deeper portions of the urethra; to stricture, the irritation of a stone in the bladder, or a fragment of a stone impacted in the prostatic urethra; to immoderate coitus, or excessive purgation; yet by far the most frequent cause is urethral gonorrhœa.

Gonorrhœal prostatitis owes its origin to the extension of the inflammation from the urethral walls to the substance of the prostate gland; it occurs, therefore, at a time when the disease has invaded the deeper portions of the canal, and is consequently rare during the first two weeks, resembling in this respect its more frequent congener, gonorrhœal epididymitis. The accessory causes of the last-mentioned disease, viz., highly irritant injections, forcible distention of the urethra in using a syringe, excessive exercise, alcoholic stimulants, exposure to cold and wet, and venery, may also contribute to the production of prostatitis. There is little ground for believing that this affection is occasioned by the use of copaiba and cubebs, although the contrary has been asserted.

If we inquire into the pathology of this affection, we shall find that the first effect of the gonorrhœal inflammation was exercised upon the mucous membrane of the prostatic urethra, and upon the underlying cellular tissue surrounding the gland. In this manner the size of the organ is increased; it encroaches upon the urethra and interferes with the passage of the urine; it may be felt to be of unusual dimensions by examination *per anum*, when its sensitiveness will also be noticed. The inflammation next involves the prostatic follicles, whose secretion is thereby increased and takes the place in a great measure of the urethral discharge from the meatus, which diminishes or entirely disappears on the occurrence of the prostatitis. The prostatic secretion is readily recognized by its thin, viscid, white-of-an-egg-like character.

If the inflammation proceed to the suppurative stage, a number of these follicles, or perhaps all of them, become filled with pus distending their walls, and as many little abscesses are formed as there are follicles involved, which may subsequently coalesce and unite into one single abscess, with dimensions corresponding to the greater or less amount of the organ invaded. There is never, then, at the outset one abscess of considerable size. Such occurs only by the

coalescence of a number of small ones seated in the follicles. Meanwhile, the muscular tissue, which constitutes so large a portion of the prostate gland, is unaffected, except that it is in a constant state of contraction, thereby inducing urethral and rectal tenesmus.

The prostate is most intimately related anatomically with the urethra, and it is into this passage, therefore, that an abscess most frequently breaks, sometimes by one, sometimes by several openings. If only a portion of the organ has been involved, the remainder may retain its integrity; the entrance of urine into the cavity does not appear to be attended with the evil consequences which have been feared. The evacuation and closure of the abscess leave a cicatrix, and the function of the gland may eventually be unimpaired. It will be observed that under these circumstances—a prostatic abscess opening only into the urethra—the abscess is confined within the fibrous capsule of the gland, and is from first to last strictly *intra-prostatic*.

Far otherwise is it when the abscess breaks in any other direction, for then the surrounding cellular tissue is infiltrated; and we have besides an *intra-prostatic* a *peri-prostatic* abscess, capable of much greater mischief than the former. But of this more anon.

Symptoms.—The earliest symptom of an attack of prostatitis is commonly a sensation of weight or a dull pain in the perinæum. There is not that vesical tenesmus which we find in cystitis, but the exit of the urine is obstructed by the swollen gland, and the calls to micturate will be frequent and urgent simply because the bladder is never fully emptied of its contents, and a short time suffices to fill it to distention. The stream is generally quite small, is only forced out by prolonged straining, and excites a severe scalding sensation in the deeper portion of the canal. Complete retention of urine often occurs, requiring the use of the catheter. The bowels are commonly constipated, although the patient is constantly led by a feeling of fulness in the rectum to make fruitless efforts at stool; and, should defecation take place, the act excites severe pain. The system at large sympathizes with the local trouble, and general febrile excitement ensues. Exploration of the prostate by the finger in the rectum reveals abnormal sensibility, increase of temperature, and tumefaction of this organ proportioned to the severity of the disease. On attempting to introduce a catheter, it meets with an obstruction in the prostatic urethra, and, before entering the bladder, its point deviates to one side or the other in an opposite direction from the lobe of the organ involved. If the middle portion of the prostate is the chief seat of the inflammation, the introduction of a catheter may be impossible or can only be effected by force. Both rectal and urethral exploration are attended with extreme suffering to the patient.

