NASAL STATUS IN RETROBULBAR OPTIC NEURITIS.*

DR. THOMAS J. GALLAHER, Denver.

The present article is not intended to be a comprehensive presentation of the subject, but rather, a limited one.

While for many years it has been recognized that disease in the paranasal sinuses may produce affections of the eye, yet it is of comparatively recent date that critical study has been made of the relation of the posterior sinuses to the optic canal and optic nerve.

It is surprising that so few cases of retrobulbar optic neuritis, which have been relieved by nasal operations, have been reported by rhinologists, for it is certain that most of them have met with such cases.

Every case showing sudden blindness or diminution in vision should be referred at once to the oculist for a most careful examination of the eyes. The condition of the blind spot and the presence or absence of central scotoma for colors are essential to the proper diagnosis of this affection.

Once the diagnosis of retrobulbar optic neuritis is made, the rhinologist should be consulted and the proper operative nasal procedure instituted immediately. A patient in this condition is truly in a crisis, for upon proper diagnosis and most prompt surgical interference, his or her vision depends.

This certainly holds good in a vast majority of cases, while occasionally a spontaneous recovery occurs, but it is not to be depended upon.

The examination should be made with all possible haste and not a single day unnecessarily lost. Atrophy of the optic nerve may occur in fifteen to twenty days, which may result in permanent diminution in vision or blindness.

The general and blood examinations can be quickly made. All possible sources of focal infection should be eliminated, such as the apical abscesses of the teeth, infected tonsils, etc. The diagnosis is not difficult and is characterized by sudden diminution or loss of vision, accompanied by central scotoma for colors, the disc and fundus being normal.

*Read before the Mid-West Section of the American Laryngological, Rhinological and Otological Society, Feb. 26, 1921, at Colorado Springs, Colo.

The differential diagnosis of optic neuritis from systemic causes, amblyopias, etc., should be made by the oculist. Optic neuritis from systemic conditions may exist in connection with retrobulbar optic neuritis. These conditions, I am convinced, must occur in scarlet fever and other exanthematous diseases in which there is a profound systemic infection accompanying local nasal infection.

It must be borne in mind that disease of the pituitary body also may produce similar conditions. The X-ray will be found very useful in giving the anatomic outlines and assisting in eliminating the possibility of pituitary disease.

The relation of the posterior ethmoid cells and sphenoid to the optic nerve of the same side, and to that of the opposite side, is indeed interesting and quite variable.

These sinuses may not only be in close relation with the optic nerve of the same side, but extend beyond the middle line in close relation with the optic nerve of the opposite side. It is therefore possible that either of these cavities may produce double optic neuritis, a point of practical importance. The optic nerve may traverse the cavity of the posterior ethmoid cell. Hyperplasia of the membrane, lining the posterior sinuses is the most frequent cause of this affection, with, or without, suppuration. Malignant disease may be a cause. Syphilis, as proven by the cases reported, must be a very rare cause.

If suppuration is present, the nerve may become involved by direct extension to the sheath or by the toxins. The low grade of inflammation in the hyperplastic tissue extends to the neighboring parts, involving the back of the orbit, and particularly causing a swelling of the periosteum in the optic foramen which results in a compression of the optic nerve.

The central scotoma is produced by the peripheral pressure causing a compression of the delicate fibres in the center of the nerve, which supply the macula. Hence it is one of the first symptoms.

The fundus shows no vascular changes, due to the anatomic fact that the vessels pierce the sheath back of the orbit, anterior to the optic canal.

We believe that disease in the Antrum of Highmore, either of hyperplastic or suppurative type, may also produce this affection by involving the adjacent ethmoid cells, which in turn may affect the optic nerve in the foramen or in its course. Any nasal defect or systemic condition which produces nasal inflammation, predisposes to this affection.

In the hyperplastic type, the examination of the nose may show apparently a normal nostril. It should be emphasized that no pus is present. The absence of pus is indeed too often taken as proof that the nasal condition is normal.

The question immediately arises, "Is it possible for us to absolutely determine in all cases that a nostril is normal by visual inspection?"

It is not possible, because we cannot tell the condition of the membrane lining the cavities.

If, therefore, after a definite diagnosis of retrobulbar optic neuritis has been made, and no pathological condition can be demonstrated in the nose, using all the means at our command, nevertheless it is entirely justifiable to open the posterior ethmoids and sphenoid.

We have been accused as rhinologists of performing too many operations in the nose, but the results attained, in operating under these circumstances, are so brilliant, that even the most critical must be convinced of the wisdom of this course.

It is infinitely better, if needs be, to sacrifice the middle turbinate, the ethmoid cells and open the sphenoid, rather than to jeopardize our patient's vision.

