

CHAPTER VII.

GENITO-URINARY MEDICINE AND SURGERY.

Prostate Vesicle Cyst. N. A. Mikhailoff¹ reports the case of a 28-year-old sexually neurasthenic Russian. While the family history was negative, the left side of the face and skull was flattened, causing marked asymmetry. The patient was tall and well built. He had never had lues, gonorrhoea or other infectious disease. Sexual desire occurred at 10; emissions at 13. These were always painful and the patient tried to prevent them by sleeping with a board tied to his back. After 26, pollutions became less frequent and less painful, but were followed by very severe headache, sometimes lasting for 48 hours. One year ago the patient had sexual intercourse for the first time. Ejaculation was accompanied by such a disagreeable sensation that he refrained from the act. Both knee-jerks are exaggerated. The external genitals are normal. Urination is very frequent, the quantity of urine passed every time being small. The right lobe of the prostate gland is atrophied, the left normal. The right seminal vesicle is easily palpable, the left one cannot be felt. Urinary examination and cystoscopy are negative. Local anesthesia with a 2% cocaine solution was used, and a Casper's urethroscope, size 28 of Charrière's scale, with a Mercier curve, was easily passed and showed only some passive hyperemia at the posterior part of the urethra. Further on the instrument met with an obstacle. Instead of the usual colliculus seminalis a round tumor resembling a cyst appeared, the superior margin of which was clearly defined, while the lower one could not be distinguished. The tumor was about 1.5 by 1 cm. in size. When the instrument was pushed further the tumor seemed to disappear, but reappeared when the instrument was pulled back a little. The

(1) Medical Record, Jan. 16, 1909.

walls of the cyst were opaque, reddish-gray in color and were covered with a prominent network of engorged capillaries.

The patient was operated upon a few days later. After anesthetizing with cocaine, Mikhailoff passed the urethroscope, then seized the apex of the tumor with forceps and dissected it out with a knife made especially for the occasion. The contents of the cyst were scanty, yellowish-gray in color and contained much albumin. The sediment contained a few epithelial cells and some red blood corpuscles, but no spermatozoa. Soon after the operation the patient's pollutions became quite painless, urination was less frequent and more copious, and the general health much improved.

Prostatectomy and Spermatogenesis. According to Sureda,¹ Pearnan, Compan and Bartrina, the prostate has an internal secretion which has an influence that it exercises upon the rest of the genital apparatus, and more especially upon spermatogenesis. Prostatectomy in the dog does not suppress erections in them, nor the balanopreputial secretion. The internal secretion of the prostate has a preponderating action on spermatogenesis.

Prostatectomy should not be undertaken, according to H. T. Herring,² unless the symptoms present are definitely ascertained to arise from that organ and from nothing else. Urinary symptoms are very frequently attributed to the gland, when, in fact, they come from quite a different cause. For instance—and this, perhaps, is the most common mistake—a patient complains of occasional retention, hemorrhage, pain, etc.; a rectal examination is made; the prostate is found to be enlarged and is straightway accused, without further search, of being the cause of the trouble. What is the result? During the operation for removing the offending member a stone is found in the bladder, which could easily have been removed by lithotripsy and the patient restored to health in a week, whereas he is now condemned to pass through an unnecessarily severe ordeal. In skillful hands the x-rays will nearly always eliminate such errors, even when the sound has failed to

(2) Amer. Jour. of Derm., May, 1909.

(3) British Medical Jour., July 17, 1909.

reveal the true cause. Prostatectomy should be deferred until after treatment by catheter has been tried. The patient may recover his power, or he may decide, when he knows exactly what to expect, to continue treatment. No harm can come from a delay for a month or more, and in septic cases much good will result, for the patient will improve and be in a better condition to bear the operation. Afterward, if the catheter fails or is found too irksome, recourse can be had to operation. When the patient is comparatively young, in good health and has many years of life before him, operation is very rightly advocated as soon as it is proved that catheter treatment will not cure. The same may be said of those who, owing to their position in life, calling or lack of funds, are unable to carry out the few simple details necessary in sterile catheterization. Prostatectomy undoubtedly is the best treatment when the prostate, by its mere size, has largely encroached upon the bladder space, and there is no residuum. The urine is clear and free from all signs of sepsis, yet the patient has constant and urgent calls to pass water both by day and night. Finally, the operation may be necessary in certain cases where the prostate is constantly bleeding and filling the bladder with clots which interfere with instrumentation and endanger the patient's life.