A majority of cases of acute prostatitis terminate in resolution; the minority in suppuration. The formation of matter is not always announced by well-marked symptoms, but may be strongly suspected

if, after the disease has been increasing in intensity for eight or ten days, the patient is seized with repeated chills followed by fever and general depression. It is possible, however, for an abscess to form without affording the least reason to suspect it. A case occurred at St. George's Hospital, under the care of Dr. Pitman, in which prostatitis supervened upon an attack of gonorrhœa, and terminated in suppuration and death of the patient, with entire absence of rigors and the ordinary symptoms of abscess. At the post-mortem examination, an extensive abscess, which had not been suspected during life, was found between the bladder and rectum.[1]

If the abscess be deeply seated in the gland, tending to point towards the rectum, a soft fluctuating tumor can be felt in the region of the prostate by the finger introduced into the gut, especially if the gland be immovably fixed by a sound in the urethra. An abscess in the neighborhood of the urethra is more difficult of detection, except from its encroachment upon the canal, and its interference with the exit of urine and the introduction of a catheter.

A prostatic abscess most frequently breaks upon the side of the urethra during the efforts of the patient to expel the urine or fæces, or it is often perforated by the point of an instrument introduced for the purpose of exploration or catheterization. With the bursting of the abscess, the patient experiences delightful relief from his sufferings; his urine once more flows naturally, and his febrile symptoms soon disappear.

In those cases before referred to, in which the rupture takes place in another direction than the urethral, the point of exit of the matter varies. Sometimes it opens into the bladder, probably when the peri-prostatic abscess is seated chiefly above and behind the prostate. Its escape into the rectum is, however, more frequent; and, although this event is much less favorable than a urethral opening, since it allows of the entrance of fecal matter from the gut, and, although a rectal fistula may remain for some time, yet the latter accident is rare, and these cases usually turn out well in the end. Sometimes communication is established both with the bladder and rectum, forming a recto-vesical fistula, in which case the urine may trickle into the rectum on each act of micturition, and, if the patient is troubled with flatus, the "wind" may be heard gurgling through the urine contained in the bladder.

But, having gained access to the ischio-rectal fossa, these abscesses may make their way in various directions and appear on the surface at points far distant from the seat of their origin. Thus the matter may point in the perinæum, or extend to the scrotum, and even to the sheath of the penis. Guyon reports one case in which the abscess pointed in the left thigh, and another just below the false ribs. I had a case in which prostatitis was set up by the introduction of a sound for seminal emissions, and fistulous openings formed in the

[1] Lancet, Lond., Am. ed., January, 1861, p. 69.

perinæum and just below the groin. The patient ultimately recovered, married, and had children. Béraud[1] cites a case in which the pus followed the course of the vas deferens and appeared in the inguinal fold.

Diagnosis.—Acute prostatitis is chiefly liable to be confounded with cystitis. It is not likely that anyone would confound prostatitis with inflammation of Cowper's glands, which presents such different characters.

Treatment.—The appearance, during an attack of gonorrhœa, of symptoms of prostatitis, should lead the surgeon at once to abandon the use of injections, and, neglecting the urethral discharge for a time, to direct his whole attention to the more serious affection which has supervened. The patient should now observe the most perfect rest and quietude. If the symptoms be severe, from six to a dozen leeches may be applied to the perinæum, and be followed by a hot bath at the temperature of one hundred degrees, which may be repeated with benefit several times in the twenty-four hours. It is very doubtful, however, whether any decided benefit really ensues from the application of leeches either to the perinæum or within the rectum, as recommended by some authors. In the intervals of the baths, the perinæum should be covered with hot fomentations or poultices.

