

in manner. He has lascivious dreams at two to six weeks' interval, attended by profuse seminal emissions. He can never, with his wife or in any other way, provoke or bring about a venereal orgasm or a discharge of semen. The effort is attended by no pleasure at the time. He indulges once a month as a duty to his wife, and in the hope of a more successful issue. In his dreams he has a full orgasm and emission—awake, never. He has never attempted to masturbate, or had any desire to do so. His prepuce being very long, circumcision was performed, but neither that nor any efforts in the way of treatment proved beneficial.

CASE XLIII.—A farmer from the West, aged thirty-six, married at twenty-seven, comes with the following story: When first married, nine years ago, he had sexual intercourse three or four times weekly, latterly only once a month. During the first two years after marriage he frequently had intercourse three or four times a night, vainly trying to get an ejaculation. Before his marriage he never attempted copulation, and never in his life, he says, before, during, or after the sexual act, has he had the least pleasurable anticipation or excitement. He had intercourse only in the hope of producing an ejaculation, and having children, which he ardently desired. He is a plain-spoken, straightforward, honest, truthful farmer, living out-of-doors, eating well, performing all his functions excellently, but now a little depressed by the fact that years of treatment have done him no good. He never masturbated, as he had no desire to do so. In sleep he occasionally dreams of sexual intercourse, and wakes with a pleasurable sensation, to find that he has had an emission of semen, which he discovers on his linen. His testicles are large and perfect, he has full, vigorous erections, and can have continuous sexual intercourse for half an hour, only stopping because he is exhausted, his erection continuing as powerful as ever.

A full-sized sound passed into his urethra produced the ordinary sensations in the fore part of the canal, but the prostatic urethra was absolutely insensitive.

These two cases tell the whole story of aspermatism. In both of them there was undoubtedly a little desire by anticipation, or at least from memory of dreams, or the patient would not have indulged "three or four times on the same night."

The theory advanced to account for this strange malady is that, by reason of spasm about the ejaculatory ducts, the semen is prevented from getting into the prostatic sinus. This, however, is untenable; for, were there desire and pleasure, prostatic mucus would be secreted in excess, and would be thrown out by ejaculation, while the semen proper would collect and distend the seminal vesicles and ducts below the ejaculatory orifices, and would escape and flow away from the meatus, after the relaxation of spasm, brought about by the fatigue following "half an hour's sexual intercourse." But this is not the case. The fault is evidently in the nerves. There is no pleasurable sensation, no call for secretion of prostatic mucus, or for a supply of spermatic fluid. There is anæsthesia of the prostatic sinus, and, although the power of having an orgasm and an ejaculation remains, as proved by dreams, yet there is some connecting link missing in the chain, which transforms friction of the glans into pleasure at the prostate, and finally into secretion in the testicle.

Treatment.—Roubaud advises antispasmodics, on the theory that muscular contraction is the essence of the disease. He speaks of suc-

cess in one case of a young man, by blistering the perinæum, and powdering the surface for several days with morphine. Since the absence of sensation in the prostatic sinus is present in some cases, it is possible that the local use of electricity to that region might be of advantage, or even of astringents with the cupped sound.

CHAPTER XXVII.

DISEASES OF THE CORD.

Anatomy.—Spasm of Cremaster.—Varicocele, mild, severe.

THE cord is made up of the vas deferens, the habenula or remains of the peritoneal process going from the tunica vaginalis to the abdomen, vessels and nerves, all held in an atmosphere of connective tissue, containing unstriped muscular fibre (internal cremaster of Henle). Outside of these there is a continuous layer of connective tissue, adherent to the tunica vaginalis below, and continuous with the fascia transversalis above, called tunica vaginalis communis. Outside of this the cremaster muscle lies in loops, some embracing the testicle in a fan shape, others extending only a short distance down the cord.

