

on, either in one or both eyes, may be affected, or there may be a triple paralysis, when, between the two eyes, the third, fourth, and sixth are all affected. The paralysis of the ocular nerves may be also associated with that of other nerves, notably the facial.

Owing to the great importance of these ocular troubles and their symptoms in regard to the early diagnosis of cerebral syphilis, praiseworthy attempts have been made to put the cause of their greater frequency in syphilitic affections upon an anatomical basis. The principal reasons for which are as follows: In the first place, the ocular nerves, before entering the orbit, run for a great distance along the base of the brain in contact with the investing membranes and bony surfaces, in a region which is the place of selection of all others for syphilitic inflammations and their products, such as neoplasms, gummata, and sclerosis, by which these delicate nerves may be surrounded and compressed; and especially does this refer to the third pair, which is even more apt to suffer than the rest, from its relation to the interpeduncular space, which has been shown to be the seat of predilection of intracranial syphilitic hyperplasia.¹ But besides these changes, which lie at the base of the brain, modern investigation has shown, by clinical observation and by autopsies, that what have been called nerve-centres exist in the cortical substance of the brain, so that localized lesions in the gray matter may produce a paralysis of a nerve or its branches, over which the particular centre presides. And, as disease of the cortex is frequently the result of syphilis, the connection between the lesion and the paralysis is a very probable one. This mode of origin would also explain the curious limitation of the paralysis to a single muscle, instead of the entire group over which the nerve presides.

The surgeon should carefully avoid confounding paralysis of the sixth pair with converging strabismus. The two may readily be distinguished by the fact that, in the former, the patient is unable, under any circumstances, to turn the eye outwards; while, in the latter, if the straight eye be covered, the squinting eye resumes its normal direction.

The treatment of paralytic strabismus, resulting as it so often does from syphilis, is one of the most difficult problems offered to the ophthalmic surgeon, not only in regard to the fact whether, after all other remedies have failed, an operation should be done, but also as to the choice of the operation—whether, in fact, advancement of the paralyzed muscle with a tenotomy of the antagonist should be done, or a simple tenotomy of the opposing muscle with the use of the suture, as proposed by Knapp, to increase the effect? I must again refer the general reader to special treatises on the subject,² merely remarking here that the effect of a tenotomy is often surprising, and

¹ La syphilis du cerveau, p. 372 et passim, 1879. Par A. Fournier.

² Among others see a paper entitled, "The Modern Operation for Strabismus," E. G. Loring, Transactions of the New York Academy of Medicine, 1874, p. 161.

that I have known a paralytic squint from syphilitic causes, which had resisted all the therapeutical means known to modern syphilographers, cured at once by a simple tenotomy.

Dixon¹ relates two highly interesting cases, in which examination after death revealed the existence of tumors in the substance of the nerve. The paralysis is sometimes, though rarely, due to disease of the bony passages, or their lining membrane, traversed by the nerve, and has also been traced, upon post-mortem examination, to softening of the nervous or cerebral tissue. Virchow² quotes a number of cases dependent upon the last-mentioned cause.

HEREDITARY SYPHILIS OF THE EYE.

That the effects of acquired syphilis in one generation may be transmitted to the following, and there manifest themselves in symptoms analogous to, though perhaps not exactly identical with, those of the acquired form, there can be little or no doubt. Thus the skin of the eyelids may be the seat of eruptive diseases, and the deeper-lying tissue the site of infiltrations or destructive secondary ulcerations, with or without a coexisting adenitis of the pre-auricular and submaxillary glands. Moreover, the hereditary syphilitic taint may manifest itself, so far as the eyeball itself is concerned, in every form of inflammatory action, from a muco-purulent conjunctivitis to keratitis, iritis, choroiditis, and even retinitis and neuritis, all of which have been described already under their appropriate headings. Indeed, so general and numerous are the varieties of ocular disease which the poison produces, that it has been claimed that where the result was so general the cause could not be individual and specific; and it was consequently argued that when these various manifestations occurred in broken-down and debilitated constitutions, they were due to the depraved condition of the general system, rather than the result of a particular morbid infection. Also it was brought forward as a proof of this, that in the vast number of troubles of the eye there were but two that had any claim to having any individual and characteristic features,—specific iritis and keratitis; and that even these two forms of disease might occur, with all their so-called distinctive features, in cases in which there was not a trace of any hereditary taint whatever. The weight of evidence is, however, against such a reasoning, and in favor of a definite and distinctive cause.

