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CEREBRO-SPINAL MENINGITIS AND THE SPHENOIDAL SINUS.

FOR some time past it has been generally recognised that the usual habitat of the meningococcus intra-cellularis of Weichselbaum—the causative organism of cerebro-spinal fever—is the naso-pharynx, and that its extension to the meninges is only an occasional happening. It is to this circumstance that the seemingly haphazard and irregular incidence of epidemics of cerebro-spinal fever may be traced. The patients who develop the meningitis obviously constitute but a small number of those who are attacked by the organism, so that the epidemic infection is much more widely distributed than the number of cases of meningitis would lead us to suppose.

Before these discoveries were made, efforts at isolating sufferers from the meningitis must have had little or no effect in checking the spread of the disease. But recent investigation, a summary of which we publish at p. 295 of the present issue of the JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOLOGY, has enabled us not only to lay our hands upon those carriers of the disease, but also, by suggesting suitable local treatment, to cure their naso-pharyngeal infection and so to render them innocuous. In which respect we are more fortunate than we are when dealing with the carriers of typhoid and diphtheria germs, the permanent expulsion of which from the carriers is always difficult and sometimes impossible.

While that amount of progress could be recorded, however, much doubt was felt as to the route by which the organism could reach the meninges from the naso-pharyngeal spaces in those subjects who developed meningitis; on the one hand, the blood-stream, and on the other, the local lymphatic vessels being looked upon as the more likely by the different writers on the subject.

Here the matter rested and progress was stayed until opportunity was afforded of an investigation of the pathological phenomena by Major D. Embleton and Capt. E. A. Peters, the latter of of whom is an experienced oto-laryngologist. From the material at their disposal these workers have been able to demonstrate[1] to their satisfaction that in epidemic cerebro-spinal meningitis there is a meningococcal infection of the sphenoidal sinus, and that the organism when it reaches the intra-cranial structures does so by traversing the bone between the sinus and the meninges, setting up an osteitis in its progress. Thus the hitherto concealed link in the chain of events has now become exposed to view.

Dr. Peters, who has furnished us with an interesting note on the intra-nasal appearances in meningococcus infection (see p. 267), suggests that the sphenoidal sinus disease tends to lead on to meningitis if the sinus ostium becomes blocked—that is to say, that the best method of preventing the more serious development in simple meningococcus nasal and naso-pharyngeal infection is to provide free drainage of the sphenoidal sinus in the manner familiar to the modern rhinologist.

The special liability of children to the meningeal complication is explained by the readiness with which the thick mucosa of a child's nose swells up and blocks the orifice of the sinus.

Dr. Peters has taken the further step of opening up and washing out the sphenoidal sinus after the meningitis has developed, and, although the case in which this treatment was first tried did not recover, nevertheless this is obviously the proper treatment to adopt, just as otogenic meningitis demands not only the drainage of the meninges, but also the ablation of the focus of infection in the temporal bone.

If these findings prove to be well established—and we have every confidence that they will be—then the discovery will undoubtedly turn out to be one of the utmost importance and utility in the prevention and treatment of an epidemic disease, the extensive prevalence of which has recently given rise to justifiable disquietude, and even apprehension.

[1] See p. 296 of this issue.

There is another aspect of the discovery which we cannot refrain from mentioning, and that is that it proves beyond all doubt the importance of furnishing our new armies with expert oto-laryngologists. It has been whispered that the War Office authorities, *more Britannico*, have so far appointed very few oto-laryngologists as such. This may or may not be the case. But if there should be any foundation for the rumour, then those who are urging the claims of our speciality to a full and adequate recognition can cite no fact more strongly in favour of their contentions than this advance in our knowledge of cerebro-spinal meningitis, an advance which we owe, partly at all events, to the oto-laryngologist at the Royal Victoria Hospital, Netley.

NOTE ON THE NASAL CONDITIONS OF CEREBRO-SPINAL MENINGITIS.

By E. A. Peters, Ty. Capt., R.A.M.C., M.D., F.R.C.S.

The local nasal conditions obtaining in cerebro-spinal fever are not very striking on rhinoscopic examination, but on probing the sphenoidal sinus two types may be recognised:

A. Those in whom the sphenoidal sinus are patent.

B. These in whom one or both sinuses are closed.

A. Case P—— was admitted to the mental block at Netley with some delirium, a slightly raised temperature, Kernig's sign, and headache. A swab from the throat proved to be negative, as also did the first lumbar puncture. A second lumbar puncture yielded fluid, which contained some polynuclear cells. The patient was accordingly isolated and the orderlies in contact swabbed. Eight of the fourteen orderlies gave positive plates. No source of infection other than P—— was traced. The patient's temperature fell, and his progress in convalescence was soon established. On rhinoscopic examination nothing abnormal was noted except a little mucus near the ostium of the left sphenoidal sinus. A cannula fitted with a style, which was capable of being protruded when the instrument had entered the sinus, was passed through the nose and plates spread with the endosphenoidal mucus which was procured from both sinusæ. Major Embleton and Lieut. Ewing pronounced the plates to be free from meningococci.

Type B. Case W. I——.—The early history of this case was recounted in an article by Major Embleton and myself in the

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