The relation of syphilis to aneurism of the large arteries is a question of great interest. Although the influence of the specific virus in its production may have been overestimated, there seems to be good reason to believe that aneurism does occur in syphilitic subjects as a direct result of specific changes in the arterial wall.

CHAPTER XIX.

SECONDARY AND TERTIARY AFFECTIONS OF THE GENITO-URINARY ORGANS.

Syphilitic Epididymitis.

Under the name of syphilitic epididymitis, Dron,[1] in 1863, described an affection limited to the globus major of the testis.

In some cases this affection begins insidiously and is not recognized until "a lump" is felt by the patient; in others, a slight uneasiness attends its formation. Upon examination, we find a small, round, or oval tumor just above the testis, the scrotum itself being unaffected. It usually has a smooth surface and is of a decidedly firm consistency. Its size varies from that of a pea to a lima bean. It may exist in one epididymis only, but frequently both are affected. Such tumors remain in an indolent condition without showing any tendency to degeneration, and they always promptly disappear under mercurial treatment. Other portions of the epididymis or the testicle itself are commonly not attacked simultaneously. I have, however, seen two instances, and Fournier has met with such, in which the globus minor was involved shortly after the globus major. I have also found similar tumors developed in the cord subsequent to the appearance in the epididymis; and others again in which sarcocele coexisted.

This affection is usually a somewhat precocious manifestation of syphilis, occurring in most cases within the first six months and sometimes as early as the second month, or again as late as the fifth year after infection. It is more commonly unilateral when it occurs at a later period. In opposition to the view that it is the result of acute or chronic urethral inflammation, it is only necessary to say that it occurs in syphilitic subjects, some of whom have never had any urethral trouble, and that it is quickly cured by anti-syphilitic treatment. Fournier aptly remarks that probably many cases of syphilitic epididymitis have been wrongly diagnosticated as tubercular. An important point in the diagnosis of this affection is that as a rule it attacks the globus major, whereas in gonorrhœal epididymitis the globus minor is most commonly involved alone.

Syphilitic Orchitis.

A disease of the testicle, dependent upon syphilis, was recognized

[1] De l'épididymite syphilitique; Arch. gén. de méd., Paris, 1863.

by Astruc,[1] who speaks of its indolent character, and contrasts it with the acute inflammation of gonorrhœal testicle; it was unknown to Hunter, but was noticed by Bell,[2] and more recently, has been described by Sir Astley Cooper,[3] Bérard,[4] Velpeau,[5] and others, but our present knowledge of this affection is chiefly due to Ricord, who has given a most faithful description of its symptoms, pathology, and treatment, under the name of syphilitic albuginitis.

Syphilitic sarcocele, orchitis, or albuginitis, as it is variously termed, is one of the so-called transition symptoms of syphilis, on the confines between secondary and tertiary lesions, but more closely allied to the latter than the former. When the constitutional disease runs a rapid course, it may sometimes occur as early as the fourth or fifth month after contagion, while secondary symptoms are still present; but, in the majority of cases, it does not appear until several years after the primary sore, and is accompanied by well-marked tertiary manifestations in the fauces, periosteum, or bones; or, in some instances, it stands alone as the only evidence that the patient is still affected with the syphilitic poison.

Symptoms.—In most cases, syphilitic orchitis attacks both testicles either at the same time or consecutively. Its symptoms are deserving of special attention, since it may readily be confounded with other affections of the testis which require extirpation. The records of surgery show that many testicles have been removed for what is now known to be an essentially curable disease.

One of the most characteristic features of this affection is the almost entire absence of pain attending it, and the great insensibility to pressure; whenever, therefore, a testicle becomes enlarged without any of the ordinary signs of inflammation, in a person who has once had syphilis, there is strong reason to suspect that the disease is due to syphilitic taint. In exceptional instances, a dull pain is felt about the loins, but generally the only uncomfortable sensation is a feeling of weight in the affected organ, which is worse towards evening after the patient has been upon his feet during the day, but which does not undergo the nocturnal exacerbation so common to syphilitic pains situated in the periosteum and bones. Moreover, as the disease progresses, the testicle appears to lose even its normal sensibility, and may be roughly handled without causing the slightest uneasiness.