In the first place, these troubles occur in the hereditary varieties at a very early age, which in the non-hereditary forms only do so at a period very much later. And especially true is this with infantile iritis and other troubles of the uveal tract; and it may be laid down as a rule, that the earlier a disease common to adult life makes its appearance, the more likely it is to be hereditary. Moreover, in favor of its hereditary nature is the frequency in which pre-existing

¹ Medical T. and Gaz., Lond., Oct. 23, 1858.

² Syphilis constitutionnelle, p. 129, *et seq.*

disease of a syphilitic nature is shown to have occurred in one or both of the parents, as indeed is also the fact of coexisting manifestations in other parts of the body of the parents or child—manifestations which are peculiar to syphilis and not to struma or other diatheses, such as peculiar eruptions, erosive ulcerations, nodes, and fissures. To which may be added also the fact that it is the eldest child, or the one born next subsequent to the infection of the parents which is markedly predisposed to be affected, the frequency of the attack and the force of the symptoms decreasing in the later-born children, and, finally, the peculiar physiognomy.

Such evidence as this, and much more of a similar character, has led syphilographers, notably Mr. Hutchinson, to believe and to declare that these ocular troubles, when occurring in young persons, are almost always the result of an hereditary taint due to a specific virus—a conclusion most important in a clinical point of view, as upon it the proper treatment depends.

CHAPTER XXV.

AFFECTIONS OF THE EAR.

WITHIN the last few years much light has been thrown upon this subject by a number of observers, among whom may be mentioned Gruber,¹ of Vienna; Schwartz,² of Halle; Stöhr,³ of Würzburg; and Roosa,⁴ Buck,⁵ and Sexton,⁶ of New York, and this chapter is, for the most part, a compilation of their labors.

It may be remarked at the outset, that cases of syphilitic disease of the ear, or those recognized as such, are rare. Thus Buck has met with only 30, out of a total of 3976 cases of ear affections, or a little over three-quarters of one per cent., but, as stated by him, the actual percentage is probably much larger, owing to the difficulty of recognizing the syphilitic element, and the tendency of patients to conceal the fact that they have had this disease. There are, indeed, in most cases, no absolute diagnostic symptoms which enable us to distinguish an affection of the ear dependent upon syphilis from one due to a non-specific cause.

EXTERNAL EAR.—The only instance, so far as I am aware, of the occurrence of a chancre upon the external ear, is reported by Alb. Hulot.⁷ There is no reason, however, except the less frequent exposure, why chancres should not be as frequent here as on other portions of the external integument. This region is not unfrequently the seat of secondary manifestations. Syphilitic papules are met with in the post-auricular angle and upon the lobule of the ear, while the macular syphilide is most frequent on those portions supported by cartilage, as the fossa navicularis and the concha.

With patients in the early secondary stage, we often find impacted cerumen, not directly due to the action of the syphilitic virus, but consequent upon the well-known changes in the activity of the glandular apparatus of the skin, which obtains generally at this period. This fact was mentioned by Astruc as early as 1740.

The most frequent syphilitic manifestation, however, in the external auditory canal, consists of broad condylomata (mucous patches),

¹ Ueber Syphilis des Gehörorgans, Wien. med. Presse, 1870, 1, 3, 6, 10.

² Arch. f. Ohrenh., Würzb., 1870, 130, 134, 135.

³ Arch. f. Ohrenh., Würzb., Bd. v., s. 139.

⁴ Syphilitic Affections of the Ear, Am. J. Syph. and Derm., N. Y., 1871, p. 97.

Also Treatise on the Ear, 4th ed., 1878, p. 521.

⁵ Am. J. Otol., N. Y., vol. i., p. 25.

⁶ The Sudden Deafness of Syphilis, Am. J. M. Sci., Phila., July, 1879.

⁷ Ann. de dermat. et syph., Paris, t. x., 1879, p. 47.