

thick and tough. The fluid contents of the cyst are colorless, or have a pale straw color, and sometimes spermatozoa are found.

These cysts may be seated at any part of the cord; those of the epididymis are sometimes wrongly considered cysts of the cord. When the latter are seated near the external abdominal ring, the diagnosis may be very difficult, otherwise it is generally easy. The character and situation of the tumor, and its mobility with the cord and testis, are usually distinctive. The danger of mistaking hernia for encysted hydrocele may be avoided by observing the uniform size of the latter, its circumscribed condition, its translucency, and the absence of impulse on coughing, and of the gurgling characteristic of rupture.

In children this affection usually disappears spontaneously. The process of absorption may be hastened, if desirable, by counter-irritation with tincture of iodine. Withdrawal of the fluid and subsequent pressure sometimes produces a perfect cure. Acupuncture has been found of service, while incisions and the seton are liable to cause excessive inflammation. In very obstinate cases, injection of the tincture of iodine may be resorted to.

CHAPTER XII.

HEMATOCELE.

THE term hematocele is applied to swellings of the testis or of the cord, caused by effusion of blood. We shall adopt Curling's division of its varieties as the best.

HEMATOCELE OF THE TESTIS.—Hematocele of the testis may be either *vaginal*, in which the effusion takes place into the tunica vaginalis, or *encysted*, when blood is effused into cysts of the testis. Either of these forms may have been preceded by hydrocele. Although some authors have doubted the occurrence of vaginal hematocele, independent of other disease of the parts, others are convinced that it does take place as a result of puncture, blows, or any injury. Under such conditions it may be called *traumatic* hematocele in distinction from the *spontaneous* form, which occurs in cases of blood dyscrasia and vascular degeneration inducing rupture of the vessels.

Traumatic hematocele is usually developed very rapidly; the testis becomes enlarged, hard, and painful, and the scrotum may be œdematous or the seat of blood effusion. There is usually more or less constitutional disturbance and pain from the tension of the parts. The effused blood often acts as a foreign body, causing suppurative inflammation. Again, the blood may coagulate as it does in aneurism. Thus the course of the affection is sometimes severe and, on the contrary, when the effusion is moderate, very little trouble is experienced.

The development of spontaneous hematocele is slow and unattended with severe symptoms.

The shape of the tumor in vaginal hematocele is similar to that of vaginal hydrocele, while that of encysted hematocele varies, the testicle in the latter being found below the tumor. Translucency is not found in any form of hematocele.

The *diagnosis* of traumatic hematocele is generally clear, the history of the case and the local condition indicating its nature. The spontaneous variety is often mistaken for a solid tumor, and frequently the diagnosis can be reached only by making an exploring puncture.

Treatment.—The patient must be placed upon his back, the scrotum elevated and bathed with cooling lotions. Free purgation is often beneficial, and anodynes may be required to relieve the pain. In mild cases improvement begins in a few days, and but little suffering is experienced. In many cases the effusion continues, and the tension must finally be relieved by puncture. The contents of the

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cavity should be completely drawn off, and the scrotum be well suspended. Should the cavity become refilled, the operation must be repeated. In some cases, after entire cessation of the inflammation, iodine may be injected as in hydrocele. When the clots are very firm, it may be necessary to make a free incision and thoroughly cleanse the cavity of the sac, antiseptic precautions being observed in the operation and in the subsequent treatment.

HEMATOCELE OF THE CORD.—Hematocele of the cord is very rare, and may occur in a *diffused* or in an *encysted* form. Our knowledge of this lesion is largely due to the observations of Mr. Pott.

Diffused hematocele occurs quite suddenly from rupture of a spermatic vein during violent exertion, as in lifting a heavy weight, or in consequence of a blow on the parts, or during the act of copulation (Maunder). The swelling is usually cylindrical, extending from the upper part of the scrotum to the external ring, and may attain very large proportions. The parts lying over the tumor are unaffected, unless the lesion is a result of contusion.

The *symptoms* are sometimes slight and sometimes severe. On palpation the tumor is found to be firm, but doughy, with ill-defined outlines. The course of diffused hematocele of the cord is, under favorable circumstances, towards gradual subsidence; in some instances severe inflammatory action is set up. Ultimately the cord is left in a normal condition, or perhaps a little thickened.