The arteries are the spermatic from the aorta, the deferential from the superior vesical, the cremasteric from the epigastric. The veins from the testicle and epididymis unite in the pampiniform plexus, and constitute the bulk of the cord. The larger veins have valves; they unite usually to form one large trunk, which empties, on the left side, into the renal vein, on the right side into the ascending cava. The spermatic plexus of nerves is derived from the renal, aortic, superior mesenteric, hypogastric, and lumbar (genital branch of genito-crural nerve supplying the cremaster).

The cremaster muscle varies in size and power, in different subjects; it is a voluntary muscle; most persons can exercise it simultaneously on both sides, drawing up and holding the testicles against the abdomen; occasionally the muscles can be exercised separately, one testicle being elevated while the other is lowered. The function of the muscle is to assist in sustaining the testicle by its tonic contraction, and to compress the organ during the sexual orgasm. The muscle is subject to painful spasmodic contraction in kidney-colic, in neuralgia of the testicle, and sometimes in connection with prostatic or urethral irritation. A large portion of the cremaster muscle was excised by the late Valentine Mott, for obstinate spasm.

CASE XLIV.—Mr. —, aged thirty-five, was married to a wife suffering from uterine disease. His sexual relations were irregular and unsatisfactory; he had slight stricture

and neuralgia of the vesical neck. With this, he complained of painful spasmodic contraction of the left cremaster during sexual intercourse. Regular sexual relations with his wife, and the use of a steel sound, relieved all the symptoms.

(For spasm of the cremaster, *see* also the case quoted at p. 372.)

The spermatic cord is rarely diseased. There is more or less turgescence of the veins, with sensibility to pressure, in the different inflammatory conditions of the testicle and vas deferens, and injury may lead to local inflammation, to be assuaged by rest, hot fomentations, etc. Diffuse and encysted hydrocele and hæmatocele of the cord have been considered in connection with similar conditions of the testicle. Fatty tumors are occasionally found. They cannot be diagnosed from encysted hydrocele without an exploratory tapping, and are liable to be mistaken for hernia when located within the inguinal canal. They generally occur later in life; if large, they have a doughy feel, and are lobular in character; treatment is rarely required. In cases of doubt, when the tumor might be an omental hernia, the utmost care is necessary in operating for removal. Calcareous deposits have been encountered in the cord. Verneuil¹ found a large, gummy (syphilitic) tumor in the cord.

VARICOCELE.

Varicocele is constituted by a varicose enlargement of the pampiniform plexus and veins of the cord. In a mild form, it is perhaps the commonest affection of the genital organs. It has been estimated that about ten per cent. of males have slight varicocele. It occurs almost invariably on the left side; when very marked on this side, it may exist slightly on the right, but varicocele of the right side alone is almost unknown. Pott met with it on both sides only once. Breschet, in one hundred and twenty operations, operated only once on the right side.

Slight turgescence of the veins of the cord does not deserve to be called a disease. The chief factor in its production is ungratified sexual desire, frequent erotic fancies not finding relief, or, less often, the opposite condition, abuse of the sexual powers, by which the veins are kept constantly engorged. The largest proportion of slight varicoceles which are encountered are found in young unmarried men, or old bachelors; the affection rarely commences after twenty-five; it is unusual to find it in a married man whose sexual relations are satisfactory. The slight turgescence of the veins constituting the varicocele of the young bachelor and often causing him incessant and needless alarm usually disappears after marriage, together with the uneasy sensations which accompanied it.

Old men whose testicles are inactive rarely have varicocele, though their legs show many tortuous veins, and their tissues be degenerating. This fact is of the utmost importance, and is dwelt upon thus early in the consideration of the disease, in order that attention may be specially directed to it. The idea that slight varicocele is often a sexual derange-

¹ "Bulletin de la Société d'Anatomie," second series, vol. i., 1856.

ment, a functional disorder depending upon bad sexual hygiene, is not brought out by text-books, and is rarely appreciated by practitioners. Young men in many cases distress themselves unceasingly, and importune their surgeon for an operation to cure a disorder which would be more speedily and effectually removed by marriage.

