

inches long by three broad. The patient failed to recover. Dr. Peters's paper upon the subject is interesting and full, and contains a report of the only cases (three in number) where a similar operation had been performed previous to the date of his own. The operators were Simon, Linser, and Durham. Dr. Peters's method of reaching the kidney was simple and effective. An incision six and three-quarter inches long was made from the twelfth rib to the crest of the ilium, three inches from, and parallel to, the vertebral spines. The outer border of the quadratus lumborum was thus easily reached, and, through the fat beneath it, the kidney. This was gradually enucleated and removed, after tying the vessels.

SYPHILIS OF THE KIDNEY.

The kidney is occasionally the seat of syphilis. Lancereaux,¹ in twenty autopsies of patients with visceral syphilis, only found the kidney affected in five cases; four with interstitial nephritis, and one with gummy tumor; several with cicatrices. Virchow² believes that amyloid degeneration of the kidneys may depend directly upon syphilitic cachexia.

Kidneys affected by syphilitic disease do not furnish any symptoms which can distinguish the malady from other forms of slow nephritis; more or less albumen, in a fluid of low specific gravity, with usually a few pale casts. There are no distinctive, subjective symptoms. Such patients are liable to slight morning nausea. Sometimes recoveries occur, under treatment. An occasional case of albumen in the urine, which has disappeared under anti-syphilitic treatment, may be found recorded in the journals.³ But, on the other hand, it will occasionally happen that patients with visceral syphilis, under protracted treatment, by large doses of iodide of potassium, will gradually show morning nausea, and upon examination their urine will be found light, slightly albuminous, and containing pale casts. In such cases the kidney-trouble is probably due to the irritation produced by the large amount of iodide of potassium passing through them, and the albumen and casts may be made to disappear, together with the morning nausea, by reducing the activity of the treatment. Several such cases have fallen under the authors' observation.

The pathological appearances of syphilitic kidney, besides amyloid degeneration, which may be found, perhaps due to the disease, are those of interstitial chronic inflammation (usually circumscribed), local cirrhosis (rarely general), thickening of the parenchyma and capsule, perhaps local fatty degeneration, with atrophy, the tough adherent capsule being depressed in deep seams, the kidney stroma compressed, atrophied, and degenerated between portions of contracted connective tissue.

¹ *Op. cit.*

² "Die krankhaften Geschwülste," vol. ii., p. 471.

³ Ollier, quoted by Rollet, p. 278.

These appearances may be found alone or combined with one or more yellow gummy nodules, of varying size, solid, or more or less softened. Such nodules are usually connected to white bands of hypertrophied connective tissue, running through the kidney. The gummy nodule is pathognomonic; the chronic interstitial nephritis is distinguished from the usual form by being generally confined to circumscribed portions of the gland.

The treatment of cases suspected to be syphilitic is that of tertiary syphilis.

CHAPTER XXI.

DISEASES OF THE SCROTUM.

Anatomy.—Injuries.—Œdema.—Emphysema.—Eczema.—Intertrigo.—Pityriasis.—Eczema Marginatum.—Pruritus Genitalium.—Pediculi Pubis.—Phlegmonous Erysipelas.—Elephantiasis.—Tumors and Cancer of Scrotum.—Epithelioma.

THE scrotum is a pouch formed of skin, muscular and connective tissue. Its function is to contain and support the testicles. It is developed from two lateral halves which unite centrally in the raphe (*ράπτω, I sew*), a raised line continuous with the raphe of the penis and that of the perinæum. The lateral halves sometimes remain separated and resemble labia majora, giving rise to an appearance suggestive of hermaphroditism. The healthy scrotum in the young man is thrown into rugæ at right angles to the raphe on either side, by the contractions of the dartos.

The integument of the scrotum is delicate in structure, covered with a few hairs, and apt to become pigmented at puberty. The sebaceous glands are very large.