In place, however, of the above classic treatment of acute prostatitis by means of hot applications, the contrary course of introducing ice into the rectum, as will be mentioned in the next chapter on cystitis, is worthy of a trial. In this, as in many other affections, both heat and cold may find their appropriate application.

Internally we may resort to those remedies, as the salts of potash and soda, which are supposed to render the urine more dilute and mild in its character. A mixture of mucilage, bicarbonate of potash, and hyoscyamus, is well adapted for the treatment of the disease we are now considering. The diet should be light, consisting of gruel, mucilaginous drinks, milk, and farinaceous substances, at least in the early stages of the disease; at a more advanced period, and after suppuration has taken place, our utmost efforts may be required to sustain the strength of the patient by a nourishing diet and even tonics. The bowels should be opened daily either by warm enemata or by a dose of castor oil.

Sleep should be secured by the exhibition of an opiate at night. Mr. Adams speaks highly of warm enemata, consisting of four or five ounces of simple water or gruel, administered at bedtime, which are said to afford comfort to the patient, and to act as a fomentation to the inflamed gland.

Complete retention of urine will require evacuation of the bladder by means of a flexible catheter, or pneumatic aspiration above the pubes. When an abscess has formed and fluctuation can be distinctly felt by the finger in the rectum, it should be punctured through the

[1] Mal. de la prostate, Thèse, 1857.

intestinal wall. Tarnowsky prefers to make a careful opening from the perinæum, so as to avoid communication with the rectum and the entrance of fecal matter into the cavity of the abscess. Diday also favors an opening in this situation. When the collection of matter is most prominent towards the urethra, it may sometimes be opened by a conical sound introduced as far as the prostatic portion of the canal, while a finger within the rectum presses the tumor against the point of the instrument. This attempt, however, is by no means free from danger, and should never be made, unless the symptoms are urgent and the existence of matter in the neighborhood of the urethra is highly probable.

When the abscess has opened into the rectum, warm water should be injected after each passage of the stools, so as to remove any fecal matter which may have lodged in the fistula, and also to favor the exit of the puriform secretion.

Mr. Milton treats prostatitis by the free application of water, as hot as it can be borne, to the perinæum; orders tartar emetic in large doses, or, if the patient object to this, small doses of calomel or hydrargyrum cum cretâ, a sedative every night, rest in bed, and very light diet. He believes in the administration of the iodide of potassium to get rid of any hardness remaining after the acute attack.

I may mention that iodoform, given internally or in form of suppository, is also used for the same purpose.

Chronic Prostatitis.

An acute attack of prostatitis may subside into a chronic form, or the latter may first appear in the course of a case of gleet, or as a result of onanism, excessive venereal indulgence, or sedentary habits. In its mildest form it has been described by Dr. Gross[1] and others under the name of "prostatorrhœa."

This affection is confined, at the outset at least, to the glandular elements of the prostate and their excretory ducts opening into the neighborhood of the caput gallinaginis. The mucous membrane is thickened, and more vascular than natural. The openings of the ducts are enlarged and filled with a lactescent, opaline liquid, which is in some cases mixed with pus.[2]

One of the most frequent and prominent symptoms of this affection is a discharge of clear and transparent, or sometimes turbid, mucus from the meatus, which is found by the microscope to consist of, first, amorphous crystals of uric acid, or ammoniaco-magnesian phosphates;

[1] N. Am. M.-Chir. Rev., Phila., July, 1860. Dr. Gross describes this as a hitherto unknown affection under the name of "prostatorrhœa;" but his account of it corresponds in almost every particular with that given by Mr. Adams under the head, "Prostatitis from Onanism." The increased secretion of prostatic fluid is a mere symptom of irritation or inflammation of the gland, and it is, therefore, desirable that the term prostatitis should be retained.