The degree of varicocele alluded to above may be dismissed briefly. It is found upon the left side; the vessels are a little full, the cord loose, feeling like a small bundle of earth-worms, perhaps as large in some cases as the thumb; the testicle is perhaps over-sensitive (irritable), and there is usually a slight dragging sensation in the groin, but beyond this nothing except the fancied ills and the hypochondriacal complainings of the young man who is cheating Nature or abusing her gifts. The proper treatment of such cases is found in the employment of all hygienic and tonic measures. The patient's mind must be diverted, he must be dissuaded from an operation, told to wear a snugly-fitting suspensory bandage, and if possible to forget his sex until an opportunity of marriage affords him a chance to get well. As a local measure, the free application of cold water to the parts daily is a very useful adjunct.

Varicocele serious enough to constitute a disease and demand active surgical measures for its relief does, however, occur, though rarely. It is an exaggeration of the milder form; it comes on in early manhood, and has no connection with varices of the legs or anus (hæmorrhoids). It is found on the left side, rarely on the right. The cause of this is believed to lie in the following facts: The left testis hangs habitually lower than the right, only the larger veins of the cord have valves; the left vein empties at a right angle into the left renal vein, the right at an acute angle into the ascending cava; the position habitually assumed by men, of standing on the left foot, has been supposed to add to other predisposing tendencies. The veins of the cord, in any case, would seem to be in a position ready to become over-distended, as they lie loose and dependent in the scrotum, and then pass through the comparatively narrow inguinal canal. The position of the sigmoid flexure of the colon, on the left side, so often distended by fecal accumulation, is also believed greatly to assist in the formation of left varicocele, which is always worse during obstinate constipation. In the female, the ovarian veins are rarely found varicose, except in the left side. Sir Astley Cooper never saw it on the right; the sigmoid flexure seems at fault. Pressure upon the veins at the groin, abdominal tumors, etc., assist in causing varicocele. Sometimes, during sudden effort, varicocele appears at once, and increases rapidly; occasionally it occurs acutely shortly after orchitis. Pott¹ has recorded three cases, where, after fatigue, local injury, and cold, sudden pain in the back set in, followed, in a few days, by relief from the pain, and an acute varicocele, which in

¹ Quoted by Curling.

its turn was succeeded after some days by complete wasting of the affected testis, in one case, of both. Probably, in these cases, there was some inflammatory condition obliterating the veins above.

Symptoms.—Except in acute cases, such as those just detailed, varicocele comes on gradually, and is discovered by accident. The amount of pain complained of is very variable; a very large varicocele is often attended by absolutely no pain, while a very slight enlargement of the veins may give rise to considerable uneasiness, extending up the back and down the thigh, perhaps amounting to neuralgia of the testis. Landouzy¹ has noticed that the symptoms are markedly relieved during and immediately after coition, but become worse on the following day.

In a full-formed varicocele the vessels are elongated, their valves broken down, their walls affected by fatty atrophy, and thickened, as is also the surrounding connective tissue. The mass fills up one side of the scrotum, perhaps encroaches on the other; its shape is somewhat pyriform; the loops of veins often hang below the testicle. The mass feels soft, like a bunch of earth-worms; there may be phlebolites in the veins. The veins of the testicle, also, between the tunica vaginalis and the tunica albuginea, are in bad cases varicose. The scrotal veins may be similarly affected. The scrotum is thin and relaxed, the dartos powerless; sometimes the integument is so thin that the blue color of the blood in the veins of the cord is visible. In long-standing cases of severe varicocele the circulation of the testis is liable to be interfered with to such an extent as to cause the gradual atrophy of the organ, a result in no way due, as has been intimated, to the weight of the mass of veins. The only general symptoms in varicocele besides pain are those of hypochondria and defective *morale*, so common in all affections of the genital organs.

Diagnosis.—There is perhaps no disease less liable to be mistaken than varicocele; the wormy feel and peculiar look of a cord surrounded by large tortuous veins are hardly to be confounded with any thing else, unless, possibly, omental hernia. A simple test, however, removes all doubt. If the patient lie down, the whole swelling may be readily reduced. The fingers are now placed at the abdominal ring, and the patient is told to rise; hernia will be retained, the swelling of varicocele will return, the vessels filling from below upward. If the pressure at the ring be strong enough to compress the arteries as well as the veins, the tumor will not reappear. Varicocele complicated by large hydrocele, or by hernia, is more difficult of diagnosis.