The dartos is a layer of unstriped muscle. It lies beneath and firmly attached to the integument, and is reflected on either side inward from the raphe, to form the septum scroti. Each testicle has thus a dartos of its own. On exposing the scrotum to the air, the vermicular contractions of this muscle can be readily seen. They occur under the influence of cold or fright, and during the venereal orgasm. In youth, especially in winter, the dartos is habitually contracted and holds the testicles well up under the pubes. The ancient sculptors did not fail to notice that contraction of the scrotum was a mark of general as well as of sexual vigor. In the aged and infirm, on the other hand, especially during summer, the muscle relaxes, allowing the testicles to hang low, supported mainly by the cord.

The connective tissue of the scrotum is peculiarly loose, and contains no appreciable amount of fat. The septum scroti is pervious to

fluids, so that serum or infiltrated urine can find its way readily from one side to the other. The lymphatics of the scrotum are large and numerous, and lead to the inguinal glands. The scrotum develops independently of the testicles, but, if the latter fail to descend, it is always rudimentary.

INJURIES OF THE SCROTUM.

In contusions, extensive ecchymosis is liable to occur, on account of the laxity of the connective tissue. These should not be incised. The parts should be supported and covered with cool lead-water, to which a little spirit has been added, or laudanum, if there is pain. Absorption may be pretty confidently expected.

In wounds of the scrotum there is usually a great deal of bleeding. In uniting such wounds, many sutures are required, to overcome the tendency of the dartos to pull the edges apart. Abscess of the scrotum after injury requires no comment. An early opening is advisable.

CUTANEOUS AFFECTIONS OF THE SCROTUM.

Nearly all of the numerous diseases, syphilitic or otherwise, of the general integument, may occur also upon the scrotum. Certain of them are modified by their position, and require a passing notice.

Extensive oedema is liable to complicate any inflammatory affection of the scrotum—on account of the laxity of its tissue, and its dependent position. Scrotal oedema may also be due to any obstruction to the return of its blood, as occasionally to the hard inflammatory induration around inflamed lymphatic glands in the groin, or it may come on in connection with general prostration and anasarca.

Where oedema is excessive, and the tension is so great that injury to the skin seems imminent from pressure, a few punctures may be made on either side of the raphe, at the most depending point of the scrotum. These incisions, however, should be practised with caution, as there is danger of their being followed by gangrenous erysipelas.

Emphysema of the scrotum is occasionally met with. It is easily distinguished by the crackling under the fingers, and resonance on percussion. It occurs with general subcutaneous emphysema, and with scrotal gangrene.

Eczema.—Eczema attacking the scrotum, perinæum, and thighs around the root of the scrotum, is apt to be excessively obstinate, and prone to relapse. (For treatment, see text-books on dermatology.)

Intertrigo occurs in children, and often in fat men of rheumatic habit who perspire a good deal. This affection is apt to be troublesome. Much can be done to prevent it, by scrupulous cleanliness, and the use of a suspensory bandage, to keep the cutaneous surfaces apart. To overcome the hyperæmia, when it exists, rest, cleanliness, and exposure of

the parts to the air, are speedily effective in mild cases. If the surface is moist, and excoriated, it should be dusted with equal parts of finely-powdered oxide of zinc, camphor, and starch, or with simple rice-powder, or may be dressed with the oxide-of-zinc ointment. A strip of old thin linen should be used to sling up the scrotum, and keep the cutaneous surfaces apart. Later, when the parts are dry, tincture of iodine, locally, will hasten the cure. Avoidance of stimulating food and drink, to render the secretions less irritating, is advisable.

Pityriasis.—In men with a delicate skin, especially in summer, there is often a slightly brown discoloration of the thigh, and of the scrotum, where the two surfaces lie habitually in contact, caused by a vegetable parasite in the upper layers of the epidermis. It is, in fact, a pityriasis versicolor, and sometimes gives rise to a mild local erythema, and considerable itching. A few applications of the compound tincture of iodine diluted to half strength, and painted on after the affected skin has been washed with soap, and dried (to remove the fat from the scales and spores), will cure the discoloration and the itching.