Prostate Hypertrophy. Etiology. According to A. Rothschild,¹ prostate hypertrophy is due first to a chronic inflammatory focus about the excretory gland ducts of the prostate, which are narrowed or totally occluded thereby, and second to the effect of this narrowing or occlusion of the gland ducts, retention, dilatation and cystic degeneration.

Chromocystoscopy in Prostate Hypertrophy. R. Paschik² reports 16 cases of urine retention from prostate hypertrophy where the functional renal capacity was shown by systematic chromocystoscopy. This enabled the surgeon to sift out cases where prostatectomy was useless. The urine was examined for chlorids, urea, specific gravity and albumin. Then 4 c.c. of a 4% suspension of indigocarmin

(1) Berliner klin. Woch., July 5, 1909.

(2) Wiener med. Woch., May 20, 1909.

in salt solution was injected into the gluteal muscle. The interval before blue urine became apparent, the intensity of the tint and the length of its appearance were noted. When this indigocarmin test shows that conditions are improving under systematic catheterization or permanent drainage, the kidneys are approximating normal function. It is amazing to note the improvement in patients so debilitated that permanent kidney lesions seemed probable. Systematic repetition of the test reveals cases where prostatectomy promises permanent benefit. In 4 cases the test showed impairment of kidney function at first, but improving rapidly under treatment. After prostatectomy the test gave constantly normal findings, showing that operation had produced complete restitution.

Prostate Calculus is reported by J. P. McGowan¹ in a 53-year-old man who had at 33 an acutely painful swelling in one of his testicles which lasted about 2 weeks, the cause of which he is unable to explain. Dysuria has persisted ever since, growing steadily worse, the desire to urinate growing more frequent during the day. He suffered more or less discomfort from his bladder from time to time until his forty-sixth year, when the desire to pass water became so frequent and painful that he was unable to obtain any rest night or day. He lost flesh, food was most objectionable. At 53 the desire to urinate was constant. It was difficult to start the stream. The act was intensely painful. The urine flowed in drops and the pain accompanying and following the passage of any urine, however small in quantity, was most intense. The urine itself was loaded with pus and mucus but perfectly sweet.

There was a hard oval mass in the scrotum, which at first glance had the appearance of a syphilitic orchitis, but it was found to originate in the perineum and was located above, behind and between the testicles, measuring 5 inches vertically, 2 inches anteroposteriorly, and about 2½ inches transversely, stony-hard in consistence and first noticed about 3 months before as a small hard lump about the size of a plover's egg, which has steadily increased to its present size and without any discomfort except for its

(1) Amer. Jour. of Derm., July, 1909.

bulk. Digital examination of the prostate revealed a stony mass the size of a hen's egg, studded with small hard nodules the size of a pea. This very unusual condition combined with the scrotal tumor left a doubt as to a stone in the prostate or a sarcoma with secondary involvement of the perineum. Still the duration—about 23 years—excluded sarcoma.

The patient was placed in the lithotomy position, an anterior urethrotomy with the Maisonneuve instrument was done and a guide passed down to the stone, which was pinned under the pubic arch so compactly that it was impossible to pass this point except with a filiform. A median perineal incision was made through the deep urethra, which was practically fibrous throughout, and the stone revealed, absolutely free from any covering in the shape of a capsule. It was the author's conviction that the stone would be found encapsulated within the prostatic capsule. A careful digital examination disclosed a complete destruction of that tissue. The stone was easily grasped by the forceps, but the perineal wound was not sufficiently large to permit of the delivery of the stone. A lateral incision from the posterior end of the perineal wound to a point midway between the anus and left tuber ischii enlarged the wound and nearly doubled the space through which the stone was easily delivered.

