The healthy corpus spongiosum may be fractured during erection. Dittel [1] gives one such case. I have seen another.[2]

Dislocation of the Penis

When the integument of the penis is violently dragged upon, as, for instance, when the clothes are caught and torn away upon a revolving wheel, the entire penis may be shot out of its investing cutaneous sheath and lodged in the scrotum, the perineum, the groin, or under the integument of the abdomen. In such cases, the semi-mucous membrane of the prepuce gives way either at the preputial orifice or just behind the corona. A number of instances of this curious luxation have been recorded.[3] The penile injury is usually not discovered until retention of urine or the passage of urine by some opening at a distance from the preputial orifice directs attention to the contused genitals, when the penis is found to be only a sheath of integument containing clotted blood. Sometimes it has been difficult to find the penis at all; but an intelligent search will always reveal it, and then the surgeon's obvious duty is to replace it in its sheath, incising the integument about the root of the sheath as far as may be necessary to attain the desired result.

In dislocation, the urethra is often ruptured low down, and, after the organ has been replaced in its sheath, external perineal section without a guide may be called for (p. 35). In this way the continuity of the canal is restored.

In one case, a six-year-old child, Nélaton reduced a dislocated penis through the preputial orifice by means of Cooper's aneurysm needle, assisting its hook action by external manipulation.

CUTANEOUS AND MUCO-CUTANEOUS AFFECTIONS OF THE PENIS

Many common skin diseases involve the skin of the penis as well as other integumentary parts. As a rule, they present no special characteristics and require no comment here. *Venereal sores*, true chancre and chancroid, are common, as also are soft venereal warts. These receive mention later. A rare disease is *scabies*, which, causing ulcerated spots and enlarged inguinal glands, may be mistaken for chancroid, from which it may be differentiated by the "burrows" and the accompanying interdigital lesions. Jacobson reports a case

[1] Wien. med. Blätter, 1885, Nr. 2.
[2] Van Buren and Keyes, 1st Ed., p. 7.
[3] *Cf.* Goldsmith, Lancet, 1898, ii, 387.

of epitheliomatous degeneration occurring in a patch of *eczema* which covered the root of the penis and the inner third of the groin. Hutchinson [1] circumcised a boy for *lupus* of the prepuce and obtained a perfect result. Rake, of Trinidad,[2] has performed circumcision on 16 *lepers*, and, even though the incision actually traversed a leprous patch, it always healed kindly.

Herpes Progenitalis.—This affection consists in the development of clusters of vesicles upon reddened patches on the mucous covering of the glans, or on either layer of the prepuce, or on other portions of the neighbouring skin, attended by a slight sensation of heat and tingling. When occurring on the cuticular layer, herpes runs its course as it does elsewhere on the body, but when vesicles develop within the preputial orifice the eruption is modified. Under these circumstances the epithelium of the vesicles is soaked off, little exulcerations result, more or less general inflammation is likely to arise from retention of the secretions, and balanitis, with posthitis, vegetations, and inflammatory phimosis, may be the ultimate result. In exceptional cases the ulcerations perhaps become deep and angry, and the diagnosis with chancroid difficult, while the glands in one groin or both may inflame and suppurate. These extreme results are rare.

When the affection has once occurred, it shows a marked tendency to recur. There is often a periodicity about the attacks. Tight prepuce and contact of irritating discharges act as predisposing causes.

Diagnosis.—Vesicles, usually in groups, always precede the ulcerations, while the latter are irregular in shape, superficial, and very rarely complicated by suppurating bubo. The pus is not auto-inoculable. Attention to these points will generally render diagnosis with chancroid easy; where grave doubts exist, auto-inoculation is the proper test.

Treatment.—The treatment is the same as for balanitis. Touching the tingling, congested patch before, or even just after, the commencement of vesiculation several times a day with eucalyptol, while it does not abort the attack seems to shorten it. As soon as the vesicles break a dry antiseptic powder is suitable (nosophen, bismuth). In relapsing cases circumcision or a long course of iron and arsenic internally often effects a permanent cure.

Herpes Zoster.—Zoster may occur upon the penis as elsewhere.

[1] Arch. of Surg., 1890, ii, 17.
[2] St. Louis Med. and Surg. J., 1893, lxiv, 221.

Balanoposthitis

Balanitis (*βάλανος, a gland*) is an inflammation of the surface of the glans penis. Posthitis (*πόσθη, the prepuce*) is an inflammation affecting the mucous surface of the prepuce chiefly. Neither can exist for any length of time without becoming more or less complicated by the other. For practical purposes they must be considered together.