ECZEMA MARGINATUM.—This is another parasitic disease, affecting the scrotum, thighs, mons veneris, and buttocks. It is not an eczema, but a herpes tonsurans vesiculosus—a combination of herpes tonsurans and intertrigo, as proved by Pick,¹ in a written discussion with Hebra. The eruption commences in one or more small, round patches, red, elevated, and itchy, just where the scrotum lies habitually in contact with the thigh. It spreads circumferentially, healing in the centre. The border of the eruption is sharply defined, and forms the distinctive feature of the disease. It is composed of papules, vesicles, excoriations, and crusts. The parts within this festooned border, over which the disease has passed, are left of a brown color. Often, little heaps of dried-up scales lie here and there upon this surface. Patches of eruption break out in the neighborhood, or within the border, and behave exactly like the patches first constituting the disease. The affection is slow in getting well, and tends strongly to relapse. Friction and moisture of the parts, together with the parasite, are necessary for its production. Among the scales scraped from the margin, the microscope may detect the moniliform filaments and spores of the trichophyton of Malmster, the parasite of ordinary ring-worm. In certain stages of the disease, the parasite is difficult to find.

Treatment.—Dilute lead-water, or oxide of zinc; ointment may be used locally at first if there be much inflammation of the skin, to be followed by parasiticide lotions, or the latter may be commenced with at once. The best of these is a mild solution of corrosive sublimate in water, gr. j-ss to the ℥j, which should be kept constantly applied. If mercury be objectionable, tincture of iodine may be used, or an oint-

¹ "Zur Verständigung über das sogenannte Ekzema Marginatum," Archiv f. Derm. und Syph., 1, iii., p. 443.

ment of turpeth mineral (hydrarg. sulph. flav.) gr. x-xx to the ℥j. Treatment should be kept up for some time after apparent cure, as relapses are the rule, and can only be averted in this way.

PRURITUS GENITALIUM.—This, like other purely pruriginous skin-affections without eruption, is excessively obstinate. Rheumatic and gouty subjects most often are the sufferers, and, with such, any dietetic or hygienic errors seem liable to induce or aggravate the disorder. After the exclusion of animal or vegetable parasites from the rôle of causality, the treatment consists in hygienic and dietetic precautions, with the internal exhibition of alkalies, and, if need be, tonics. Turkish and Russian baths are often very serviceable.

The following are among the most generally useful local measures, what is suitable for one case often having no effect upon another. Hygiene and change of air are sometimes the only really curative agents.

Hot water, tar, pure or in combination, yellow wash—

Or—

℞. Chloroform., ʒj.
Adipis, ʒj.
M. Keep corked in a wide-mouthed bottle.

Or—

℞. Acid. hydrocyanic. dil., ʒss-ʒj.
Glycerini, ʒss-ʒj.
Aqua, aa ʒss.
M. Ft. lotio.

Finally, local electricity, either the induced or the continued current, has decided curative power over some cases.

PEDICULI PUBIS.—These parasites may be found upon the scrotum, as they may, in fact, upon any part of the body from which the hairs of puberty grow. They exist in greatest abundance, however, about the genitals, and particularly on the mons veneris.

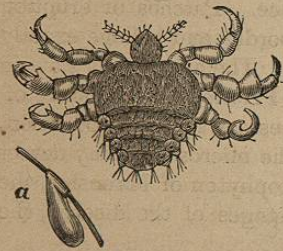


FIG. 125.

They are plainly visible to the naked eye, as are their eggs attached to the hairs (Fig. 125, a). They may be destroyed by sprinkling the parts with calomel, or by applying a lotion of gr. j-ij corrosive sublimate to ℥j of Cologne-water, or a wash made of equal parts of tincture delphinii and water, or of hyposulphite of soda and borax, each ʒj to ℥j. When they infest the whole body, some few usually escape

the ordinary application of lotions, and these soon breed a new crop. Care and patience, however, will always finally dislodge them.

