

metrically. It rarely relapses. One form of syphilitic joint-disease has already been described in connection with syphilitic dactylitis.

Joint affections are rare in syphilis. Richet,¹ Follin,² and others, have given cases. A gummy deposit in the capsule, outside of the synovial membrane, attended by thickening, which may be felt, perhaps movable like a foreign body, and slow effusion into the joint, are the characters of syphilitic synovitis according to Richet, who believes that return of the fluid after absorption is a feature of diagnostic value. There is no fever, pain may be absent, is usually nocturnal when present, and is not aggravated by motion. There is little or no tendency to ankylosis. The knee-joint is the one usually involved. (Case LIII.)

Treatment is often brilliantly effective.

Serpiginous ulcerations around a joint may be attended by stiffening and some effusion into its cavity without actual joint-disease. Richet's second form is articular ostitis. This has been observed in the knee and hip. Here the bone, for some distance from the articulation, is the seat of the disease. There is severe pain, especially at night and on pressure. There is great swelling and a large amount of effusion. The folds of the synovial membrane thicken from a gummy deposit. The cartilages of incrustation become eroded. All the fibrous tissues around the joint may become transformed into a gelatinous-looking, gummy material. False membrane may unite opposite surfaces, and ankylosis eventually result, as in one of Bumstead's³ cases. Undoubtedly this lesion, if allowed to progress, would eventuate in the disorganization of the joint, but treatment may stop it at any stage, as there is no tendency to suppuration. Richet's two forms of joint affection, it will be noticed, correspond roughly with what is observed in the two forms of joint-disease as seen in dactylitis.

Diagnosis.—In white-swelling there is pain in the joint early, the brawny feel extends over the whole articulation, there are no circumscribed hardened patches. The disease goes on to disorganization. The joint loses its movements early. Ankylosis is common. The great elements of diagnosis in syphilitic arthropathy are the history of the case, the absence of pain, preservation of movement in the joint long after it would have been abolished by a similar amount of disease from any other cause.

Treatment is that of late syphilis, with, locally, rest for the joint and any soothing measures suggested by inflammatory symptoms.

SYPHILIS OF BONES.

Symptoms referable to bones occur in secondary as well as in tertiary syphilis. In very exceptional cases even nodes have been observed

¹ "Mémoires de l'Académie," 1853.

² "Traité de Path. Ext.," p. 714.

³ *Op. cit.*, p. 653.

early, upon the cranium, before the appearance of the earliest cutaneous manifestations, and on many of the superficial bones along with the earlier syphilides. These phenomena have been chiefly observed and described by Charles Mauriac.¹ They are undoubtedly local congestions of the periosteum, with serous effusion, but probably not much cell-hyperplasia. They always disappear in a few weeks, leaving no trace, or nothing more than a slight thickening (in Mauriac's thirteen cases). But even admitting all these thirteen cases to have been reliable observations, still the rule would remain, that bone-lesions occur late in the evolution of the disease, exceptions to the contrary notwithstanding. Early in the disease, often with syphilitic fever, occur pains of a peculiar variety, called osteocopic. They may be light, or again furiously intense. Sometimes they are absent altogether. The pains are usually of a boring, splitting character, seemingly seated in the depth of the bone. They may be continuous, but usually remit by day to commence again toward evening, or perhaps not until after nightfall. Sometimes they recur at the same hour nightly. They usually cease at break of day, or perhaps continue on for a while into the morning. When they are continuous, there is almost invariably a nocturnal exacerbation, and this character of the pains, although not exclusively a feature of syphilitic bone-pains, is nevertheless so constant, that the occurrence of pain in the bones, with nightly exacerbations, leads at once to the suspicion of syphilis as a cause. These pains are often relieved instead of aggravated by pressure. The seat of the earlier osteocopic pains is about the joints, and in the head and neck. The shoulders, elbows, and knees, often suffer; the continuity of the long bones less often. The pains may leave one point, to pass rapidly to another. They often cease when an eruption comes out, but may continue long afterward. Usually there is neither heat nor swelling at the painful points, but in exceptional instances nodes have been noticed with the earliest eruptions. Mercury has no relation (of causality) to these earlier pains, which in fact disappear under its use, and are often most severe in those who have not used the mineral.