The stone weighed 13 drams and 2 scruples and measured $1\frac{3}{8}$ inches in its longest diameter, $1\frac{1}{2}$ inches antero-posteriorly, and $1\frac{1}{4}$ inches in width.

The bladder sphincter proved to be intact, but no trace of a prostate could be made out. The sinus in the scrotum was freely opened and the whole thoroughly irrigated with Thiersch's solution. A rubber drain, No. 40, was introduced into the bladder and the wound packed. The patient was back in bed within half an hour after the operation was begun. He stood his anesthetic well and spent a perfectly comfortable night. The following morning his temperature was normal, bladder draining perfectly, and his wound sweet and dry.

It was his first comfortable night in 23 years. Four days after the operation a No. 26 French was passed through into the bladder and the tube withdrawn. The

thirteenth day after the operation, perineal wound was still open, no urine having escaped by the natural route. An attempt to pass a No. 14 French was unsuccessful. It was found that the strictures of the anterior urethra had united, and a second anterior urethrotomy became necessary. This was performed. April 20, patient was passing urine through the natural channel.

Seminal Vesiculitis Mimickry of Appendicitis is reported by T. G. Youmans.¹ The appendix is supplied by the sympathetic through the superior mesenteric plexus. The vesicles are supplied by the hypogastric plexus. The superior mesenteric sympathetic plexus has an intimate connection with that portion of the gangliated sympathetic cord which lies over the origin of the lumbar nerves. As the genito-crural nerve arises from the first and second lumbar nerves, the connection between the superior mesenteric plexus and the genito-crural nerve is therefore direct. The deferential plexus, a derivative of the hypogastric plexus of the sympathetic, supplies the involuntary muscle of the spermatic structure. A branch of the genito-crural nerve, which supplies the cremaster muscle, accompanies the duct, and thereby gives us a connection between the innervation of the seminal vesicles and the abdominal wall, from which the cremaster fibers are originated. The hypogastric plexus and the superior mesenteric sympathetic plexus are connected by the great gangliated sympathetic cord, so that we have a circular nervous mechanism, which includes the superior mesenteric and hypogastric plexus and the genito-crural nerve. Any part of this is connected by a short and direct route to any other part supplied by these various nerves.

In 1902 Youmans was consulted by a young man 23 years old. He had never had sexual intercourse, although he had practiced masturbation to a high degree. Beginning at 15, he averaged once a day for the first two years. Imagining that it was hurting him, he cut it down to once or twice a week; later on to once or twice a month. He continued the practice at intervals of longer and shorter duration until within 6 months before Youmans saw him.

(1) Ohio State Med. Jour., Feb. 15, 1909.

At this period the operation had become so painful that he ceased masturbating. About 2 years before consulting Youmans he began to notice a slight burning and itching around the scrotum. Following this, he began to have radiating pains down the inner side of his thighs. These pains were transferred to the sacrum, being later shifted to the symphysis pubis. The following year he began to have what appeared to be attacks of intestinal colic. He had dieted and taken various medicinal agents directed toward this apparent bowel affection. His pain later localized itself in the right iliac region, so that he became conscious of continual discomfort in that quarter. For several months he had several exacerbations of the attacks, associated with nausea, coated tongue and flatulence. A physician made a diagnosis of appendicitis. A surgeon called in consultation concurred in his diagnosis and urged operation. Gall-stones, renal colic and floating kidney were excluded. Patient was prepared for operation the following day. The appendix on exposure was found to be normal and was returned. The incision healed rapidly, but the patient's condition grew steadily worse. The pain continued, dyspeptic symptoms increased and he lost rapidly in weight. Diagnosis of intestinal tuberculosis was made, with unfavorable prognosis. The itching of which he first complained reappeared, becoming acute. Crawling sensations in the skin made their appearance. He developed a general pruritis that words will not describe, involving his entire body. He was a mass of scabs and bleeding surfaces and was unable to sleep.

The itching and radiating pains along the inner side of thighs, with history of excessive masturbation, led Youmans to suspect involvement of the seminal vesicles. The stubborn and persistent pain over the appendix perplexed Youmans. Knowing that we have a wide range of reflex disturbance in seminal vesiculitis, he felt encouraged to believe that if inflammation of these ducts did exist, the obscure pain would disappear as resolution took place in the vesicles.