The *diagnosis* of this affection usually offers no difficulty. The history, position, and general features of the swelling are unmistakable. An important point is the absence of impulse on coughing.

Encysted hematocele of the cord is very rare, and is due to effusion of blood into a cyst in consequence of injury.

Treatment.—The first indications are to prevent inflammation by the use of the ordinary methods. Subsequently puncture followed by pressure will effect a cure.

CHAPTER XIII.

VARICOCELE.

THE term varicocele is used to denote a varicose condition of the spermatic veins. Usually, it is a very mild affection, and occurs on an average in about ten per cent. of all male subjects. It is developed slowly and painlessly, and the first discovery of the patient is a mass within the scrotum which presents the sensation of a bundle of worms. In many cases this increase in the size of the veins is very slight and scarcely worthy of attention; in others, it is so large as to constitute a serious deformity. Again, in exceptional instances the development of varicocele is more rapid, and attended with more or less discomfort. The symptoms, even in well-marked cases, vary within considerable limits; while some patients seem to suffer no inconvenience, others complain of a dull aching and dragging sensation, and some also suffer from pain in the groin, loins, and even in the lumbar region. These sensations are most commonly experienced during walking or active exercise, and they wholly cease when the patient lies down. As a general rule, varicocele occurs only on the left side, though some enlargement and tortuosity has been found in the veins of the right side. Various reasons are given for the constancy of occurrence of varicocele on the left side. The main cause probably lies in the fact that the left spermatic vein empties at right angles into the corresponding renal vein. Further, the left spermatic vein may sometimes be pressed upon by the sigmoid flexure distended by fecal accumulation. Whether our modern method of dressing has any influence in causing enlargement of the veins of the left side of the scrotum is yet an unsettled question. Certainly, any tumor in the groin, particularly when seated in or near the external ring, is liable to press on these veins and produce varicocele. Various other causes have been thought to induce this condition. For instance, it is stated by some authors that ungratified sexual desire, excessive venery and masturbation are important factors in its cause. Our own opinion is that as predisposing causes these perhaps may be considered as somewhat influential, since any condition which tends to induce engorgement of the spermatic vessels is of course liable to aggravate this condition and perhaps even to lead to its development. In my own experience I have usually seen the mild congestion of the spermatic veins of continent young men speedily pass away after marriage. Varicocele very often occasions more or less mental suffering to some patients afflicted with it. Some regard it as the result of masturbation practiced in early years, and fear that it will ultimately lead to impotency, while in others again its existence causes

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the most gloomy thoughts, which sometimes end in well-marked hypochondriasis. Varicocele is an affection mostly seen in young men, and it rarely, if ever, occurs in the later years of life. In some rare instances it coexists with a varicose condition of the veins of the legs, but the latter condition very frequently occurs without varicocele. The affection consists in excessive development of the veins, the walls of which become thickened by cell increase, and are subsequently the seat of fatty change, and, in some cases, even of calcareous degeneration. Phlebolites are sometimes found within them, while in general their valves are wholly effaced, and their walls much thinned. Certain secondary changes in parts in connection with the spermatic veins often follow varicocele. For instance, under the influence of the presence of the venous tumor the scrotum sometimes becomes more or less redundant and relaxed, and its walls are much thinned. In such instances the power of the dartos muscle is more or less impaired. Further, in very chronic cases, atrophy of the testes is a not uncommon sequela, while early in the course of varicocele it is not unusual to find a slightly congested condition of this organ, due of course to the impediment to the return circulation. As a result of these changes it often happens that ultimately the testicle grows gradually smaller until in some cases it is reduced to the size of a pea, and sometimes it seems wholly absorbed. Hydrocele is another not infrequent complication, but it is always of a subacute character, and usually not very extensive.

The diagnosis of varicocele offers no difficulties whatever, as the most superficial examination reveals the worm-like mass within the scrotum.