Positive lesions of bone due to syphilis occur late in the disease, with the late secondary eruptions, or at any time thereafter. The previous exhibition of mercury is in no way responsible for their appearance, since they occur in cases which have never been treated with that metal, and are not encountered upon patients treated mercurially for other diseases, even salivated. Any bone in the body may be affected by syphilis, but certain of them suffer by preference, such as the thin bones of the nose and pharynx, all superficial bones, especially such as are exposed to slight constant injuries, bones of the skull, the clavicle, ulna, tibia, ribs. Several bones are often simultaneously involved. Usually other symptoms of syphilis coexist with the bony lesions, but

¹ "Affections Syphilitiques précoces du Système osseux," 1872.

not necessarily. The lesion may commence from without, an ulcer eating down, exposing the bone and being followed by specific changes in the latter. Ordinarily, however, the changes commence from within. No better classification can be offered than the one adopted by Lancereaux:

- (a.) Inflammatory osteo-periostitis.
- (b.) Gummy tumor of bone.
- (c.) Dry caries (Virchow), atrophic form.

(a.) *Inflammatory Osteo-periostitis*.—The changes in this form commence under the periosteum, and in the Haversian canals of the subjacent bone. The parts become engorged with blood. A sero-glutinous material next appears, which raises the periosteum into an oval swelling, shading off insensibly in all directions. This swelling is called a node. It may be very small, or cover a large area of superficial bone. The skin moves over it, but it is evidently fixed immovably to the bone. It may feel very tense and hard, but is often doughy, or even decidedly fluctuating at first. There may be some surrounding œdema. Nodes are painful to pressure, and often the seat of continuous spontaneous pain, almost invariably worse at night. The pain is aching, acute, throbbing or boring in character. Lesions of the skull often give rise to continual headache. Growing from the inner table of the skull-cap, a node may occasion nervous symptoms, epilepsy, paralysis, etc., or, developing around an emerging nerve, neuralgia, or local paralysis, or in the spinal canal occasion paraplegia.

Nodes, if treated early, promptly subside, otherwise they increase rapidly in size, and may soften centrally. In such cases the skin over them first becomes adherent, then red and œdematous, finally gives way, leaving an open characteristic syphilitic ulcer, with diseased, carious, or necrosed bone at its base (carious ulcer). Portions of bone come away, the ulcer does not extend, but finally cicatrizes, leaving an adherent, depressed scar surrounded by an hypertrophied hardened ridge of bony tissue of new formation.

Instead of thus softening, the node may go on to bony organization, forming exostosis, or leading to permanent general thickening of the normal bony tissue (parenchymatous exostosis). Exostoses once formed, do not disappear. Partial absorption may ensue, but treatment fails to remove the bony ridge, or interstitial thickening, which remains behind, to serve as an important landmark to the surgeon of the previous visitations of the disease.

Epiphysary exostosis is a bony tumor or ridge, which, forming separately, subsequently becomes firmly attached to the bone. They are prominent or flat, of different sizes and shapes, and may be attached to the bone only by a peduncle.

Diagnosis.—It is hardly possible to confound the oval, painful, boggy or hard bony lesion, known as a node, accompanied by its noc-

turnal exacerbations of pain, with any other lesion. Ostitis with parenchymatous thickening is less positive in its characters, but the history of the case, nocturnal pains, and concomitant or antecedent syphilitic symptoms, rarely leave the diagnosis doubtful.

(b.) *Gummy Tumor of Bone*.—Gummy tumor develops either under the periosteum, in the substance of the bone, or in the medullary canal. It is simply an intensification of the process found in the inflammatory form already described, the difference being that the cell hyperplasia is more luxuriant. Much of the new material (gumma) collects in a circumscribed space, and, being more rapidly formed and less capable of organization, it entails more profound lesions by its retrograde metamorphosis. Gummy tumor of bone is therefore a much more serious and inveterate form of disease than syphilitic osteo-periostitis.