Examination of the vesicles showed them to be distended, without any induration. They were soft and easily compressible. Over an ounce of non-purulent, jellified

vesicular material was expressed. The procedure caused the patient to feel very faint, although after the immediate effects of the manipulation had passed away, he began to feel relief. After a comparatively short period of treatment the vesicles regained their muscular tone, the general pruritis was abated, and the pain in the region of the appendix disappeared. In 6 months he regained his normal weight and his dyspeptic symptoms, pruritis and sensory disturbances were entirely relieved. He is free from all symptoms.

The second case was in a 48-year-old man who was taken suddenly with colicky pains on the right side, accompanied with nausea and constipation. For some time past he complained of a dead, aching pain in the region of the appendix, which nauseated him. He found himself drawing up his right leg at night in order to afford relief from the pain. He was extremely nervous, with occasional headache. The skin was dark and sallow. He was very dyspeptic, his diet requiring constant attention.

This man consulted a surgeon, who made a diagnosis of chronic appendicitis. Operation within 24 hours was recommended. The patient asked for consultation. Another surgeon was called and made the following statement: "I won't say you haven't appendicitis, but I see nothing to indicate the need of immediate operation." He did not express an opinion as to the cause of the trouble, but in order to keep the case under observation he requested the patient to remain in bed. While nothing new now developed, the pain continued. It was impossible for this man to attend to his business until he could obtain some relief. Youmans was called in. The patient gave history of a stubborn attack of gonorrhoea of fifteen years standing. Examination of the vesicles showed them to be tender, distended and inflamed. Much material, associated with pus and blood, was expressed from them. The case remained with Youmans 10 weeks. At the expiration of that time the pain in the region of the appendix had disappeared, and his appetite, general nutrition, nervous tone and digestion were markedly improved. He left with instructions to report at regular intervals for treatment. At the end of this time the vesicles were much improved, but were not

restored to a completely normal condition. He continues to report for occasional treatment.

Penis Deformity. Slight curvatures of the penis, sometimes associated with its deviation from the median plane of the body or with more or less twisting, are not very uncommon. Usually they are apparent only in the erect condition of the organ, with the efficiency of which in copulation they do not generally interfere. M. Bilhaut¹ reports the case of a baker, 51 years of age, who sought relief from a deformity of the penis which rendered sexual intercourse impracticable. The proximal two-thirds of the organ were permanently in a state of sharp curvature with the concavity directed upward. In the flaccid state the distal third hung down so that the entire penis had a sigmoid shape; during an erection this dependent portion became continuous in direction with the ascending arm of the permanently curved part, so that the entire organ had very much the shape of the letter U.

Two little tumors of the corpora cavernosa were found near the junction of the curved and the pendulous portions of the penis. It was thought that their presence had given rise to retraction and thickening of the dorsal aponeurosis of the organ, and they were removed. The operation was followed by complete restoration of the normal shape and efficiency of the penis. The tumors were of the nature of those that have been described as plastic indurations of the corpora cavernosa, usually thought to occur as an expression of gout or diabetes. The patient was not diabetic.

Hypospadias. Carl Beck,² of New York, remarks: "It is never too early to perform the operation for hypospadias. The parents, if they only knew the serious features of it, very rarely would object to operation." In children the instruments generally used for plastic operations are too clumsy, a thumb forceps of ordinary size for instance being apt to tear the thin infantile membranes. Retractors holding the reflected skin flaps must hold the tissues without injuring them. The knives for dissecting out the urethra,

(1) N. Y. Med. Jour., July 4, 1909.

(2) N. Y. Med. Jour., Aug. 14, 1909.

as well as the bistoury used to perforate the glands, must be of a special and delicate construction. All that are needed for that purpose are a small, short scalpel for the dissection of the urethra from its bed, a long bistoury for the perforation of the glands or the penile substance, two toothed thumb forceps, delicate blunt scissors curved on the flat for blunt dissection, two toothed retractors, two specially adjustable holding forceps, which may serve as retractors at the same time, two small elastic artery clamps, various thin needles, sharpened on both sides up to the eye, a special needle holder, and a rubber catheter provided with a perforated shield. This set may also be used for other delicate plastic operations in the genito-urinary sphere as well as on other parts of the body.