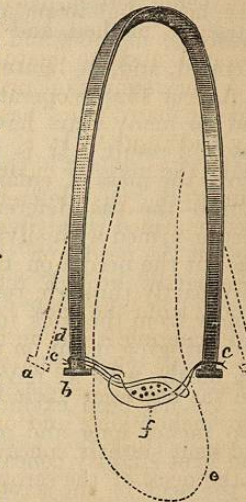
TREATMENT.—The treatment of varicocele is either palliative or radical. The former consists simply in the use of means which relieve the patient temporarily of the inconvenience of the affection. Of these the most important is the use of a properly fitting suspensory bandage, by which the scrotum is kept up. One of the best forms of suspensory is that devised by the late Mr. Morgan, of Dublin. "This consists of a piece of webbing $4\frac{1}{2}$ inches long, $3\frac{1}{2}$ inches wide at one end, 4 inches at the other, and gradually tapering to the narrower end. A piece of thick lead wire is stitched in the rim of the smaller end, two tapes sewn along the entire length of the webbing, and the sides furnished



with neat hooks, a lace, and a good tongue of chamois leather. When the suspender has been applied to the testicle, the tapes are to be attached to an abdominal belt. The size may vary more or less. The lead wire, encircling the lower end, gives a foundation to the gen-

eral means of support and keeps the testes within the bag; the patient can mould it more or less to his convenience, and it need not be worn at night." Much benefit results from frequent bathing of the parts in cold water, and in all cases constipation must be avoided; whereas, in many cases these simple measures are sufficient, there are some which require surgical interference. The most varied procedures have been recommended for the relief of this condition, but we shall only mention those which are most efficacious, and attended with the least danger and trouble, for with many of them there is a certain amount of risk. Since the introduction of antiseptic methods in surgery the old operation of excision of a portion of the vein has been revived. This consists in the removal of about an inch of the vessel just below the external ring, after the application of a ligature of carbolized catgut above and below the part excised. This operation, however, even when thus performed, is not always successful, and is sometimes attended with bad results. The operations of Ricord and Vidal are now never used. The aim of all operations is the occlusion of the veins, which is very often accomplished in a perfect manner by a procedure advocated by Mr. Henry Lee, and which is performed as follows: Grasping the scrotum of the affected side, we easily eliminate, owing to its cord-like feel, the vas deferens, and insert the ends of the forefinger and thumb behind the bundle of veins, thus bringing a scrotal fold together, through which a needle is passed, and then a figure-of-eight ligature quite firmly applied over it, not so tightly, however, as to cut the skin. A second needle is passed through the scrotum in the same manner about an inch lower down, and then the veins are divided subcutaneously with a tenotomy knife. This incision may be done at the same time that the needles are inserted, or a day or two later. This operation has the confidence of many prominent surgeons, especially in England. Another operation has been performed by Mr. John Wood, of King's College, London. This consists simply in the introduction subcutaneously of a double wire noose, while compression is produced by a metallic spring, until division occurs. This operation has been modified by Dr. R. F. Weir, of New York, and will be best understood by reference to the accompanying figure. Dr. Weir's assistant says: "In Wood's operation, tension upon the wire passed around the veins is made by a spring shaped like a horseshoe, one arm of which, by means of a short foot-piece, rests against the scrotum, and through it the wires pass to be attached to the other arm of the spring. The effect of the pressure

FIG. 41.



Weir's varicocele spring.

The effect of the pressure

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is to bury the foot-piece in the tissues of the scrotum and to give rise to an abscess. To secure the same traction upon the encircling wires, Dr. Weir uses, it will be seen, a steel bent spring, the ends of which do not, however, touch the scrotum, but stretch, by its elasticity, wires (*c c*) passed, after Ricord's method, around the veins (*f*). Moreover, instead of leaving the wire in, as suggested by Wood, until it cuts its way out, it has been found by experience best, after eight or ten days, to remove the wires, as by that time a sufficient amount of inflammatory action will have been excited to obliterate the veins satisfactorily. Inasmuch as this removal is attended at times with considerable difficulty, Dr. Weir has adopted the plan, which originated at St. Luke's Hospital, of passing a reserve wire (*d*) through one of the loops, before the latter is drawn around the veins, so that when the encircling wire of one side is cut loose from the spring, the imbedded portion can be readily withdrawn from the other side by means of this same reserve wire, and then the remaining wire, being thus set free, can also be removed without difficulty."

