FRONTO-NASAL ENCEPHALOCELE.*

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Encephalocele, or Hernia Cerebri, has interest for the rhinologist, when it appears at the root of the nose. This interest is increased by the fact that to present itself in this region it probably must first enter the nasal cavity through the cribriform plate of the ethmoid whence it protrudes externally through a fault, or failure of development, in the nasal bones. This course for the hernia would be anticipated from the anatomy of the region and is proven by the records of post-mortem examination in reported cases.

Cerebral hernia is of rare occurrence and that appearing anteriorly is especially rare. Mittendorf¹ refers to ninety-three collected cases of which only sixteen were of fronto-nasal origin. One of the theories of cerebral hernia assigns as a cause a failure of development in the cranial bones, and if the tumor appears at the root of the nose a failure in development in the nasal bones as well, with a consequent protrusion of cerebral contents. Another theory ascribes the cause to hydrocephalus occurring in the foetus, when the yielding structures of the cranium are not able to withstand the pressure of the accumulating fluid. Still another suggests the prolapse of a fold of the dura through a sutural gap before union of the bones has taken place. Chamberly² who gives a full report of one of these cases together with pathological findings, sensibly suggests than in a given case doubtless more than one of these causes unite to produce the defect. In none of the recorded cases, do I find reference to a nasal examination; but from the reports of the findings on post mortem, it is probable that the tumor could have been seen in the upper portion of the nasal cavity had examination been made. In two of these cases the record shows that the hernia left the cerebral cavity through an opening in the anterior portion of the cribriform plate of the ethmoid bone, and appeared externally through defects in the nasal bones. In Chambrey's case, the opening in the cribriform plate was of the size of a franc piece; and in Demme's case³ the tumor being centrally located, the opening

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1 *Med. Rec.*, 1890, vol. 37, p. 374.

2 *Bul. Soc. de Anat. et Physiol. de Bordeaux.*, 1886, vol. viii, pp. 66-72.

3 *Med. Ber. u. d. Thaetigk.*, vol. xiii, pp. 65-67, 1 pl.

through the nasal bones was $2\frac{1}{2}$ cm. long and $\frac{3}{4}$ cm. broad. These cases fell into the hands of general surgeons, and in neither of them is reference made to nasal symptoms. In one there was partial blindness from the overhanging masses of the tumor, and in the other from atrophy of the retina, due to pressure.

My own case differed from any I have been able to find recorded, in that the symptoms were almost wholly nasal. On September 20th, 1905, Mrs. C., referred to me by Dr. Sweet of Springfield, brought to my office an infant aged 11 months. The child did not appear to be in vigorous health yet was fully developed and would not attract especial attention because of any deviation from the normal, except for the fact that there was a small swelling over the right nasal bone. This prominence was present at the birth of the child and was diagnosed as a cyst. Relief was sought because of obstruction to nasal respiration in the right fossa, and because of catarrh also referred to this fossa. This complaint of catarrh deserves especial mention because of subsequent developments. The mother stated that a clear watery fluid seemed constantly present in the right fossa. This did not flow from the nostril to any extent because of the blocking of the vestibule, but evidently drained backward into the child's throat. About three months previous to this time, according to the history given, polypi had been removed from this side of the nose giving temporary relief, but since the recurrence of the growth the symptoms were more troublesome than ever. The right fossa was found to be completely occluded by a neoplasm projecting in the vestibule. The color and character of this tissue suggested malignancy, and I proposed operation under ether. The mother readily consented to this and stated that she wished Dr. Sweet, who is a surgeon, to remove the external tumor over the nasal bone at the same time. The child was taken to the Springfield Hospital, and on the morning of September 26th, 1905, was etherized. I suggested to Dr. Sweet that it would be wiser to do the intra-nasal work first, that the external wound and dressings might be free from the possibility of disturbance. The neoplasm was found to extend into the fossa to a depth of $\frac{1}{2}$ inch and was apparently attached to the outer wall, near the anterior end of the inferior turbinate. The small mass was removed with a cold wire snare and the supposed pedicle trimmed down smoothly with a pair of cutting forceps. Examination now of the deeper parts of the fossa by reflected sunlight, revealed to my great surprise, a globular tumor at the level of the middle turbinate, about $\frac{5}{8}$ of an inch in diameter,

perfectly smooth, of a grayish color and semi-translucent. The removal of the neoplasm filling the vestibule had evidently lessened the pressure on this mass and the external swelling was observed to be less prominent. Pressure made with a cotton-tipped probe against the globular tumor within the nose caused an increase in size of the external one, while pressure with the finger externally was conveyed to the mass within. Diagnosis of cerebral hernia was made, and as no operation promised relief for the case, nothing further was done. Nasal respiration was restored and as the external tumor was less pronounced, the parents were much pleased with the results of the operation. Dr. Sweet and myself were less happy. After the removal of the small mass which occluded the vestibule cerebrospinal fluid dripped constantly from this nostril at the rate of about four drops a minute. The child became ill on the fifth day and at the end of two weeks died of meningitis. The following is a report by Dr. Jonathan Wright to whom a section was submitted: "It is difficult to make out from these sections the nature of the growth. I am disposed to think, however, that it is an oedematous polyp. I see nothing malignant in it." A few days later after further history he wrote: "With your further history I should think very likely the tissue is a part of the meninges as it contains more fibrous tissue and cellular elements than an oedematous polyp. At one point the tissue is covered by columnar epithelium. The stroma itself is so macerated and the cells so shrunk it is difficult to be sure of anything, except that it is probably not a neoplasm of any kind."

This case is submitted as a curiosity rather than because such lesions contain practical possibilities of relief at our hands. The rate of mortality from operation upon cerebral hernia is high, though less so than before the days of asepsis, and a recurrence often follows, even when the primary operation is successful. If the protrusion is into the nasal cavities the idea of operation is not to be entertained.

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