[2] Picard, Mal. de la Prostate, 1877.

second, mucus-corpuscles; third, blood-disks; and, fourth, epithelium cells, either with or without a few pus-corpuscles. The discharge may be almost constant in its appearance and sufficient in quantity to stain the linen; or more frequently it is forced from the urethra by the pressure of the hardened fæces during straining at stool, and is not perceptible at any other time. Most patients suppose that it consists of semen, from which it may be distinguished under the microscope by the absence of spermatozoa. Very many of the cases of spermatorrhœa so called are doubtless instances of this affection.

In most cases, the frequency of micturition is more or less increased; the stream of urine is ejected without force; the last drops dribble away; or are only expelled with considerable effort, and a scalding sensation is felt in the urethra during and after the act. Zeissl ascribes the dribbling away of the last drops of urine, and the undue moisture of the meatus after the act, to the "capillarity existing between the prostatic secretion collected in the urethra and the last drops of urine."

Pain and uneasy sensations are experienced in the perinæum, thighs, and lumbo-sacral regions; there is often great irritation about the anus attended by hæmorrhoids or eczema; the bowels are constipated, and defecation difficult and painful; the passage of an instrument into the bladder excites severe pain as it passes through the prostatic region; on examination per anum, the gland is found to be tumefied, sensitive on pressure, and sometimes indurated. The patient is irritable and low-spirited; is incapable of mental or physical exertion; suffers from weakness, headache, and dyspepsia; watches his symptoms with the greatest anxiety; imagines that he is losing his memory, that he is impotent or affected with syphilis, and in short becomes a confirmed hypochondriac.

Independently of its action upon the nervous system, chronic prostatitis is not a serious, although a very obstinate disease, often persisting for years. During its continuance, the patient is especially exposed to acute inflammation of the prostate in consequence of excesses of any kind, or of a fresh attack of clap; otherwise chronic prostatitis rarely terminates in suppuration. By its long duration, however, the mucous membrane of the vesical neck may become involved, giving rise to frequent calls to urinate, attended with straining, and the exit of blood at the close of the act, as in gonorrhœal cystitis. Still further, in consequence of this constant straining, the muscular portion of the prostate may become hypertrophied in whole or in part, resulting in an increase in the size of the organ similar to that which takes place in old age; one or the other lobe or the whole prostate acquires a hard, almost stone-like consistency, and, on post-mortem examination, its tissue is found to be traversed by whitish, tense, and tough fibrous bands, while the glandular elements seem to have disappeared through atrophy. (Zeissl.)

Mr. Ledwich[1] had an opportunity, in two instances, of becoming

[1] Dublin Q. J. M. Sc., Aug. 1, 1857, p. 30.

acquainted with the pathology of this affection: "One case occurred at the age of eighteen, the second at thirty; both were well-marked examples of the disease, and succumbed to phthisis, but this latter had no connection with the urethral affection. The prostato-vesical plexus was full, and many of its branches varicose; the capsule of the prostate adhered intimately to its surface, and, on slicing the gland, it seemed soft, with large, open, venous branches on the section, from which blood exuded, whilst the whole gland exhibited an augmented volume; the mucous membrane of its urethral aspect was *red, soft,* thickened, and *villous,* whilst the ducts could be distinguished with the unassisted eye; the uvula and trigonum vesicæ were red and turgid, but the remainder of the bladder was healthy. I examined with some anxiety for the presence of tubercular deposit in the gland, but, although this morbid condition was often anticipated, no evidence of any such structural lesion could be detected. The seminal ducts did not present any alteration as to size, their excretory orifices being discovered with the greatest difficulty, the vesiculæ seminales being full and swollen, but without any other abnormal appearance; scrofulous tubercles existed in the epididymis, yet the testicles, although soft and small, were otherwise healthy."

M. Bouloumié,[1] in numerous autopsies, "has found especially dilatation of the prostate glands and numerous calculi of concentric stratification, but no muscular hypertrophy." Guerlain[2] mentions increased density and cohesion of the cellular tissue surrounding the gland, which he has seen infiltrated with pus, forming an abscess around the organ, as also noticed by Sir Henry Thompson. (Picard.)