The body of the testicle, which is commonly alone affected, is somewhat increased in size, but never to the same extent as in encephaloid disease of the same organ; and it rarely exceeds twice its normal diameter. Ricord was in the habit of saying at his lectures, "Whenever you meet with a tumor of the testis as large as your fist, and find that the swelling is not in a great measure due to effusion,

[1] Book III., chap. iv.
[2] Treatise on Gonorrhœa Virulenta and Lues Venerea, vol. ii., p. 128.
[3] Structure and Diseases of the Testis.
[4] Des divers engorgements du testicule, Paris, 1834.
[5] Dictionnaire de méd.

you need not suspect syphilis." In most cases, a small portion of the apparent swelling is dependent upon hydrocele; since in nearly every instance of syphilitic orchitis, there is a slight effusion into the tunica vaginalis. When the amount of fluid is considerable, it may be necessary to evacuate it by puncture with a broad needle, before a satisfactory examination can be made; but in most cases, we may by firm pressure sufficiently displace the fluid to reach the body of the testicle and determine its condition by palpation. At an early stage of the disease, the testicle may be found to contain one or more distinct masses of induration, which form slight projections upon the surface, of the size of the head of a pin, pea, or even an almond, but which are never so prominent as to change the general contour of the organ. These projections are due to an effusion of plastic material, of the same nature as gummy tumors, upon the surface of the tunica albuginea. As the disease progresses, the distinct masses of induration coalesce and form a hard resistant tumor, which still preserves to a great extent the normal shape of the testicle.

In rarer instances, the tumor is smooth throughout its whole course, while the other symptoms remain the same.

The course of this affection is exceedingly slow and chronic, frequently lasting for several years. The sexual desires are not changed, unless the disease has made great progress in both testicles.

When recognized at a sufficiently early period, syphilitic orchitis may almost invariably be arrested, and the organ restored to its original integrity. If left to itself it most frequently terminates in obliteration of the seminiferous tubes, and complete or partial atrophy, corresponding to the extent of the adventitious deposit; or, again, the parenchyma of the gland may degenerate into fibrous, cartilaginous, or even osseous tissue. Ricord has laid down the law that suppuration never takes place in uncomplicated syphilitic orchitis, and has shown that many supposed cases to the contrary were really instances of tubercular disease of the testis, or gummy tumors of the cellular tissue of the scrotum. This law was generally admitted as correct, and was not for a time called in question; but Rollet[1] reported an unquestionable instance of this disease in which the substance of the testicle protruded through an ulceration of the scrotum and the tunica vaginalis and albuginea, giving rise to the condition known as fungus of the testicle; and also quoted a similar case, witnessed by himself, from Jarjavay, and referred to another described by Curling.[2] Victor de Meric[3] reported still another instance of fungus of the testicle dependent upon syphilis. It would appear, therefore, that Ricord's law is not without exceptions.

Pathological Anatomy.—This affection is found to exist in two forms, the diffused and the circumscribed.

[1] Annuare de la syph., année 1848, p. 90.
[2] On the Testis, 2d ed., p. 277.
[3] Lancet, Lond., Am. ed., May, 1859.

Diffused Form.—In the earliest stage nothing is discovered but an increase in the vascularity of the organ. Soon adventitious nuclei and cells appear in the connective tissue, and are followed by fibrous bands, which, starting from the internal surface of the tunica albuginea, permeate the body of the testicle, and cause compression and atrophy of the tubuli seminiferi, the epithelial cells of which undergo fatty degeneration, and are stained of a brownish color by the deposit of pigment. The organ is, at the outset, somewhat larger than normal, and hard and resistant to the touch; but, in the absence of treatment, atrophy is the usual termination, either general, if the inflammation is diffuse, or presenting a cicatricial depression when only a portion of the gland has been affected.

The tunica albuginea is often thickened; the tunica vaginalis contains a certain amount of serous fluid, its walls become covered with false membranes, and often contract adhesions with each other.

Circumscribed Form.—In this form, gummy material is deposited in masses from the size of a pea to that of an English walnut, sometimes scattered through the testicle, at others aggregated, and often surrounded, especially at a late stage, by a fibrous capsule. This deposit originates from the external (muscular) coat of an artery, or from the membrane of a seminal tubule. Its color is grayish or yellowish-white; its consistency somewhat firm towards the circumference, but soft towards the centre; its histological elements vary in different cases, being sometimes entirely fibrous, at other times consisting of cells and nuclei, or amorphous matter mixed with fatty crystals.