Gummy tumors of the periosteum are circumscribed swellings with a fixed base, usually soft and fluctuating, containing a yellowish-white, thick material, resembling a solution of gum-arabic. Like gummy tumors elsewhere, they tend to soften, the skin reddens, inflames, ulcerates, and the broken-down gummy material escapes, leaving behind an ulcer with diseased (necrosed) bone at its base. Sometimes gummy tumor becomes incrustated with calcareous salts, and remains as a permanent swelling, a sort of exostosis.

Interstitial gummy tumor acts differently in the long and in the flat bones. In the long bones, the medullary canal is usually the seat of deposit, which continues through the bony tissue. The bone becomes hypertrophied in a porous manner, the Haversian canals and canalicules being enlarged and filled with gummy deposit, either fresh and gelatinous, or in different stages of degeneration, yellow, white, cheesy, and pultaceous. Thus a portion, or the whole thickness of the bone, may enlarge. In the flat bones, such as especially the cranial bones, the cancellar tissue is attacked (the diploë), where gummy material collects in greater or less abundance, separating the two tables of the skull, and eventually often involving one or the other of them in necrosis, or in caries. Gummy tumors of bone are often exceedingly painful, especially during the nocturnal exacerbation. Although absorption may take place, or calcification, or ossification, yet there is a certain marked tendency to rapid softening of the deposit, and consequent caries, or, more often, a cutting off of a portion of the cortical layer of a bone by the softening of a deposit of gummy material, which underlies and has infiltrated it. By the coalition of many distinct foci, great destruction of tissue may result, large portions of the skullcap, the whole frontal bone (either table or both), large portions of the sides or back of the skull, may necrose and come away, or be removed, leaving the dura mater exposed. In connection with necrosis of the inner table, and accumulation of softened gummy matter in contact with the dura mater, brain-symptoms may occur. Such necroses are common on the skull, and not

very rare on the other superficial bones, tibia, ribs. A syphilitic sequestrum is usually worm-eaten, and perforated by many holes, where the gummy material in its deposit has encroached upon or perforated the portion which is thrown off, instead of being smooth on its external surface, as would be a sequestrum from other cause. Synchronously with the separation of the sequestrum, the edges of the bone at and beyond the line of demarcation become thickened, elevated, eburnated, so that after the healing of the ulcer a characteristic cicatrix is left, with the skin adherent, edges hard and raised by an excess of bone, centrally depressed, and filled by fibrous cicatricial tissue.

(c.) *Dry caries* has been well known since the publication of Virchow's accurate investigations upon it. Virchow¹ believes dry caries to be occasioned only by syphilis. The affection is rarely found elsewhere than upon the cranial bones. Either or both tables may suffer. The frontal and parietal bones are most often involved. The affection is indeed a miniature gummy otitis. Around one of the vascular canals of either table of the skull gummy matter is deposited at the expense of bony material. The same change occurs in the lateral vascular canals leading to the vertical canal. The gummy material is finally absorbed, leaving a stellate indentation. This goes on until a funnel-shaped depression is formed, its point leading into the diploë. If, now, the points of two such funnel-shaped cavities coincide, the cranial bone may be perforated. While this atrophic process is going on centrally, new bone is being formed peripherally, both on the surface and in the diploë; thus eburnation of all the surrounding tissue occurs, with hyperostosis superficially. In fact each worm-eaten, depressed, funnel-shaped spot of caries sicca is a miniature syphilitic bone-scar. The feature of caries sicca, however, is that in it there is never any sequestrum, any formation of pus, or any implication of the skin. The symptoms of its existence are local pain, without swelling. The cicatrices (of bone) left behind are pathognomonic of syphilis. They may be plainly appreciated through the scalp by the finger.