Treatment.—If varicocele be large, but the symptoms to which it give rise inconsiderable, the palliative treatment already recommended for simple cases will suffice. Varicocele never compromises life, rarely deteriorates health, and, when it is simply clumsy and mechanically inconvenient, it should be overcome by mechanical means. All the opera-

¹ "Du Varicocèle."

tions proposed for varicocele have been attended by fatal consequences, and it is unsurgical to endanger life for a disease in itself harmless. A well-fitting suspensory bandage is a fair substitute for a tight scrotum, and is efficient by sustaining the weight of the engorged mass. It is more comfortable than Wormald's expedient of pinching in a portion of the scrotum drawn through a silver ring, and better than the other palliative treatment which has been proposed, of covering the scrotum with many coats of a solution of gutta-percha, or than a truss to sustain the weight of the mass of blood at the ring.

In those cases of serious varicocele where the patient is kept in a state of constant unrest, and worried into bad health by morbidly dwelling on his troubles, when there is much dragging pain or neuralgia, when the testicle seems liable to atrophy, when the suspensory bandage fails to relieve, or the patient refuses to be satisfied by it, it becomes necessary to operate. In the vast majority of cases but one operation is allowable, namely, cutting off the redundant scrotum, and thus forming a natural tight suspender to take off the weight of the testicle from the cord, and mechanically shorten the column of blood. All the other operations without exception, ligature—mentioned by Celsus, and which cost Delpech his life in the well-known case where this operation on both sides caused atrophy of both testes, and led to the subsequent assassination of the surgeon by his patient—Brodie's division of veins, Petit's excision, figure-of-8 pressure over a pin beneath the veins, the numerous methods of subcutaneous ligature, of which, perhaps, Ricord's is the favorite, Luke's fistula tourniquet, Breschet's external clamp, injection of persulphate of iron, division of the veins by galvano-caustic, galvano-puncture—all of these, and others like them, are subject to the grave objection that they have in view the inflammatory obliteration of the offending veins, and are liable to be attended by general pyæmia (thrombosis, embolism) and death. Success has been reported after each of these operations, but there have been many failures, and some deaths. The objections to these operations are four:

1. Danger of pyæmia.
2. If all the veins be not occluded, a relapse is to be feared.
3. If absolutely all the veins should be secured, atrophy of the testis follows.
4. If the artery be accidentally included with the veins, atrophy follows.

In short, no operation proposed offers a fair prospect of relief without serious accompanying risks, except excision of the scrotum.

The objections urged against this operation are possible erysipelas and hæmorrhage. The former is not to be dreaded if the patient's general condition will warrant any operation, while the latter may invariably be controlled by opening the wound, if necessary, and searching for bleeding points. The operation bears the name of Sir A.

Cooper. It is only curative in the sense of preventing further disease, arresting atrophy of the testis, and usually relieving pain. The result is nearly uniformly satisfactory, although occasional failures to relieve pain have been reported. But in this latter particular even castration sometimes fails, and, should pain persist after ablation of the scrotum, there would always remain, after the employment of sexual hygiene by marriage, the treatment of neuralgia of the testis; or, finally, one of the many operations for occlusion of the veins, of which the simplest is, perhaps, to carry a silver wire subcutaneously around all the larger veins inclusively (this requires transfixion of the scrotum), leaving out the artery and vas deferens (which always lie near each other), and bringing the ligature finally through the same orifice at which it entered. The operation is claimed by Bozeman.

