

### LXIII.

## THE INFLUENCE OF THE NOSE ON EYE AFFECTIONS AS EVIDENCED BY A CASE OF BILATERAL BLINDNESS AND ONE OF UNILATERAL SCINTILLATING SCOTOMA CURED BY OPERATIONS ON THE ETHMOID CELLS.\*

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Although many reports have been made showing the influence of the accessory cavities of the nose in the production of serious ocular disturbance, we are still in the dark as to the manner by which the condition results.

Furthermore, we do not know why it is that the affection occurs in one instance, when in what appears to the observer an identical or similar condition, nothing of such a nature takes place. We have already been made familiar with those cases of extensive caries of the body of the sphenoid and of the lateral mass of the ethmoid without the slightest disturbance of ocular function. And yet there are other cases in which the accessory cavities are only slightly affected, while the accompanying condition of the eye, be it causal or coincidental, is extremely grave.

The studies in the anatomy of the region made during the past few years have fairly well established the anatomic relations. The pathologic side, however, is still far from satisfactory by reason of the infrequency of autopsies in these cases and the length of time which usually intervenes between the appearance of the symptoms and the performance of the autopsy.

The clinical side has been greatly increased by the numerous additions to the record of the reported cases. To this record I desire to add two, one of blindness and one of scintillating scotoma, both cured by operation on the ethmoid cells.

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Case 1.—Bilateral blindness, acute ethmoiditis, entirely relieved by exenteration of the ethmoid cells.—S. P. C., aged sixteen years, unusually large and well developed for his age, was referred to me by Drs. M. H. Post, M. A. Bliss and J. F. Harrison, August 1, 1912. During the previous five weeks he had suffered from great loss of sleep and intense headache, the pain being localized over the supraorbital region on both sides. He began to notice reduction in his vision three weeks before. This increased day by day until, when I saw him, he was almost blind. A few days before, he had a severe bleeding from the nose, resulting from a fall due to his decreased vision. The patient did not complain of any dizziness, though there had been some nausea but no vomiting.

Examination revealed extreme sensitiveness in the region of the inner canthus, above and below. Both inferior turbinates were of usual size, no swelling being manifest. The septum was quite straight, no ridges or deviations being present. Both middle turbinates were greatly swollen, but no pus was at first discoverable. Upon thoroughly cocainizing the middle turbinate area, a thin streak of pus was found coming from the region of the orifice of the posterior ethmoid cells on both sides.

In view of the history and findings, I gave the opinion that his condition was due to an acute ethmoiditis, which, so far as I could then ascertain, was suppurative in character. A radiograph showed the region of both ethmoid labyrinths obscured, frontal sinuses small but clear, and no evidence of trouble in the maxillary sinuses.

Ophthalmoscopic examination at this time by Dr. Post and Dr. Shahan showed vision 1/192 O. D.; 3/120 O. S.; swelling of the disc + 4 D., O. D.; + 6 D., O. S.

I removed a large portion of the middle turbinates and cleared out the anterior and posterior ethmoid cells on both sides, and found the mucosa over the turbinates and within the cells considerably thickened. One cell wall was completely filled with the thickened mucosa which partook of the nature of a granulation. A very small amount of pus was encountered during the operation. The whole appearance was that of a recent marked ethmoiditis just becoming purulent in character.

The patient began to improve immediately. He was prac-

tically blind before the operation, and within twelve hours afterwards he could recognize the large monogram on the hospital spoons. He left the hospital in one week with his vision almost completely restored.

Examination by Drs. Post and Shahan showed progressive improvement in vision as follows:

	O. D.	O. S.
August 1st (on admission).....	1/192	3/120
August 3rd (after operation).....	3/75	3/12
August 4th.....	10/38	10/19
August 5th.....	10/24	10/19
August 6th.....	10/15	10/15
August 8th.....	20/24	20/24
August 29th.....	20/12	20/19
September 18th.....	20/15	20/15
December 14th.....	20/12	20/12

The swelling of the disc, as ascertained by both Dr. Post and Dr. Shahan, showed progressive recession, from O. D. 4 D., O. S. 6 D. on August 1st, to O. D. 1 D., O. S. 1 D. on August 29th.

Since this time he has had no further trouble with vision or headache. It seems to me that we have in this case a condition analogous to that of edema glottidis, supervening upon an adjacent grave infection, as, for instance, in deep suppurations of the mouth and pharynx. In these cases as soon as the focus is relieved the edema rapidly disappears. Here, too, the condition rapidly improved when presumably the infecting tissues were removed.