Treatment is that of late syphilis.

SYPHILIS OF CARTILAGE.

The cartilages affected by syphilis are only those which are surrounded by perichondrium. Cartilage of incrustation may become eroded, but only in connection with neighboring gummy deposit, either in the fibrous capsule of the joint, or in the articular ends of the bone. Tertiary disease of the larynx commences as a gummy perichondritis, or possibly as a muscular gummy tumor, involving the cartilage secondarily; so of the cartilages of the nose. Lancereaux gives a case of laryngeal perichondritis leading to necrosis of cartilage, local gangrene, and (the accident) subsequent fatal pyæmia. Syphilis of the larynx will

¹ "Ueber die constitutionnelle Syphilis," 1859.

be described with the air-passages. Gummy tumor sometimes develops upon the costal cartilages, leading to necrosis. These gummata tend to soften, and behave exactly like similar formations originating under the periosteum of superficial bones.

Treatment is that of late syphilis.

SYPHILIS OF LYMPHATIC GLANDS.

Besides the indolent glandular enlargements encountered in secondary syphilis, and already alluded to at length (p. 551, *et seq.*), occasionally these glands become the seat of gummy deposit in tertiary disease, especially in strumous young subjects. Under these circumstances they enlarge painlessly, soften, break down, and discharge, leaving a chronic, atonic, gummy ulcer, which is usually regarded as "strumous," and is very slow to get well. These ulcers look like chancroids. They have, however, hard, adherent edges, and a gummy, false membranous bottom. They occur chiefly about the neck. Such lesions leave puckered, ridged, adherent cicatrices, usually with an areola of pigment around them; possessing, in short, the characteristics of the strumous as well as of the syphilitic scar.

The deep lymphatic glands suffer habitually in connection with visceral syphilis, but these never suppurate. They may be affected alone, the viscera escaping. Either interstitial adenitis takes place at the expense of the connective-tissue parenchyma, by which the gland-cells become pressed upon and atrophied, and finally, by shrinkage of the new-formed connective tissue, the whole gland becomes sclerosed, contracted, and seemingly composed entirely of connective tissue, or a quick proliferation of cells takes place, incapable of organizing (gummy material), the gland becomes plump and large, at first firm, then soft, as the gummy material softens, undergoing its retrogressive changes. Finally, a mass of cheesy degeneration alone is left, perhaps calcified. According to Lancereaux, the glands are often found increased in size in their long diameter, mainly of reddish color, soft and of brittle consistence, more or less cheesy. The deep ganglia most commonly affected are the prevertebral, lumbar, iliac, and femoral; next the bronchial and mediastinal. The mesenteric glands rarely suffer, least often the glands of the extremities.

These deep glandular alterations sometimes exist without symptoms, but symptoms may be caused by them in two ways: First, mechanically, by interfering with function (the discharge of bile, thus occasioning icterus); second, in all probability, by interfering with blood-elaboration, thus holding a large share in the production of cachexia.

SYPHILIS OF THE MAMMARY GLAND.

Mucous patches, as well as all the cutaneous lesions, appear upon the breast, but the mammary gland itself may also be involved in syphi-

lis. Syphilis attacks the mamma in the same two ways in which it affects all glands:

- (1.) As a diffuse interstitial parenchymatous inflammation.
- (2.) As distinct gummy tumor.

(1.) *Diffuse syphilitic mastitis* is observed in both sexes. Ambrosoli¹ reports three cases; one in a male, the others in females. The gland swells, becomes slightly painful and tense. The skin remains unchanged. No separate tumor is formed. All the cases observed have occurred during the secondary period shortly after cutaneous eruptions. A few indolent ganglia may be found in the axilla. The affection disappears without leaving any trace.

