the sheath loses its elasticity at this point, and whatever of the erectile tissue is involved is, of course, indistensible.

The causes of calcification of the penis are unknown.[1] Injury has no power to produce it. It occurs after middle life, when all calcifications are most common.

Prognosis.—The calcification may cease after more or less of each corpus cavernosum has suffered, or it may involve the whole organ pretty generally. The hard plates and masses of calcareous matter can be distinctly felt on manipulation. Sexual intercourse is liable, finally, to be seriously interfered with, if not prevented altogether. Under these circumstances the patient is often driven to thoughts of suicide, urged on by that morbid depression which always, in the male, accompanies a consciousness of sexual incapacity, be that incapacity fancied or real.

Treatment.—Medicine holds out no hope to the sufferer. If the disease has come to a stand-still and the deposit is superficial and small, it may be removed with the knife—an operation which has been performed with success by Regnoli and by MacClellan.[2]

Chronic Circumscribed Inflammation of the erectile tissue of the corpora cavernosa. This malady is excessively rare, and does not yet appear to have attracted much attention from authors, or to have found its way into text-books.[3] The five appended cases embrace all the experience upon the subject which can be offered.

The disease comes on insidiously without apparent cause, although it is liable to be ascribed to local injury. The patient first discovers that something is wrong, by noticing a slight pain in the penis, at a certain point, when the organ is erect. On examination, he detects a hard, flattened mass, with distinct, sharply-defined margins occupying the substance of one or both corpora cavernosa near the surface, and feeling like cartilage—elastic and springy; not with a bony feel like a calcareous plate. The penis bends, during erection, at the affected point, and along the edge of the hardness a little pain is experienced. The indurated mass, which is of varying size and usually irregularly oval in shape, may remain stationary for an indefinite period (Case VII.), gradually decreasing at last without moving, or progress slowly backward (Case V.) or forward (Case VI.), retaining its size and shape, and disappearing anteriorly at the same rate as it advances toward the root of the penis, or *vice versa.* A slight tenderness is felt along the line of advancing induration, and at all times a little extra uneasiness is produced by pressing the induration between the fingers, as well as

[1] Cretification of products of inflammation is not here referred to.

[2] Velpeau, "Nouveaux Éléments de Médecine Opératoire," Paris, 1839, vol. iv., p. 336.

[3] Acton—"Reproductive Organs"—mentions vaguely two cases of imperfect erection as "strange anomalies." These, as well as three out of four cases reported by H. J. Johnson (*Lancet*, November, 1851, p. 481), as "chronic inflammation of the corpora cavernosa," were probably similar to those about to be described; but the details given are not full enough, in any of them, to justify a positive conclusion.

felt during erection. The disease occurs after middle life. Two of the patients had suffered very mildly from syphilis; the other three presented no symptom of the disease, past or present, on the most thorough examination. Neither gonorrhœa nor stricture has any thing to do with its causation. Specific treatment has no effect upon the induration. The skin of the penis is in no way involved. Although no *post mortem*, so far as known, has disclosed the exact seat and nature of the disease, yet it is undoubtedly, in essence, a chronic inflammation of a peculiar kind, affecting the erectile tissue at a certain point, and so thickening and stiffening the naturally thin walls of the areolæ (probably filling up the interstices with fibrinous exudations) that they cannot be distended with blood during erection of the rest of the organ.[1]

Prognosis.—The prognosis is good. The induration does not seem to tend to spread inordinately, nor does the deposit undergo any degeneration or disorganization. Although none of the five cases has entirely recovered, still they have not been injured by their disease so far as heard from.

Treatment.—Blisters and external irritants seem to increase pain, without promoting absorption. Iodide of potassium and mercury internally are ineffective. Iodine might be tried, and the passage of a stream of electricity (constant) through the mass. Time will, perhaps, effect more for the patient than can be promised him by treatment.

Case V.—In December, 1864, a tall, wiry, healthy man, from the West, came to New York to seek treatment. He was married, had four children, and was fifty-four years old. An induration, measuring three-quarters by one-half inch, oval in shape, could be felt one inch behind the corona glandis in the left side of the body of the penis. No pain was complained of, except slight uneasiness on firm pressure. There was no extra heat locally. The induration had been first observed by the patient three months before. He could assign no cause for its appearance. Since that time it had been advancing steadily backward, getting well in front as it increased posteriorly. The penis curved toward the affected side almost to a right angle during erection. The patient stated that he "once bruised his penis in getting over a fence," and that he had "some disease" of venereal character when a young man, the nature of which could not be positively made out by examination.

Blistering-collodion was ordered, and to repeat. Iodide of potassium internally, and the patient returned home.

In 1868 (four years afterward) he again appeared, to state that the blistering-collodion had caused pain, and increased swelling. The other side (right) became affected. He ceased all treatment for a year, and then improvement commenced. The induration traveled backward, the advancing margin being a little harder and more prominent than the rest of the lump. Slight pain was felt at this margin, but nowhere else.

[1] This description answers in the main to an analogous circumscribed induration, which may occur in the course of tertiary syphilis—in short, gummy tumor of the corpus cavernosum. It is not necessary to devote a section to the consideration of this affection. It corresponds exactly with the foregoing description, except that a gummy tumor tends to remain stationary, to resolve, to break down or to advance in all directions, but not to advance on one side and get well on the other. Furthermore, gummy tumor is dissipated by treatment. Ricord has given a good description of these gummata of the corpus cavernosum. Zeissl believes that they almost always occur in the posterior third of the organ.