The after-treatment is simple if no catheter is employed, and this should be the rule. Since it is difficult to keep any penile dressing *in situ*, Beck uses a T-shaped piece of dermatol gauze with a central opening (through which the catheter is eventually pushed). This gauze strip is provided with a number of lateral openings which permit of passing some of the sutures, that is, the upper and lower sutures around the new orifice after being knotted are left long for the purpose of fastening the gauze strip. After the ends of the knotted sutures are pulled through the gauze strip, placed alongside the posterior surface of the penis, they are tied and cut short. The two dissected ends of the strip are now carried around the penis and pulled through the lateral openings and knotted or held together by a safety pin. With a mild Burow's solution the gauze may be saturated several times a day.

Constriction of the penis by an Esmarch bandage was never found necessary. If dissection of the urethral tissues is done step by step, hemorrhage will always be moderate. Whenever the surface bleeding is copious, temporary pressure by a small gauze compress suffices to permit of the gradual continuation of the operation.

Plastic Surgery in Hypospadias. Hypospadias has been successfully treated by transplantation of a portion of a vein to serve as a urethra. The operation is one to be done preferably on adults, but possible in young persons. The same method may be applicable in cases of epispadias.

According to C. von Emden,¹ Carl Beck's operation for hypospadias has the following advantages: A single operation usually suffices; healing is better assured than by the methods previously in use; and the fact that the entire penile urethra is surrounded by cavernous tissue favors the normal ejaculation of semen.

Intermittent Priapism. D. Bouveryran² has reported 3 cases of chronic intermittent priapism. One was that of a man who after a gonorrhea developed intermittent priapism of fifteen years duration. Every night he had erections extremely painful and long continued, not relieved by coitus. He had no sexual desire. Copulation was "a terror." Everything had failed. Lumbar punctures were performed, followed by "injections" of electrical currents. All measures proved alike ineffective. Finally division of the penis dorsal nerve was proposed. It was explained that such an operation would forever do away with the possibility of an erection. The man gladly accepted the proposal, but his wife vetoed it. The second case was similar.

Inflammation of the Verumontanum. According to J. A. Hawkins,³ the verumontanum and its contents, the utricule and the ejaculatory ducts, are not a part of the prostate, but have a distinct wall of their own and lie outside of the true capsule of the prostate. No matter which perineal operation is used in the removal of the prostate, unless the floor of the prostatic urethra is removed, the utricule and the ejaculatory ducts are seldom destroyed. The verumontanum is evidently quite richly endowed with nerves both from the spinal and sympathetic systems.

Inflammation of the verumontanum is usually due to gonorrhea affecting the deep urethra. Probably 90% of all patients suffering with gonorrhea acquire an extension to the posterior urethra and many of them to the seminal vesicles and epididymes of necessity by way of the ejaculatory ducts. Inflammation of the verumontanum is impossible of differentiation from prostatitis or vesiculitis without urethral examination. The most common symp-

(1) La Presse Med., Jan. 27, 1909.
 (2) N. Y. Med. Jour., Sept. 4, 1909.
 (3) N. Y. Med. Jour., Aug. 14, 1909.

tom or which the patients complain is pain in the anterior 2 inches of the urethra. This pain is of a stinging or burning character and leads the patient to believe that his trouble is located in the anterior rather than in the posterior urethra. In some cases a frequent desire to urinate is observed. To this is added a desire to evacuate another drop or two after the bladder has been emptied. In some cases there is marked tenesmus with the appearance of a little blood with the last drop of urine. A fullness or heaviness in the deep urethra which may be reflected to the rectum is a symptom frequently complained of by the patients. Shreds are usually but not always present in the urine. The urine today may be full of shreds and tomorrow absolutely clear, and again in a few days full of shreds. Irritation of the sexual apparatus is usually marked. Continued erections without apparent cause, even while the patient is waiting for treatment, have been observed. Later, from prolonged irritation, the opposite train of symptoms appear—loss of desire for sexual indulgence, weak erections, premature or delayed ejaculation. With the occurrence of ejaculation the patient is often annoyed by sharp pain of varying degree in the deep urethra or reflected to the rectum or perineum. Examination of the prostate and vesicles may show them to be normal. Usually the prostate is somewhat enlarged. The vesicles may or may not be engorged.