URINARY INFILTRATION has been already described.

PHLEGMONOUS ERYSIPELAS.—Upon the scrotum this is an exceedingly dangerous disease. It is most frequently observed in the aged or debilitated, chiefly as the result of cold. A method of acquiring it, which is almost classical, is for an old man to come out of a hot room into the

open air to urinate. The cold air strikes upon the part, chills it, and within twenty-four hours phlegmonous erysipelas of the scrotum commences. Injuries and operations may also be occasionally attended by it. The so-called metastatic inflammations occurring in typhus, variola, scarlet fever, mumps, etc., are in reality phlegmonous erysipelas, described by some English authors as acute œdema.

Symptoms.—A sharp chill announces the disease. The scrotum becomes at once the seat of increased heat and redness, with pain, and rapidly enlarges. Blood escapes into the subcutaneous connective tissue, so that the whole scrotum may be black and shining, or its color may be mottled. The scrotum may reach the size of a child's head, the integument is put upon the stretch, the epidermis may crack or may be raised into vesicles or bullæ. The general tendency of the disease is always toward gangrene. Pain is not very great, but the prostration is excessive. The pulse runs up to 120-160, is small, feeble, and irregular. The appetite fails, the tongue gets brown and dry, the patient breathes hurriedly, is depressed and overcome. The skin is hot and dry at first, but becomes subsequently moist from depression.

The diagnosis is between infiltration of urine and hæmatocele. From the former it may be distinguished by the greater severity of the attack, the rapid change of color of the parts, the fact that one side of the scrotum is more seriously involved than the other in phlegmonous erysipelas, and that the œdema does not so certainly extend to the penis and abdomen. The patient is more depressed, and no preëxisting cause for infiltration is present. In true hæmatocele one side only of the scrotum is enlarged, and there is not much thickening of the skin. The swelling may be often made out as involving the testicle. The general symptoms in hæmatocele are not formidable. The dangers in phlegmonous erysipelas of the scrotum are twofold: the life of the patient is in danger; the integrity of the scrotum is at stake; any portion or the whole of it may slough, leaving the testicles uncovered.

Treatment.—The treatment should be energetic and supportive. Repeated small doses of brandy, whiskey, or wine, must be given, with milk, cream, and beef-tea. The quantity of stimulant varies in every case. Eight or ten ounces of brandy or whiskey in twenty-four hours, in small portions at a time, is a fair average quantity. A good effect of the stimulant will be noticed in the pulse, which will decrease in frequency and become more strong and regular. The tongue will get moist, and the patient rally from his depression.

The local treatment is equally important. Hope of aborting the disease need not be entertained. One long, free incision parallel to the raphe, on either side, should be made well down into the subcutaneous tissue of the œdematous discolored mass. Persulphate of iron may be used, if necessary, to check bleeding, and water-dressings, with one per cent. carbolic acid, applied. If gangrene has already commenced, and

sloughs begun to separate, or if the latter form in spite of the incision, they should be detached and removed as soon as possible. The testicles hang out uninjured in these cases, suspended by the cord, and if left to themselves and kept moist, or, perhaps better, mildly stimulated, granulations will sprout out upon them, and a cicatrix will form, binding them up under the pubis in a manner not unsightly nor inconvenient. The patient is always agreeably disappointed in the final result. If the process of repair does not form a good scrotum, recourse may be had to oscheo-plasty (*σχέον, scrotum; πλάσσειν, to form*), as performed by Delpech, Dieffenbach, Dürger, and others, by transplanting from neighboring parts flaps of skin large enough to cover in the testicles.