All the induration had disappeared from the penis in the points first affected, and had localized itself in a band a quarter of an inch wide at the root of the organ. Erections had been so imperfect that sexual intercourse had been nearly impossible for a year, but now the narrow band at the root only caused the penis to tilt up sharply. The member became fully erect, and intercourse was unimpeded. To improved general health and "the use of the organ" he ascribed his cure. In 1871 (seven years from the commencement of the affection), in response to a letter, exactly the same condition of induration as that which existed in 1868 was reported, with possibly slight improvement. The patient added, further, that he had an older (seventy-seven years) brother living, who was affected precisely as he himself was, though to a less degree, and had been so for a number of years.

Case VI.—In 1871, a gentleman of sixty-three, in robust health, which he had always enjoyed, called to state the following facts: About three months previously, during intercourse, he felt a slight twinge at the root of the penis on its upper surface, which he ascribed to the increased fatness of his wife. Shortly after this, he noticed a slight tenderness in the same locality, accompanied by a ring or line of hardness. This lump had grown but slightly since first discovered and had not altered in situation. There was upward curving of the penis on erection.

Examination revealed a perfectly circumscribed induration, with a cartilaginous feel, lying across the penis at its root (one-half by one-quarter inch), occupying both corpora cavernosa superficially. There was only very slight sensitiveness on pressure. There was no opportunity for even a suspicion of syphilis in the history or in the examination of this patient.

The treatment suggested was, to pass the constant current several times daily from as many elements as could be endured without actual pain, through wet electrodes placed on either side of the induration. In this case, injury would seem to have acted as a cause.

The induration advanced forward along the dorsum penis, a thickened, slightly-sensitive, rough ridge, occupying the advancing border. Posteriorly, the mass diminished in volume. All the uncomfortable sensations became aggravated at night and after standing.

Case VII.—In 1871, a fat, healthy gentleman of forty-six, with three children, also all healthy, was sent for advice about an induration, which had come on insidiously in the substance of the right corpus cavernosum, just behind the corona glandis. It had been discovered shortly before by accident. No known injury had preceded it. During erection there was chordee toward the right side, with a little pain. The induration lay along the right lateral half of the penis and measured one by one-half inch. In all its features it resembled the indurations detailed in the two preceding cases, except that it had not yet been observed to move, and had no raised sensitive border.

This patient had had undoubted syphilis of mild and irregular type. He improved decidedly without treatment, and when last heard from was but little incommoded.

Case VIII.—In 1871, a gentleman of sixty came to complain of a lump on the dorsum penis, the nature of which he feared was cancerous. He had discovered it by accident seven months previously. It had enlarged considerably since first detected. About four months after finding the lump he noticed defective erection, with slight pain at the implicated spot.

Examination reveals a distinct, circumscribed plate of hardness, having a cartilaginous feel, oval in shape, lying along the root of the dorsum penis. A slightly-raised ridge in front is a little painful on pressure and during erection. Its posterior border loses itself under the symphysis. The anterior edge ends abruptly. The patch extends across

both corpora cavernosa, and is evidently situated beneath the sheaths. It measures one and a quarter inch antero-posteriorly, three-quarters of an inch laterally.

Four months afterward the patient returned to say that erections were still more interfered with, rendering intercourse impossible. The lump was extending somewhat anteriorly and laterally.

This case presented no evidence or suspicion of any venereal taint.

Case IX.—In 1872, a perfectly healthy merchant from the West, aged forty-eight, and married seventeen years, presented himself with a hard, semi-elastic patch of induration across the root of the dorsum penis, about one and a half inch each way, the whole giving the idea of two thin plates joined in the middle line of the dorsum, with some mobility at the line of junction. The edges were slightly thickened and sensitive. The induration had advanced forward one inch in six months. Sexual intercourse was not prevented, but some management was necessary in its performance. No possible cause could be assigned.

CHAPTER II.

DISEASES OF THE URETHRA.

Anatomy.—Natural Curve of the Urethra.—Proper Curve for Instruments.—Catheterism; Obstacles to Catheterism in the Healthy Urethra.—Deformities of the Urethra; Imperforation, Atresia, Hypospadias, Hermaphrodism, Epispadias.—Urethral and Sexual Hygiene.—Injuries of the Urethra.—Urethral Fever.—Foreign Bodies.

The urethra is the common duct for the escape of urine and semen, and, in considering its diseases, this double function must not be lost sight of. It is always a shut canal throughout its whole course, except when distended by some foreign substance. Commencing at the neck of the bladder, it tunnels the upper part of the prostate, perforates the triangular ligament, and terminates at the end of the penis. Its size varies greatly, and, like the penis and testicles, it remains comparatively very small until after puberty. Its size is not constant for a given size of penis, a small member being sometimes provided with a large urethra, and *vice versa*. Its length has been estimated at all points between five and fourteen (Pitha) inches. The length varies with the condition of erection or flaccidity of the organ. In may be lengthened by disease (enlarged prostate). In round numbers, the length of the urethra of a well-proportioned adult is eight inches, six lying in front of the triangular ligament (spongy portion), a little less than one inch between this and the apex of the prostate (muscular or membranous portion), a little more than one inch surrounded by the prostate (prostatic portion).

The spongy portion is surrounded throughout by the erectile corpus spongiosum, terminating below in the bulb. Here the canal pierces the triangular ligament—that firm, fibrous fascia, stretching across the space bounded by the ischio-pubic rami—and, becoming membranous, is cov-