In no case of acute inflammation of either the anterior or posterior urethra should the urethroscope be used.

The appearance of the verumontanum as seen through the tube is a rather dark red elevated process about 3 mm. high and 2 mm. wide at its base. The utricule may be seen, but the openings of the ejaculatory ducts rarely. When inflamed the verumontanum assumes quite a different shape. In some instances it is simply enlarged, being 5 mm. high with a uniform width of 5 mm., or even larger. In other cases it will be enlarged in but one direction and leaning well to one side, resembling an inflamed uvula. In other cases it will assume a bicornate appearance. In others it may have a granular appearance. When inflamed it usually bleeds quite freely when touched with the cotton

mop, but the pressure of the walls of the tube window tends to prevent hemorrhage.

Silver nitrate will produce results if intelligently used. Solutions varying in strength from 1 to 20% are readily borne and are extremely useful when properly used in the various stages of these inflammations. With a solution of 15 or 20% the swollen verumontanum is promptly reduced in size. In some cases the surface seems to dry up and separate, similar to an eschar from the site of a burn, but leaves no deformity. Treatment should not be applied oftener than once a week, but in the meantime instillations of 2% solution 3 or 4 days after each strong application hasten the result. These strong solutions are applied, of course, on cotton mops, and their action is limited to the part attacked, but in nearly all cases it is well to apply the same solution to the deep urethra anterior to the veru.

Veneraeal Malinger by Convicts are the methods of malingering employed by convicts for the production of conditions closely simulating venereal and genitourinary diseases.¹ Thus a syphilitic eruption is imitated by placing two or three pieces of sweet almond the size of a pin's head under the prepuce. They are left in position for 2 or 3 hours, then removed after this lapse of time. The sore must be left without any cleansing, that is to say without washing of any sort for 24 hours. By this means the prisoner succeeds in having an eating chancre. Another method consists in placing a lighted cigarette under the foreskin and keeping it there as long as the pain can be endured. Then a piece of alum is rubbed on the burned part; this forms a small white skin which is removed with a pin; the sore which remains imitates perfectly the chancre. In order to obtain a discharge the scrotum is rubbed with the hull of an almond, a procedure which makes it swell. The skin disappears and the scrotum is raw, that is to say, forms one sore. Then a piece of the bark of the sacred wood (guaiac) is taken and introduced in the urethra, which swells at first, and small pimples then form in the inside of the urethra. From these pustules there flows a purulent material which leads the physician

(1) Amer. Jour. of Derm., June, 1909.

to conclude that he has to deal with a patient who has an attack of gonorrhoea. Another method is one which by means of a lighted cigarette, following the method described above, causes mucous patches in the mouth, on the toes, as also on the buttocks. To simulate stricture of the urethra two small pieces of cork of a triangular shape and of the size of a small green pea are introduced in the urethra up to the testicles. Care is taken to drink 4 or 5 quarts of water or some other liquid; when coming to be examined the patient complains of inability to pass his water since 2 or 3 days; when the physician passes a catheter or sound into the urethra, the instrument meets a hard body which is nothing but the pieces of cork. The physician believes in a stricture, once the examination made, the patient goes to urinate and, by using but a slight force, the pieces of cork come out. The trick has been successful and the prisoner is satisfied.