The literature shows a fairly large number of cases of blindness which has been relieved by surgical attention directed to the accessory sinuses of the nose. While in a few instances the infective focus was in the ethmoid, maxillary or frontal, in the main the sphenoid was at fault. Few cases, however, have shown such a positive dependence on a process in the ethmoid, or such a coincident and consistent recovery as the one here reported.

Case 2.—Unilateral scintillating scotoma; chronic ethmoiditis. Entirely relieved by exenteration of the ethmoid cells.—Miss L. L., aged sixteen years, August 27, 1913, had been having for the past two years daily attacks of severe left-sided

headache, with what she described as flashes appearing in her left eye. These attacks lasted for about five minutes, coming on without any apparent regularity during the day, and without any cause ascertainable on the part of the patient. Furthermore, they had not changed whatever in severity. Very naturally the young lady was very nervous and more or less incapacitated on account of the attacks. She was under the care of Dr. Post for some time, but treatment directed to her eyes and her general condition was without avail. In the hope that something might be found in the nose to account for the symptoms, she was referred to me. She presented no special nasal symptoms except that of sneezing, which she stated had been noted since she was a small child. She had had no headaches except as already specified. Family and other personal history good.

Examination of right nasal cavity showed nothing abnormal except some enlargement of the middle turbinate. On the left side there was a marked hypertrophy of the middle turbinate, the inferior being normal, and the septum not deviated.

There was evidently a chronic ethmoiditis on the left side. Since this corresponded to the side on which the symptoms were declared, it was decided to remove the anterior end of the middle turbinate and to curette the ethmoid cells, although no promise of relief was given. The process was more extensive than I had foreseen, thickened mucous membrane without pus being found in most of the cells, and the anterior end of the middle turbinate being virtually an ethmoid cell of the type of a *concha bullosa*. An extensive exenteration was therefore undertaken. The patient suffered from a very mild attack on the day of the operation, but since that time, now nine months, she has not had a single attack.

So far as I have been able to find, no report has been made of a case of scintillating scotoma relieved by operation on the nose. In fact, there seems to be no disposition on the part of the writers to associate it with disease of the accessory sinuses. Wilbrand and Saenger,<sup>1</sup> who have written extensively upon the various forms of scintillating scotoma, say that little is known of its origin. They quote the following as to its etiology: "Moebius claims that in ninety per cent of the cases a neuropathic disposition is demonstrable. According to L. Mayer and Ricchi, the attacks frequently occur at men-

struation, and according to Strehl, the condition is brought about by puberty in one who has an hereditary predisposition. Antonelli holds that there is a relation between scintillating scotoma and neurasthenia, hysteria, epilepsy, tabes and progressive paralysis. Most authors look upon the condition as a form of migraine, and ascribe to each the same etiology."

In my case it might be claimed that the operation was no more effective than any other form of operative or suggestive treatment. Admitting such a possibility, we must still take into account the extensive pathologic condition present on that side of the nose, and absence of any promise of relief at the time of the operation.

At any rate, attention to the accessory sinuses in any similar condition will do no harm, and may meet with an equally satisfactory result.

Finally, these two cases bring again into our field of study the observation which was made in my paper on "A Study of the Anatomic Relation of the Optic Nerve to the Accessory Cavities of the Nose,"<sup>2</sup> that under ordinary circumstances the optic nerve is in close relation with the ethmoid labyrinth only at the posteroexternal angle of the last posterior ethmoid cell. Where this relation exists, there is only the slightest possibility of any danger to the optic nerve in suppuration confined to the ethmoid cells. But when the last posterior ethmoid cell replaces the sphenoid, the optic nerve runs close to and along the external wall of this ethmoid cell (as in two out of thirty specimens studied), and the vulnerability of the nerve is correspondingly heightened, in view of the greatly increased portion exposed.\*

Without being able to demonstrate it, I feel that this is the relation of the posterior ethmoid cell to the optic nerve in the case of blindness reported, confirmed by the history and course of the disease and the rapid restoration of vision following exenteration of the ethmoid cells.

#### REFERENCES.

1. Wilbrand and Saenger: *Die Neurologie des Auges*, Vol. 3, part 2, 1906.
2. Loeb, H. W.: *Annals of Otology, Rhinology and Laryngology*, June, 1909.