In the performance of the operation for curtailing the scrotum, a special clamp is necessary. Several good clamps have been devised for the purpose, and may be found in the shops. In operating, the danger is not of taking too much, but too little tissue. The patient is etherized, an ample fold of scrotum pinched up parallel to the raphe and including it, the clamp applied and tightly screwed. The redundant tissue beyond the blades is removed, and interrupted sutures closely applied, the more the better. If bleeding be greatly feared, each suture should be a foot long, so that the lips of the wound may be widely separated, and bleeding points secured before the edges are coapted. Every little clotted point must be scraped with the nail, to find the bleeding vessel, which should be tied. Finally, the edges of the gaping wound are brought accurately together by the long sutures first applied, and strips of adhesive plaster; a compress and T-bandage complete the dressing. Secondary hæmorrhage is to be feared into the loose tissues of the scrotum, unless all bleeding vessels have been ligated. The patient remains in bed until union is accomplished.

CHAPTER XXVIII.

DISEASE OF THE VAS DEFERENS AND SEMINAL VESICLES.

Anatomy.—Inflammation, acute and chronic.

THE excretory duct of the testicle commences at the tail of the epididymis, forms one of the principal constituents of the cord, passes through the inguinal canal, curves down into the cavity of the pelvis, skirts the base of the bladder, and, joining with the duct from the seminal vesicle, terminates as the ejaculatory duct on one side of the summit of the veru montanum in the prostatic sinus. The canal is nearly two feet long, from a line to a line and a half in diameter. Four-fifths of

its structure is muscular. It is very dense and hard, and feels like a whip-cord when rolled between the fingers. Its outer coat contains condensed connective tissue, elastic fibres, vessels, nerves, and a little longitudinal unstriped muscle. The middle tunic is muscular, its external and a few internal fibres run longitudinally, the middle fibres are circular. The internal tunic is mucous, provided at its commencement with ciliated epithelium. This membrane lies in longitudinal folds, more or less reticulated, particularly in that part of the canal lying within the brim of the true pelvis. Here the cavity of the canal usually enlarges into a sort of reservoir, while the sides are furnished with pouches and diverticula, recalling the appearance of the seminal vesicles. The dilated portion of the canal is well supplied with simple sacculated glands. They are filled with numerous yellowish-brown granulations which give a peculiar color to the mucus of the part.

The vas deferens may end in a blind extremity or be deficient when there is no testis. It is rarely diseased. It participates in tubercular and pseudo-tubercular disease of the epididymis. Portions of its structure so diseased may soften and form abscesses, which break externally, or perhaps internally, followed by a slight discharge of bloody pus from the urethra, and perhaps leading to occlusion of the canal during cicatrization.

DISEASES OF THE SEMINAL VESICLE.

The seminal vesicle is a reservoir connected with the vas deferens. Its function is to collect seminal fluid, dilute it by an admixture with its own secretion, and hold it ready for use. The vesicle, from one to two and a half inches long by half an inch broad, lies at the outer side of its own vas deferens, its apex embedded in the prostate, its fundus diverging from its fellow of the other side, so as to skirt that portion of the bladder which usually lies in contact with the rectum, and corresponds to the trigone within. The vesicle is simply a tube so rolled up and doubled upon itself that its blind extremity nearly corresponds in position to its neck. When unrolled, the tube measures from four to eight inches. It is plentifully supplied with diverticula and branched pouches, so as to present on section the appearance of a cellular cavity. At the neck a short constricted canal joins the vas deferens at an acute angle, to form the ejaculatory duct. The minute structure of the walls of the seminal vesicles is identical with that of the vas deferens. The convolutions of the tube are united by connective tissue, containing a large amount of unstriped muscle. After surrounding the vesicle, this tissue crosses over and envelops the vesicle of the other side. The whole is known as the posterior aponeurosis of the prostate.

The arteries of the seminal vesicles come from the inferior vesical and middle hæmorrhoidal. The veins join the plexus on the sides of the bladder. The lymphatics go to the pelvic ganglia. The fluid of the vesicles is albuminous, and contains many yellowish bodies and masses

of spermatozoa. The vesicle discharges by contraction of its own wall, of the muscular membrane surrounding it, and of the levator-ani muscle. An acquaintance with the position of the seminal vesicles is essential to the performance of puncture of the bladder by the rectum, or of the retro-vesical operation for stone. When the bladder is full, the vesicles are pressed apart, and it would be difficult to wound them. Cruveilhier,¹ however, speaks of a specimen, presented to the Anatomical Society by Deville, where the two vesicles were confounded in a single median pouch with two differential canals. This anomaly is very rare.