Bladder Tuberculosis, was, as E. O. Smith¹ points out, believed to be an ascending process, and not secondary to kidney tuberculosis. More careful investigation has proven that these theories are incorrect. Bladder tuberculosis is almost always secondary to that of the kidney. The bladder is rarely the primary seat of tuberculosis. The infection rarely reaches the bladder from the essential organs. W. Karo claims that positive evidence cannot always be obtained even by examination of the urine from each kidney, collected from the urethral catheters. This method is valuable, but is not always positive. Furthermore the symptoms of bladder tuberculosis do not necessarily differ from those of other diseases of the urinary organs, such as dysuria, varying in degree, pyuria and hematuria. Careful examination of the bladder when these symptoms are present is imperative even though the patient may be apparently strong and healthy. The urine should be examined for tubercle bacilli. If no tubercle bacilli be found, a guinea-pig should be inoculated and watched for 14 days. Should this test not show bacilli, it does not prove that the disease is not tuberculosis. It is possible that the ureter from the diseased kidney may have been temporarily

(1) Lancet-Clinic, June 26, 1909.

closed, and the urine examined come from the normal kidney.

Every case should be carefully examined cystoscopically. Inject a 2% solution of novacain and adrenalin to calm the irritability and pain that are so characteristic of bladder tuberculosis.

In advanced cases the bladder cannot be dilated for satisfactory examination. If the case be not too far advanced, primary changes are at the ureteral opening of the diseased kidney. The picture presented varies from small red spots covered with mucus to very deep and extensive ulcerations. Sometimes there is a swelling of the mucous membrane, which may obliterate the ureteral opening. The anterior and upper part of the bladder are seldom involved. The internal sphincter usually escapes infection. The finding of small gray nodules of miliary tubercles around the ureter is not positive proof of tuberculosis. On the other hand, the healthy appearance of the area about the ureteral orifices does not prove the integrity of that kidney.¹

In addition to cystoscopy and urine examination from each kidney for tubercle bacilli, the functional power of each kidney should be determined by the use of phloridzin and of the indigo-carmin injections.

Early recognition of kidney tuberculosis will generally prevent the secondary infection of the bladder. The prognosis of bladder tuberculosis depends upon the possibility of removing the diseased kidney. By nephrectomy even advanced cases of bladder tuberculosis will heal without special treatment. The first few days after the removal of the kidney a slight increase in bladder symptoms may occur. In most cases this subsides in a very short time, the urine becoming clear and micturition less frequent.

In addition to nephrectomy, systematic tuberculin treatment is helpful. The most reliable local treatment consists of bladder irrigation with a very weak solution of mercury bichlorid.

Painful distension of the bladder should be avoided. Pain caused by the sublimate solution may be obviated by the use of morphin and warm sitz baths. The method recommended by Hollaender, of injecting calomel into the

(1) Detroit Med. Jour., May, 1909,

bladder and of giving potassium iodid to the patient internally, has proven unsatisfactory. It causes more pain and is less effective. Use of carbolic acid is also very unsatisfactory. The operation of removing the portion of mucous membrane from the bladder through the suprapubic opening is seldom attempted now. Narcotics are much more serviceable for pain than this operation.

E. O. Smith has met a few cases of bladder tuberculosis secondary to renal which did not improve after the removal of the kidney. In most cases there were evidences of pulmonary tuberculosis. In one case the prostate gland was involved.

Three cases are reported by G. McGowan¹ where there existed obstruction of the outlet by growths which, mushroomlike, sprang up on a tuberculous focus, within the bladder or the prostatic urethra, and simulated true bladder tumors, and which illustrate very well the extremely virulent tuberculous process that gives rise to such growths. While the thorough removal of these granulomata is rendered obligatory when they interfere with or prevent the act of urination, great care should be exerted to leave no unnecessary raw surfaces; for every such space is vulnerable and will be attacked by the bacilli. Healing of the wounds will be slow in any case and perhaps never take place in some.

Epididymis Tuberculosis. According to E. C. Cumston,² there is indicated conservative epididymectomy in genital tuberculosis which does not yet involve the testicle. This has proven to be the case frequently. Necropsy statistics of Reclus show that tuberculosis infects primarily the epididymis, and involves the testicle through a secondary extension of the process. Of 68 cases, in one-third the process was limited to the epididymis and in all but one of the remaining two-thirds, both epididymis and testicle were involved, and in this one the testicle alone was involved. Positive proof of involvement can be secured by splitting open the testicle. If found free from disease it can be sutured with fine catgut and removal of epididymis car-

(1) Annals of Surg., June, 1909.

(2) Annals of Surg., June, 1909.