(2.) *Gummy Mastitis*.—Riche² mentions a tumor of the breast which he believed to be scirrhus. He prepared to extirpate it, but, finding by accident a tumor in the patient's calf, he paused, reflected, administered the iodide of potassium, and both tumors disappeared. Gummy tumor is rare in the breast, and when found there usually co-exists with gummy tumors or ulcers elsewhere. It forms with little or no pain, may attain a large size, and then degenerates and discharges externally (when it is liable to be mistaken for cancer), or is aborted. Mastitis is usually bilateral. The course of the disease and its attendant specific history serve to distinguish it from other benign or cancerous mammary enlargements.

CHAPTER XI.

VISCERAL SYPHILIS.

Syphilis of the Vascular System.—Syphilis of the Respiratory System.—Syphilis of the Digestive System, including the Tongue and the Great Abdominal Glands.—Syphilis of the Peritonæum, Thyroid, and Thymus.—Syphilis of the Genito-Urinary System.

SYPHILIS OF THE VASCULAR SYSTEM.—Of the circulatory organs, the heart most frequently suffers; the arteries next, while no authentic case of syphilitic lesion originating in the veins has been reported.

SYPHILITIC PERICARDITIS has been very rarely observed. Wilks, Virchow, and Lancereaux, have seen cases. The affection is tertiary, and is either a diffuse pericardial infiltration or a circumscribed gummy tumor. It rarely occurs except in connection with specific myocarditis. It does not seem to occasion any considerable febrile or other disturbance, and the diagnosis is usually made after death.

MYOCARDITIS due to syphilis is either diffuse or circumscribed (gummy tumor). The two forms may occur separately, but usually

¹ Quoted by Lancereaux.

² "Traité d'Anatomie Medico-Chirurgicale," fourth edition, 1873, p. 330.

coincide. The diffuse form consists in cell-proliferation, attended by hyperæmia and formation of new connective tissue, then destructive metamorphosis with absorption. A yellowish coloration in patches is produced by the fatty changes in the new growth; finally portions of the muscular tissue disappear by absorption.

In the gummy form circumscribed tumors of small size appear, preferably in the ventricles where the muscular wall is thickest. The surrounding tissue is the seat of diffuse myocarditis; the walls of the heart thicken; its cavities enlarge; its muscular power is impaired. The valves usually escape. The endocardium and pericardium may both be involved. These heart-lesions are rarely detected during life. Lancereaux diagnosticated a case which got well under the use of iodide of potassium. The course of the disease is long, its beginning insidious.

Symptoms are: increase of size in the heart, enfeeblement and irregularity of its action, palpitation, finally asystole; sometimes præcordial pain and distress, a little dyspnoea, some turgescence of the vessels of the neck, sometimes slight œdema of the lower extremities, rarely any valvular murmur.

Diagnosis.—A syphilitic history, the coincidence of other tertiary phenomena, the usual absence of evidence of valvular lesion, are the main features of a differential diagnosis. Sudden death is the most common termination, but, if treatment be commenced before the muscular tissue of the heart has been materially altered, there is every reason to believe that a cure may be effected.

Treatment is that of late syphilis.

SYPHILITIC ARTERITIS.—The arterial walls are subject to gummy infiltrations, either diffused between the coats of the artery for some length, thickening the same and thus decreasing the calibre of the vessel, or developing as a distinct tumor in the vessel-wall. Both forms have been observed. In the larger vessels fatty metamorphosis of the new tissue occurs, with calcification leading to atheromatous patches; in the smaller vessels obliteration of the calibre may ensue. Aneurism may owe its origin to the weakening and softening of the arterial wall by degeneration of gummy deposit, or the vessel may give way, allowing an apoplexy to occur. Weber has a case of pulmonary apoplexy.¹ Any artery may suffer, but the carotids and arteries of the brain most commonly. An accurate diagnosis of these lesions has usually been made after death, as no symptoms during life are pathognomonic of their existence. They are a not very infrequent cause of brain-symptoms, by cutting off the supply of blood. Their presence may be inferred in many cases of aneurism in patients with old syphilis.

No diseases of the veins have been observed. Lancereaux states of the capillaries that their external tunic is the habitual point of origin of

¹ Quoted by Lancereaux.