Etiology.—Persons of irritable skin and gouty habit are predisposed to this disorder. A long and tight prepuce is always a predisposing cause. The exciting causes are mechanical irritation or uncleanliness from retention of smegma, or from prolonged contact with diabetic urine, gonorrheal, leukorrheal, menstrual, or other irritating fluids.

Symptoms.—The membrane at first becomes reddened, then mottled and moist; next the epithelium comes off in patches, leaving irregular excoriations which soon ulcerate and discharge a purulent fluid. The ulcerations are not preceded by vesicles. There is a burning soreness with itching at the end of the penis, usually scalding on urination. The entire substance of the prepuce may inflame, become intensely reddened around the orifice and infiltrated with serum, producing inflammatory phimosis, especially if the prepuce be naturally long or tight. The ulcerations rarely become deep, and the inguinal glands do not often suppurate, but they may grow somewhat large and tender. In chronic balanitis with phimosis, the mucous surface of the prepuce is granular and even condylomatous.

R. W. Taylor [1] has described a peculiar ringed affection of the prepuce and glans—narrow rings of reddened mucous membrane covered by a thin layer of epithelial scales. The inclosed area is normal, the rings vary from ¼ to ½ inch in diameter. The affection is sometimes painful or itching. The rings remain stationary for a time. They may come out in successive crops. They get well without scar, slowly, under the use of arsenic internally. They should not be confounded with lichen planus of the glans penis.

Kaufmann [2] mentions a diphtheritic balanoposthitis occurring in the course of acute exanthems or by infection during circumcision. Taylor [3] has seen similar cases, some of them, when neglected, going on to gangrene and death.

Diabetic balanoposthitis is not uncommon. It is caused by contact of the saccharine urine. In these cases German investigators have found a fungus which they regard as characteristic; Friedrich [1] even going so far as to diagnose diabetes from the presence of this fungus in the balanitic secretion, there being not enough sugar in the urine to respond to the copper test. Soundley [2] says: "Eczema of the genitals . . . is undoubtedly set up by the irritation produced by torulæ and other organisms which grow in the saccharine moisture remaining on the parts."

[1] Arch. of Med., 1884, vol. xii, No. 3.
[2] Billroth and Lücke, Deutsch. Chir., Part 50 a.
[3] Venereal Diseases, 1897, p. 393.

Although Hebrews are predisposed to diabetes, circumcision saves them from this complication.

Diagnosis.—Balanitis may be confounded with herpes, chancroid, chancre, or gonorrhea. At the ulcerative stage it cannot be distinguished from balanitis supervening upon herpes. If herpes be seen early its vesicular origin distinguishes it. Chancre is usually single and indurated. In chancroid the ulcerations are deeper and the pus auto-inoculable, yet both of these specific ulcers may be complicated by balanitis. Balanitis has been described under the name of external gonorrhea. It may be mistaken for actual gonorrhea if there be phimosis, under which circumstance it is very likely to complicate the main malady. When the meatus urinarius can be seen, however, it is easy to decide whether the pus comes from the urethra or not.

Prognosis.—While balanitis usually yields readily to appropriate treatment, diabetic cases are intractable as long as the exciting cause, glycosuria, persists, while the chronic balanitis of gouty individuals is as difficult to cure as the eczema from which they suffer.

Adhesions due to balanitis are uncommon after early childhood. In elderly persons, however, the possibility of epitheliomatous degeneration in a patch of chronic balanitis must be borne in mind.

Treatment.—If the prepuce can be easily retracted—without causing paraphimosis—simple balanitis may be speedily relieved. Cleanliness is of the first importance, but soap should not be used. Warm water, or sublimate solution (1 : 5,000) will remove all the discharges. After washing, the parts should be dried by gently touching them with a soft cloth, and dusted (by the aid of a dry camel's-hair brush from which the powder may be evenly shaken) with bismuth and calomel, nosophen, or any fine stimulating powder. If the ulcerations are deep nosophen or deodorized iodoform is preferable. A piece of old linen, just large enough to cover the glans, and with a hole cut in its centre so that it may be slipped like a collar around the corona, is now to be moistened in a mild

[1] Virchow's Archiv, 1864, xxx, 476. [2] Allbutt's Sys. of Med., 1897, iv, 217.

antiseptic solution (sublimate 1:10,000, or acetate of aluminum 2%, or aromatic wine and water equal parts) and laid over the glans, leaving the meatus uncovered. The prepuce is then pulled forward to its natural position. In this way friction between the inflamed surfaces is avoided, all the discharges are absorbed, and a mildly stimulating fluid is kept in constant contact with the ulcerated or abraded surfaces. The dressing should be repeated 2 to 4 times daily, according to the discharge. After recovery a dry piece of linen should be kept between the glans and the prepuce for some weeks, renewed twice daily.

