and extensive the lesions may be, the disease will yield to specific treatment.

The views of Rollet[1] are of interest chiefly by reason of their contrast with those of Fournier. Rollet thinks that syphilis of the lungs is indicated by pronounced dyspnœa or even orthopnœa, besides a sense of oppression or pain on deep inspiration. The cough is at first dry or accompanied by bloody sputa. Percussions show a sharply defined region of dulness over the middle lobes, particularly on the anterior and lateral portions. Auscultation gives at first diminished respiratory sounds, and finally the usual signs of phthisis. He alludes to the statement of Grandidier, that in twenty-seven cases the affection involved the middle lobe of the right lung, and adds that conclusions should not be drawn without confirmation of the fact. He admits the diagnostic value of the fact that the upper lobes generally escape. The history of the case is of the greatest importance, and the coexistence of syphilitic lesions, the absence of a phthisical tendency, and improvement under specific treatment are points in the diagnosis.

[1] Rollet, Ueber Lungensyphilis, Wien. med. presse, No. 47, 1875.

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CHAPTER XVIII.

AFFECTIONS OF THE ORGANS OF CIRCULATION.

The Heart.

The heart may be attacked by syphilis in two forms, either as a diffuse myocarditis, or as a gummatous deposit. Changes in the muscular fibres of the heart, analogous to amyloid degeneration of the liver, but not necessarily characteristic of syphilis, may also occur.

Diffuse Myocarditis.—Diffuse or interstitial myocarditis is described by Lancereaux as follows: "At first, the appearance of rounded nuclei in the thickness of the sarcolemma or in the connective tissue; the formation of cells and fibres of connective tissue; vascularity; then at some points fatty metamorphosis of the nuclear and cellular elements, whence arises the yellowish coloration; at the same time and secondarily to the formation of connective material, granulo-fatty degeneration of the muscular fibres, the contents of which may be completely absorbed." This form generally coexists with gummy tumors in the heart.

Gummata.—Gummy tumors of the heart vary greatly in size and number. One has been observed as large as an egg, but they seldom exceed the size of a cherry. They may appear in any portion of the muscular tissue of the heart, but are most commonly found in the wall of the left ventricle. Jullien has collected nineteen cases of gummatous myocarditis, four of which occurred in women. The time after infection at which the disease appeared varied from the first to the eighteenth year. In the majority of cases the affection is coincident with the late lesions of syphilis. An interesting case of the prococious development of cardiac syphilis, in which the autopsy was made by Prof. Loomis, was reported to the N. Y. Pathological society in February, 1876. The patient died with double pleurisy and pericarditis. The muscular tissue of the heart, which was enlarged and dilated, was almost entirely replaced by interstitial cellular deposit. The external evidences of syphilitic infection did not appear until several weeks after the manifestations of cardiac and pulmonary symptoms. Renal and hepatic lesions were also present.

In structure gummata of the heart resemble similar lesions elsewhere. They differ from sarcomata, with whose cellular structure

they are almost identical, in their tendency to cheesy degeneration. Tubercular deposit is always associated with similar lesions of the lungs. These tumors are almost always attended by more or less inflammation of the surrounding tissues. Under the microscope small cells are seen scattered among the muscular fibres, which may be themselves granular; frequently the striæ are destroyed. The heart is enlarged and dilated, and pulmonary congestion frequently results from its impaired action.

Gummatous tumors of the heart seldom, if ever, soften and evacuate their contents. On the contrary, they remain dry or undergo caseous degeneration, while their peripheral tissues become dense and indurated, and slowly contract.

The *endocardium* overlying these tumors is almost invariably inflamed and thickened. Sometimes it becomes much roughened and so dense as to be almost cartilaginous. Vegetations, like small condylomata, often spring from its affected surface, especially near and upon the valves. These conditions must obviously interfere with the current of blood, and may lead to the formation of emboli.

The *pericardium* may also become inflamed, and covered with false membrane. Its cavity may be completely obliterated. Its surface has been found studded with miliary granules, and Lancereaux has reported a case in which a gummy tumor as large as a cherry was imbedded in the thickened pericardium.