ATROPHY of the seminal vesicle follows atrophy of the corresponding testicle or its ablation. The vesicle is also absent or defective where there is no testicle of the same side. The vesicles are partly embedded in prostatic hypertrophy, and become involved in prostatic cancer.

The only morbid conditions of these organs, however, commonly met with in practice, are inflammatory and tubercular disease. Congestion of the prostatic sinus, in individuals given to venereal excess, especially if they be weakly, leads to a lack of tone in the ejaculatory ducts, so that they remain more or less patulous. Under these circumstances involuntary emissions are frequent, and a flow of semen may occur on urination, or during efforts at straining, particularly at stool, if there be constipation. The pressure of the levator ani and of the fecal mass upon the seminal vesicles forces their contents through the relaxed ducts (spermatorrhœa).

INFLAMMATION OF THE SEMINAL VESICLES.—This affection is rare. It is usually unilateral, and is due to extension of inflammation from the prostatic sinus.

Symptoms.—Digital examination by the rectum reveals a hot, sensitive, oval swelling behind the prostate, in the position of the seminal vesicle, perhaps on both sides. The size is double, or more, than of the normal vesicle. The surface is hard and uneven, or fluctuating. There is complaint of a continued, heavy pressing (perhaps pricking) pain in the rectum, low down, shooting toward the sacrum. The pain often involves the testicle, which is sensitive and turgid. Urination may be difficult, on account of the pain, which is increased by rectal examination, and greatly aggravated during defecation. There may be frequent painful erection, perhaps priapism. Any attempts at sexual intercourse greatly aggravate the pain. There may be involuntary painful nocturnal emissions of semen mixed with pus and streaked with blood, and a constant viscid purulent discharge from the urethra, also colored or streaked with blood, and containing spermatozoa.

These symptoms may subside after a few days or persist in a chronic form indefinitely, there being a gleet discharge containing seminal elements, and more or less sexual irritability. This may wear the patient out, leading to serious melancholy or hypochondria. The symptoms,

¹ *Op. cit.*, p. 375.

however, may gradually improve with the general health up to complete recovery. If the inflammation reach a high grade, the duct of the vesicle becomes obliterated, abscess forms and discharges into the urethra or rectum, leaving fistula behind. After such abscess and fistula, the vesicle sometimes gradually atrophies, and with it the vas deferens and epididymis of the same side are very apt to dwindle away. Finally, the chronic inflammation, under the influence of general impaired vitality, may lead to thickening of the walls of the vesicle, cheesy degeneration with softening, abscess, fistula, calcification, etc.

Treatment.—The treatment for acute inflammation of the seminal vesicles is absolute rest in bed, with opiate suppositories, and perhaps camphor and lupulin, to modify erection. This, with local application of heat, warm enemata, and an early opening through the rectum of any abscess that may form, constitutes the treatment. Any chronic inflammation, with gleet discharge, which may be left behind, must be combated with general hygiene and tonics.

Tubercular Disease of the Seminal Vesicles.—This affection may occur without any antecedent local inflammation, or may follow chronic inflammatory disease. Cheesy, yellow masses of deposit occur, which tend to soften centrally. It rarely is seen, except in connection with more advanced disease of a similar character in the prostate, epididymis, kidney, or bladder. The vesicle is often involved synchronously with the vas deferens, and may be felt through the rectum, hard, knobbed, irregular, perhaps insensitive to pressure, perhaps tender, more or less inflamed, and with softened spots. If abscess form, it discharges into the rectum, or perhaps into the prostatic sinus, leaving a cavity in connection with the latter, which furnishes a constant supply of gleet material such as escapes from the urethra in tubercular prostatitis.

Treatment.—Local treatment is symptomatic. The general measures, which may be curative if conscientiously followed out, have been given in the sections upon treatment of the same morbid condition of the prostate, bladder, and epididymis.