If the prepuce cannot be retracted, its *cul-de-sac* should be thoroughly washed out from 2 to 6 times a day, according to the severity of the inflammation, with peroxid of hydrogen; and each time after the cavity has been cleaned, enough of one of the lotions above mentioned to distend the prepuce should be gently thrown in, retained a moment, and then allowed to escape.

If the prepuce be much inflamed, rest, position, and wet antiseptic dressings locally should be used in addition to the other measures. If the inflammation run so high that sloughing of the prepuce seems imminent, it is better to take off the tension by slitting up the dorsum. If chancroid be present, however, the surgeon must remember that inoculation of the wound is inevitable. Yet chancroidal cases require operation most urgently in order to expose the sore, whose ravages (perhaps upon the glans penis) are progressing uncontrolled. A large chancroid exposed is better than a small one concealed. (See Circumcision.)

Circumcision.—In chronic and inveterate cases, or where insignificant causes produce constant relapse, circumcision affords a certain cure. All the unhealthy, thickened, inner layer of the prepuce should be removed. Where this is seriously objected to, which is rarely the case when there is much suffering, relapses may be rendered less frequent by the observance of the strictest cleanliness, and the use of a filtered solution of tannin and acetate of lead, or of tannic acid in glycerin (10%), or of alcohol (33%) kept up for a long time, followed by long use of a piece of dry linen to separate the mucous surfaces.

Circumcision in diabetics, while almost certain to prove curative, is no light matter. Diabetics bear any operative interference very ill, and several deaths from circumcision are recorded. Therefore, while trying the milder methods, special attention should be paid to the patient's general condition, in order that, if these methods prove unsuccessful, operation may be undertaken with the greatest possible chance of success.

ACUTE INFLAMMATORY AFFECTIONS OF THE PENIS

Superficial inflammation of the penis, while rare and usually mild, may require energetic treatment; for though the vascular supply is abundant the vessels, lying in a loose, cellular tissue, become occluded by slight inflammatory exudates whence gangrene or chronic edema results, and, moreover, the numerous lymphatics and the loose subcutaneous connective tissue encourage rapid dissemination of the inflammation.

The inflammation is rarely traumatic, usually venereal, and sometimes arises from the neighbouring parts.

The *varieties* of acute superficial inflammation are cellulitis, lymphangitis, and erysipelas.

Cellulitis.—Cellulitis arises from chancroids, balanoposthitis (especially if complicated by phimosis), traumatic infection, or gonorrheal periurethritis. The inflammation may spread to the abdomen, scrotum, or thighs, or it may involve the erectile bodies, thus adding the dangers of embolism, retention of urine, and urinary infiltration, and greatly increasing the tendency to gangrene.

Lymphangitis.—Lymphangitis is comparatively benign. A lymphangitis of the large dorsal lymphatic may be differentiated from phlebitis of the dorsal vein by the fact that the cord of induration extends outward, at the root of the penis, towards a group of enlarged glands, instead of disappearing beneath the symphysis pubis.

Erysipelas.—Erysipelas of the penis is rarely seen nowadays, though it was formerly not uncommon. It usually spreads to the penis from the adjoining regions, though it may originate in a local lesion. It is likely to be virulent and complicated by cellulitis (phlegmonous erysipelas).

Treatment.—Prophylaxis, by careful treatment of the causes of inflammation, is of the first importance. If the penis has already become inflamed it should be elevated, with the scrotum, by a T-bandage and wet dressings of sublimate (1:10,000) or aluminum acetate (2%) applied daily. Rest in bed, free purgation, and a light diet are essential in the more severe cases. Tension may be relieved by scarification or incision, abscesses must be opened and drained, and sloughs speedily removed.

In erysipelas, dressings of ichthyol (50% in glycerin and water, painted on) are especially valuable. A subsiding lymphangitis may leave a chronic induration behind it.