The *symptoms* of cardiac syphilis may be obscure or absent. In many cases the heart's action is feeble and irregular; palpitation, dyspnœa, cyanosis, and œdema are sometimes observed. Pain or a sense of oppression in the præcordium may be complained of. Examination may show hypertrophy of the heart, and a murmur may possibly be detected on auscultation. In many cases, however, the diagnosis must be furnished by the general history.

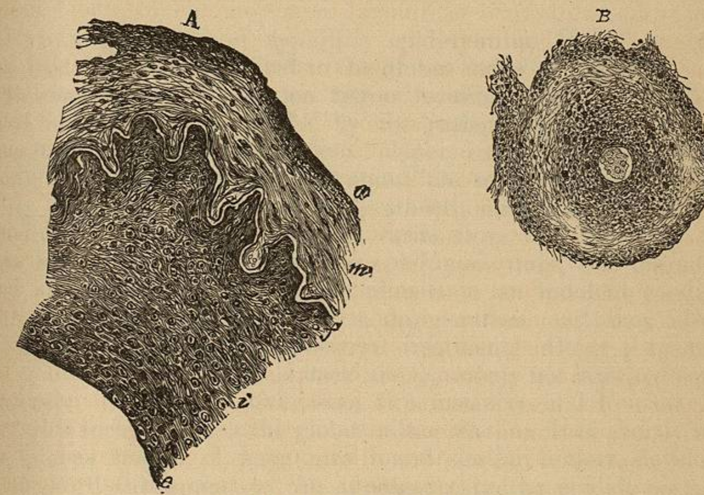
The *prognosis* is always unfavorable, although a cure has been reported in three cases, and doubtless the condition has been entirely overlooked in many others. Death is usually sudden, and may be due to embolus, to cardiac spasm, or to syncope A fatal result may also ensue from secondary complication of the lungs, by which perfect aeration of the blood is interfered with. In two of the cases collected by Jullien, death was preceded by hemiplegia.

The *treatment* comprises the use of iodide of potash, tonics, and stimulants.

The Bloodvessels.

The veins and capillaries are very rarely invaded by syphilis. Two cases of gummy tumor seated in the connective tissue external to the saphena vein have been reported by Gosselin. The syphilitic lesions of the arteries may be consecutive to disease of the surrounding tissue or they may be primary. Lesions of the latter class are found almost exclusively in the small arteries of the brain. In a few cases the carotid has been attacked. The morbid change consists of a circumscribed thickening of the wall of the vessel by an infiltration of small cells, especially into the tunica intima. The lesion is limited internally by the endothelium, and externally by the membrana fenestrata. The cells are round and spindle-shaped, and seem to become developed into an imperfectly fibrillated tissue. The tunica adventitia is abnormally vascular and infiltrated with cells, the infiltration usually invading the muscular coat also. The changes in the arterial wall are well shown in the accompanying figure, taken from Green's pathology.

Fig. 122.



Syphilitic disease of cerebral arteries.

This arterial lesion has been studied especially by Lancereaux, who regards it as quite distinct from atheroma, and in the cerebral arteries by Heubner, Greenfield, and Barlow. The affection differs from simple arteritis in three particulars; it is limited to the small vessels, it is developed rapidly, and it involves all the coats of the vessel. The disease may terminate by the formation of a thrombus, in consequence of the obstruction to the vascular current, or the new cells may be absorbed, leaving the wall of the vessel so thin and weak that it becomes dilated or even ruptured.

The symptoms of the lesion of course depend upon its seat. When the carotid is involved there is impairment of the cerebral functions, pain in the head, epileptiform attacks, and perhaps coma and death. When the disease attacks the cerebral arteries the nervous phenomena are usually more marked. The headache is severe; paralysis, with or without coma, supervenes; aphasia and muscular spasms are observed. Amendment may take place, or delirium with fever and epileptiform convulsions may be developed, and a fatal result rapidly follows.

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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.

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