The tendency of these masses is to undergo secondary degeneration and softening, which commences at the centre, so that a section frequently exhibits several layers varying in consistency. As a consequence of this degeneration, inflammation of the surrounding tissues may take place, ulcerations of the adherent layers of the tunica vaginalis ensue, and a portion of the deposit projecting through the opening gives rise to the syphilitic fungus of the testicle described by Rollet and others.

Lancereaux figures a case in which both testicles were almost entirely composed of a homogeneous yellowish substance resembling the yolk of a well-boiled egg; the tunica albuginea had undergone the same transformation, and was distinguishable only in spots from the general mass.

The circumscribed form of syphilitic testicle often coexists with the diffuse.

Diagnosis.—Syphilitic orchitis may be confounded with gonorrhœal epididymitis, with cancer, tubercular disease of the testis, or chronic orchitis.

Gonorrhœal inflammation of the testis is an acute disease, attended with severe pain, difficulty of motion, redness, heat, and tension of the scrotum; chiefly attacking the epididymis; often complicated

with inflammation of the vas deferens; preceded or accompanied by a discharge from the urethra; and yielding to simple treatment. The induration left by an acute attack of swelled testicle may be recognized by the previous history of the case, and by being limited to the globus minor of the epididymis.

In cancer of the testicle, which is generally of the encephaloid variety, the pain is slight at the commencement, but increases with the progress of the disease and becomes very severe and lancinating; the tumor is very irregular, grows with great rapidity, and often attains an immense size; and the cord and neighboring ganglia are frequently involved. "If you remove a cancerous testicle, the disease almost always returns in the cord; in a second attack of syphilitic orchitis, the opposite testicle is affected."[1]

Tubercular disease of the testis occurs about the age of puberty rather than in adult life, and in subjects presenting evidences of a strumous diathesis. The adventitious deposit first takes place in the epididymis, or in the centre and not in the external portions of the testis, as in syphilitic orchitis; as the disease progresses, slight protuberances may be formed upon the surface, as in the last-mentioned disease, but they soon contract adhesions with the tunica vaginalis and scrotum, suppurate, and ulcerate. Moreover, evidences of tubercular deposit may often be detected in the vesiculæ seminales by examination with the finger *per anum*, or in the cord and inguinal ganglia.

Great diversity of opinion exists, especially between English and French surgeons, relative to the frequency, nature, and symptoms of chronic orchitis. Mr. Curling, who may be taken as the representative of English views, regards this affection as quite common, and dependent upon a deposit, generally in circumscribed masses, of a peculiar yellow homogeneous substance in the body of the testicle, which frequently terminates in suppuration and benign fungus of the testis. Among the French, Nélaton maintains, justly, I think, that this description applies to true tubercular testis, and that Curling has also included under the head of chronic orchitis many cases of syphilitic albuginitis. He believes, with the generality of French surgeons, that chronic orchitis is an exceedingly rare affection; that it is due to plastic inflammatory infiltration, bearing no resemblance to tubercle, in the substance of the epididymis and body of the testicle, not circumscribed in well-defined masses, often very persistent, but capable of absorption without suppuration; that it often originates in irritation about the deeper portions of the urethra, and sometimes gives rise to a very peculiar condition of the sperm, which is of a reddish color, resembling thin currant jelly.[2]

It is unnecessary to enter more minutely into the details of the differential diagnosis between syphilitic orchitis and the above-mentioned diseases. If attention be paid to their prominent features as

[1] Dupuytren, Leçons orales de clinique chirurgicale, 2e ed., t. iv., p. 236.
[2] Gaz. d. Hôp., No. 14, 1857.

now described, especially when assisted by a knowledge of the history of the case and a careful search for coexisting syphilitic symptoms or traces of their previous existence, the surgeon will not often be left in doubt. If any uncertainty exist, the patient should always have the benefit of a trial of specific remedies before resorting to operative procedures.