Cavernitis and Penitis (inflammation of the corpora cavernosa or of all three erectile bodies) arise from cellulitis or its causes, especially inflammation in the bulb of the corpus spongiosum.

Sexual excess (Demarquay) and iliac thrombosis have also been incriminated.

Course.—The course of the disease is that of an acute inflammation with constant priapism and edema added to the usual local symptoms. While the inflammation may be walled in by occlusion of the vascular spaces, pyemia is "a terribly frequent complication" (Jacobson).

Treatment.—The treatment should therefore be most energetic. Indurations in the erectile bodies should be freely incised, packed to check the hemorrhage, and irrigated frequently. This treatment and in doubtful cases the diagnosis, may require general anesthesia. Wet dressings should be employed.

Acute Gout of the Penis.—Sir J. Paget[1] reports a case in which penitis and urethritis alternated with and accompanied typical gouty symptoms. Sir Dyce Duckworth[2] chronicles a similar case. Priapism and retention were the chief symptoms.

OTHER DISEASES OF THE PENIS AS A WHOLE

Neuralgia of the Penis.—In some cases this might be classified as a gouty condition. The gouty diathesis, a neurotic temperament, and previous urethral disease are the chief etiological factors. The pain may be paroxysmal or continuous. It may be felt at the meatus, along the urethra, or throughout the organ. The first point in *treatment* is to insure the good health, physiological as well as anatomical, of the genito-urinary organs by appropriate treatment and insistence upon urethral and sexual hygiene. Following this the neurotic or gouty propensity must be combated. I have found the administration of large quantities of water, with alkalies or uric-acid solvents, peculiarly efficacious. Jacobson mentions a cure by colchicum.

Chronic Edema.—Chronic edema may be caused by a local obstruction to venous return, but is usually seen only as a feature of general anasarca. The swelling of the scrotum usually overshadows that of the penis and may be so great as practically to obliterate that organ. In the penis the edema is greatest in the prepuce and especially about the frenum. This edema may offer a mechanical impediment to urination, and the low vitality of the tissues renders them especially liable to become inflamed by contact with the urine that dribbles over them.

[1] *Op. cit.*, p. 684.
[2] Trans. Clin. Soc., Lond., 1891–92, xxv, 97.

Treatment.—The prepuce must be kept dry and dusted with a soothing powder. Multiple punctures or incisions may liberate the exudate sufficiently to keep the swelling within bounds, and, these failing, a dorsal incision will succeed. Light edema may be controlled by bandaging, elevation, and painting with collodion.

Dilatation of the Lymphatics.—This condition is secondary to trauma or inguinal adenitis. The dilated lymphatics appear as white, subcutaneous cords encircling the penis behind the corona or extending along the sides or dorsum, where I have seen them form a leathery patch an inch square. There are no subjective symptoms and the obstruction may be relieved spontaneously. For esthetic reasons multiple ligation or total excision may be resorted to, but a lymph fistula can result from such treatment.

Elephantiasis.—This condition is so rare in the penis alone that the whole subject receives more appropriate treatment with diseases of the scrotum.

Gangrene is usually the result of inflammation. It may, however, come on independent of any local inflammation. Spontaneous gangrene usually occurs in connection with the acute exanthems. Cases have been reported from typhoid, typhus, intermittent fever, and small-pox. Senile and diabetic gangrene also occur. Cases following prolonged priapism, iliac thrombosis, atheroma of the dorsal artery, exposure to cold, and acute alcoholism are also cited by Jacobson.

Treatment.—The prophylactic measure—incision of inflammatory and edematous areas—has already been noted. When gangrene has once declared itself, attention to the patient's general condition, the preservation of dryness, asepsis, and warmth locally, and the prompt removal of all frankly gangrenous tissue are the therapeutic indications. Later, plastic work may be required to cover areas left bare of integument. Cicatricial deformity of the erectile bodies can be remedied only by time and by such physiological rest or exercise as may suit each individual case.

Tuberculosis.—Tubercular urethritis apart, tubercular ulcers may appear upon the glans or result from infection during ritual circumcision. Senn[1] relates 2 cases illustrating the difficulty of differentiating the lesions of gumma, tubercle, and cancer. The diagnosis may depend upon the pathological examination of a snipping from the ulcer.

Treatment.—Poncet[2] advises internal remedies, aided by the curette or the cautery. This course has proved satisfactory at Senn's hands.

[1] Tuberculosis of the Genito-urinary Organs, 1898, p. 22.
[2] La médecine moderne, 1893, 750.