Treatment.—In most cases of chronic prostatitis, the patient is laboring under a combination of mental as well as physical symptoms, and the treatment must be directed to the mind equally with the body. It is not sufficient in these cases to dash off a hurried prescription and dismiss the patient after five minutes' conversation. The victim of mental more than physical suffering has for weeks, or even months, been brooding over his complaint during all his waking moments not absolutely necessary to his daily occupation, exaggerating each trifling symptom, entertaining the most gloomy forebodings of the future, and perhaps contemplating suicide. First of all, he needs a friend who can lead him, however reluctantly, to unburden his mind of its sorrow. This load removed, he at once feels lighter and more hopeful. The surgeon's first object, therefore, should be to gain his confidence by friendly yet manly conversation, lending a ready ear to the familiar story of the hypochondriac, encouraging him to feel that he has found a sympathizing friend as well as a physician, and gradually and skilfully leading him from the depths of despondency to more rational views of his position and prospects in life.

[1] Considérations générales sur la pathogénie des maladies de la prostate, Paris, 1874.

[2] Thèse de Paris, 1860.

One great source of anxiety to the patient is probably the idea that the transparent viscid discharge which appears during straining at stools, or is mingled with the last drops of urine, consists of semen. The surgeon is generally safe in assuring him of the contrary, without special examination, since diurnal spermatorrhœa without some degree of spasmodic action is exceedingly rare; but any doubt upon the subject may be removed by placing a drop of the fluid under the microscope, which will probably confirm his assurance by showing the absence of spermatozoa.

Most cases of chronic prostatitis require the administration of a tonic, as iron, of which the tincture of the chloride, in the dose of twenty drops after each meal, is one of the best preparations. I have also obtained favorable results from a solution of strychnia in dilute phosphoric acid:

℞. Strychniæ, gr. iss . . . . . 0|10
Acidi Phosphorici Diluti, ℥iv . . . 125|
Sig. A teaspoonful three times a day.

Ergot, either alone or combined with camphor, is another remedy which may often be employed to advantage.[1]

Chronic inflammation of the prostate is perpetuated by the constipated state of the bowels and consequent straining at stool which usually attends it, and which should, therefore, be obviated by laxatives or enemata; but aloes, which is a constituent of most of our officinal preparations for this purpose, should be avoided, on account of its well-known tendency to produce congestion of the hæmorrhoidal vessels. Saline cathartics may be administered in small doses in the morning on rising; but I much prefer enemata of cold water, taken immediately before the usual time of going to stool, which are followed by a loose evacuation unattended by straining, and which prevent the discharge of prostatic fluid.

Injections of a few drops of a solution of nitrate of silver—one to five grains to the ounce—into the prostatic sinus, by means of a deep urethral syringe, may prove serviceable. It is probable that many of the cures of "spermatorrhœa" by Lallemand with his *porte-caustique*, were in cases of mere prostatitis, but the use of his instrument is attended with no little danger. In cases complicated with gleet, astringent urethral injections may be required. The presence of strictures of large calibre in the straight portion of the canal should always be sought for, and if found they should be cut. Slitting up a small meatus, as recommended by Civiale, and more recently by Dr. Otis, is found to have a decided influence upon affections at or near the neck of the bladder, partly by removing an obstruction to the free exit of urine, and partly through reflex action.

[1] See an article, by Dr. C. L. Mitchell, on Ergot in Spermatorrhœa, Congestion, and Irritation of the Genital Organs in the Male; Am. M. Monthly, N. Y., April, 1861, p. 283.

Blistering the perinæum is also of very decided benefit in these cases. This is best done with cantharidal collodion, which is to be painted over a small surface upon either side of the raphé; and the application should be repeated over another spot as soon as the soreness of the first has begun to subside.

Moderate sexual indulgence is found to relieve the morbid irritability of the genital organs, and matrimony, when practicable, should be recommended to those who are single.