Treatment.—In the treatment of this disease Ricord relies almost exclusively upon iodide of potassium, administered in doses of from five to thirty grains three times a day. It would appear that Ricord is here somewhat inconsistent with his own doctrines, since he elsewhere recommends a mixed treatment consisting both of iodide of potassium and mercury in the transition symptoms of syphilis, among which he ranks syphilitic orchitis. In my own practice, I have been dissatisfied with the iodide of potassium alone, and have obtained much more favorable results from its combination with mercury. For instance, in a case under my care, the patient had been taking ten grains of the iodide three times a day during two months for a tubercular syphilitic eruption, when my attention was first called to the affection of the testicle, which had either appeared or certainly had not improved during the treatment. The dose of the remedy was gradually increased to twenty grains three times a day, without affecting the orchitis, which speedily improved after substituting half a grain of the protiodide of mercury for the iodide of potassium taken at noon, and continuing the latter remedy morning and night. In many cases, and especially in broken-down constitutions, it is better to employ mercurial inunction, together with the iodide of potassium and tonics internally.

Local treatment is of secondary importance, and, in most instances, may be entirely dispensed with, except that the testicles should be relieved of their own weight by a suspensory bandage. Judging from the case reported by Rollet, even a fungoid growth of the testicle, projecting through an ulceration of the scrotum, will disappear and cicatrization take place under the use of constitutional remedies alone. The local treatment commonly recommended, and which perhaps in a few cases may be employed with advantage, consists in daily mercurial inunction upon the scrotum, or compression by means of straps of adhesive plaster, as in swelled testicle from gonorrhœa. The effusion into the tunica vaginalis is in most cases soon absorbed under general treatment, but, if excessive, may be evacuated by means of a lancet or broad needle. The danger of wounding the swollen testis is too great to admit of the use of a trocar as in the ordinary method of tapping for hydrocele.

Affections of the Vasa Deferentia, the Vesiculæ Seminales, and the Prostate.

The *vas deferens* is usually intact in cases of syphilitic orchitis, but in a few rare instances has been known to be consecutively involved.

Verneuil[1] met with a gummy tumor of the cord as large as the two fists, extending into the iliac fossa, of firm consistency, and the seat of dull pain; the patient had a similar deposit in the right auricle of the heart.

No instance of disease of the *vesiculæ seminales* dependent upon syphilis has as yet been reported.

Neither is anything definite known of the liability of the *prostate* to be attacked by the later manifestations of syphilis, although Lancereaux regards such occurrence as probable, and states that our knowledge on this point has been obscured by the confusion existing until comparatively a recent period between gonorrhœa and syphilis.

Affections of the Penis.

I have already spoken of a number of cases occurring in my own practice, of what proved to be a deposit of syphilitic tubercle in the penis, especially near the furrow at the base of the glans, and readily mistakable for a chancroid. (See "Diagnosis of the Chancroid.")

According to Ricord, such deposits may also take place in the corpora cavernosa. He says: "A small hard point sometimes appears in one or both corpora cavernosa of a patient in the tertiary stage of syphilis. The patient, without previous pain or other appreciable symptom, suddenly discovers a slight hardness of the size of a millet seed in the substance of the penis. This gradually increases in size, either on one or both sides, without showing any preference for any one point of the corpora cavernosa over another; thus we find it either above or below, or on either side. The progress of the disease is slow and without pain, but soon the penis begins to deviate from a straight line, and presents the following peculiarities: If, for example, there is induration of only one cavernous body, the erectile tissue loses its permeability at the point indurated; if the patient has an erection, the corpus cavernosum on the healthy side alone becomes turgid: the opposite body remains in a state of flaccidity, and the penis has a lateral curvature; the erection might be called an inguino-crural one, since the extremity of the penis points to the fold of the groin.

"If the induration occupies the dorsum of the penis, the latter forms an arc of a circle with its concavity upwards, the glans approximating to the symphysis pubis. I have seen every variety of this affection and have even met with patients in whom the penis formed a complete ring."

It is well to mention that these symptoms are not always due to syphilis; I have known of several instances in which they were produced by injury to the penis in a state of erection, and others still in which the cause was not appreciable, and in which anti-syphilitic remedies failed to afford the slightest relief.

[1] Bull. Soc. anat. de Par., 2e Serie, t. 1er, 1856.