ELEPHANTIASIS SCROTI.—This disease, not uncommon in some portions of the globe, is rare in the United States. Hypertrophic overgrowth may attack the scrotum or penis alone, but usually both are involved, the scrotum to the greater extent. The scrotum may enlarge until it touches the ground. It has been known to reach the weight of one hundred and sixty-five pounds! A scrotum of this weight was removed by Wilkes.¹ The only remedy for the disease is the knife. Curling² advises a disregard of the penis and testicles in operating, if the tumor be very large. Patients are apt to die on the table, from hæmorrhage, which is always excessive. If the mass is not excessively large, the penis, testicles, and cords, may be dissected out, enough of the healthiest tissue being left to cover them. Many cases of successful operation are recorded, among others, one by Thebaud, of New York, the mass weighing, when removed, sixty-three pounds.

Cystic, fatty, and fibrous tumors of the scrotum are found occasionally. Small steatomatous cysts are common. They may reach a large size.

CANCER OF THE SCROTUM, in this country, is a rare disease. When it occurs, it is almost invariably epithelial. Scirrhus and medullary cancer, recurrent fibroid, and melanotic sarcoma, are encountered at long intervals, but not as differing in any way from the same growths elsewhere.

EPITHELIOMA OF THE SCROTUM has been denominated chimney-sweeps' cancer, since it is somewhat common in England upon chimney-sweepers. Soot seems to be the exciting cause in England, although in other countries those whose occupation brings them into contact with this substance do not seem to suffer. On the contrary, our countryman, Warren,³ states that he has seen it a few times in the United States, but never in chimney-sweepers. Coal-dust is entirely inoperative.

The disease begins as one or more small, soft warts, or tubercles, usually at the lower fore-part of the scrotum. These remain unchanged

¹ Titley, "Diseases of the Genitals," p. 317.

³ "Surgical Observations on Tumors," p. 329.

² "The Testis."

for a time, but finally indurate slightly, become excoriated, scab over, and ulcerate, the ulcer extending backward, and destroying, with more or less rapidity, the whole scrotum. Sometimes the testicles are involved, sometimes they escape. The ulcer resembles an epithelial, cancerous ulceration, wherever seen. It has the same hardened, irregular, purplish, everted, knotty borders; the same hard, uneven, unhealthy-looking base; the same ichorous discharge, now sanguinolent, now purulent.

Death occurs by exhaustion, or by hæmorrhage, if a large vessel be severed by the advancing ulceration. The disease continues local for some time. It is only tardily that the inguinal glands become involved.

Treatment.—Thorough removal with the knife offers the only chance for safety. If the inguinal glands have not become infected, the operation is a simple one. If either testicle should be found involved, or even adherent to the diseased mass, it should be removed. If the glands in the groin are greatly enlarged and indurated, operation is inadvisable. If they are only slightly enlarged, they may be left; but, if they are at all indurated, they too must be removed. The earlier the operation is undertaken the less the chance of relapse, which is always to be feared. A second and third operation may be advisable, if the patient's general condition be not seriously impaired.

(For mucous patches of the scrotum, see SYPHILIS.)

CHAPTER XXII.

DISEASES OF THE TESTICLE.

Anatomy.—Anomalies.—Cryptorchidism.—Hypertrophy.—Atrophy.—Injuries.—Hæmatocele.—Hæmatocele of the Cord.—Free Bodies in the Tunica Vaginalis.

THE testicles, suspended each by its spermatic cord, lie loosely in the scrotum, surrounded by an atmosphere of connective tissue. The left is usually slightly larger than the right and hangs lower, evidently for the purpose of allowing these important organs the more readily to elude violence. It has been observed, in transposition of the viscera and blood-vessels, that the right testicle hangs the lower. The mean dimensions of the testicle, according to Curling, are one and three-fourths inch long, one and a fourth inch antero-posteriorly, and one inch laterally. The average weight in the adult is about six drachms. The dimensions, weight, and consistence, vary considerably, according as the organ is in action or not. During venereal excitement it is turgescient,