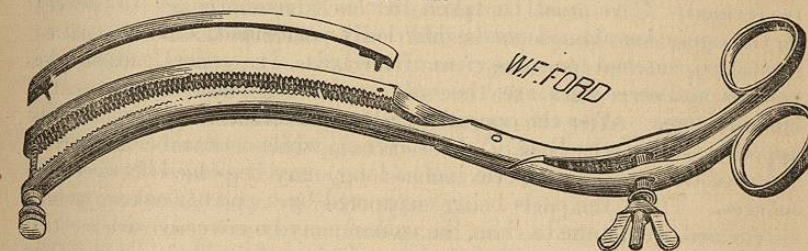
In the cases thus treated the wires were in this way removed on the seventh and eighth days respectively, with satisfactory results, as the patients have been examined since and no relapse has occurred. Another method of treatment, advocated by Dr. Weir, is rather more simple, and is performed as follows: A small incision having been made at the upper part of the scrotum, a ligature of carbolized catgut is passed around the veins, avoiding the other parts, and brought out of the same opening and then tied and cut off short. This ligature being left in place, the wound is treated very carefully by the antiseptic method, and heals, leaving the veins thus thoroughly obliterated, and the ligature is absorbed.

A very simple operation has been used by Professor T. M. Markoe, and for many years has been attended with success and never with any bad result. It is performed as follows: Grasp the cord well above the mass of enlarged veins and, separating with the finger and thumb the vas deferens from the vein-trunks, pass a good-sized needle, armed with silver wire, between the vas and the veins, bringing out the needle on the back part of the scrotum. Drawing the wire partly through, return the needle by the same opening, passing it now from the back to the front and outside of both vas and veins, and bringing it out on the front at the point of entrance. By drawing on the wire we have the veins surrounded by a loop from which the vas has been excluded. A piece of sheet-lead, of an oval form, two inches long and one inch wide, made very smooth at its edges, and bent slightly concave in its long diameter, so as to apply itself to the neck of the scrotum, should be ready, with a good-sized hole in its centre through which the wires are to be passed, care being taken that the wires do not cross each other. A roll of sticking-plaster about an inch long and as large as a quill should now be laid on the outside of the lead plate so that the wires can be drawn and twisted over it. By drawing well home the loop of wire and twist-

ing it over the roll of adhesive plaster the veins are firmly inclosed, and the force of compression can be increased from day to day by further twisting of the wire. As this twisting process, however, is apt to break the wire if carried too far or repeated too often, it is better to use a small wedge of pine wood above and below the wire, pushed in between the lead and the roll of sticking plaster. By this means all necessary pressure is secured; the veins can be obliterated in a few days and the wires removed, or the pressure can be kept up for ten or fifteen days, within which time the wire will probably cut through. Either plan is effectual, but as the apparatus usually gives no pain and excites no inflammation, it is, perhaps, better to let the wires cut through. The removal of the wires is perfectly easy if care has been taken not to cross them in passing them through the lead plate.

Of late years, the operation originally advocated by Sir Astley Cooper, of ablation of a portion of the scrotum, has found favor with some of the prominent New York surgeons, particularly in the cases of varicocele complicated with redundancy of the scrotum. For the

FIG. 42.



Scrotal clamp.

performance of this operation we require a pair of clamps, and, in an emergency, the straight blades of a long and heavy pair of scissors will suffice. The best instrument, however, and there are several clamps used, is that devised by Dr. Henry, and called the scrotal forceps. It consists of two double curved blades made of steel, ten inches long, sufficiently heavy to give strength and admit of pressure without injury. The handles are large enough to admit the finger and thumb readily. The lower half of the instrument below the joint is fenestrated in both blades; the coaptating surfaces are evenly notched to prevent the parts from slipping. The fenestra afford the surgeon the facility of inserting all the ligatures before dividing the parts, if he so desires. The thickness of the upper blade from the line of insertion of the ligatures leaves ample tissue for healing to take place before they cut through. The curve of the blades is that necessary to be given to the incision, which must be rounded at the ends, otherwise there are two teatlike prominences. The screws are sufficiently heavy to give firmness and evenness of pressure. The

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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, acupuncture 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.

GONORRHOEAL PROSTATITIS.

ACUTE PROSTATITIS.

ACUTE prostatitis may be due to violence from sounds, catheters, or lithotripsy 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 cubeb, 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

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