In many cases abnormalities are found, such as deflection of the septum, a demonstrable hyperplasia of the middle turbinate, with its usual accompanying hyperplastic ethmoid cells.

The septum and middle turbinate should be critically examined throughout their entire length. Shrinking the tissues about the turbinate and moving it over with a spatula, may demonstrate that it is not normal.

Suppuration in the posterior sinuses, producing optic neuritis, should be promptly dealt with surgically.

The operation performed by most rhinologists consists in a correction of the deflected septum, if it exists; removal of middle turbinate and exenteration of posterior ethmoid cells, and cutting down the face of the sphenoid. Many rhinologists think it wise to make a complete exenteration of both the anterior and posterior cells, in addition to establishing sphenoid drainage.

As a prophylactic measure, it may be stated that a correction of all nasal defects early in life, is advisable.

As a digression, we beg to say that we believe that paralysis of the trunk of the facial nerve, as it passes through the Fallopiian canal, may be produced by a hyperplastic condition in the middle ear, or

in the adjacent mastoid cells, in the same manner which cause the retrobulbar optic neuritis.

A swelling of the periosteum, in both instances, is probably the cause of injury to the nerves. Both of these nerves are in a similar relation to adjacent air cavities.

In many cases where early diagnosis has been made and thorough nasal correction has been attained, the restoration of vision to a greater or less degree is indeed remarkable. And so, as rhinologists, let us intelligently co-operate with our esteemed ophthalmologists to the end that we both may be the means of preserving this most precious sense.

Let it be not said of either of us, that through a lack of interest or a thorough investigation, that a single patient has been doomed to blindness through any acts of omission or commission.

I desire to report four cases illustrating different types of this affection:

Case I. A woman, age 39, married, was seen October, 1912. For two years previously she had suffered from transient amaurosis monthly, lasting from a few minutes to a half hour, with a continuous floating speck before the right eye.

The custom which was in vogue then to correct these defects by proper glasses was carried out during that time by her oculists. The vision in the right eye suddenly fell to counting fingers at three feet, October, 1912. The central scotoma was not reported upon by her oculists.

The nasal examination showed an S-shaped deflection of the septum obstructing the left nostril in front and the right nostril posteriorly. The left middle turbinate was hypertrophied and the membrane on both sides presented the appearance of vasomotor rhinitis.

Immediate nasal operation was advised and performed, notwithstanding one of her oculists advised against operation.

The deflection was corrected, middle turbinectomy done, exenteration of the anterior and posterior ethmoids, free opening of the sphenoid. Improvement in vision for fingers to six feet occurred within forty-eight hours and in two weeks fingers could be seen at twenty feet.

Four months R.V. 5/30 mostly, to 5/15 partly. Vitreous then showed one large mass, several thin plaques and considerable dust.

Five years later R.V. 5/7. Best ever obtained was 5/6, and vitreous showed only one tiny opacity.

Had this patient been operated upon two years previously she would probably have avoided all of this trouble, and it is interest-

ing to note the progress made in the treatment during the last ten years.

Case II. Woman, age 45, married, seen October 10, 1918.

She had been afflicted with periodic dimness of vision in left eye for five months. She was told the trouble was due to some systemic poison, but no definite method of procedure was advised or instituted by her oculists.

She was referred by me to Dr. George F. Libby, who returned the following report: "Disc margins obscure, nerve heads hyperemic and slightly swollen. No scotoma present. Diagnosis moderate optic neuritis L.V. 5/5 mostly."

The nasal examination showed septal deflection to the left, causing great obstruction.

Submucous resection of the septum was now done. Improvement immediately followed, disc margins became sharper, hyperemia disappeared with vision of 5/3 mostly in each eye.

Seven devitalized teeth were extracted, two showing streptococcus viridans.

Six weeks after this the vision in the left eye suddenly fell to 5/10. Disc normal with distinct central scotoma for colors. The prompt diagnosis of retrobulbar optic neuritis was made.

The nasal operation was performed at once, which included middle turbinectomy, exenteration of the anterior and posterior ethmoids and cutting down the face of the sphenoid on the left side.

In three weeks the vision had returned to normal and has remained permanent.

This case undoubtedly shows optic neuritis caused by systemic disturbance, which in a short time was followed by a retrobulbar optic neuritis.

Case III. Woman, age 35, married. Ocular examination made by Dr. George F. Libby, giving the following report, Dec. 24, 1920:

During past ten years intermittent blindness in the right eye which became permanent three months ago. In August, 1920, L.V. dropped to 5/30, rose to 5/7 partly in following three months under specific treatment.

The hematologist reported a slightly positive Wassermann by one of the refinements in the test. This was not corroborated and is open to question. I do not believe that there was any specific element in the case.

Central scotoma was present in the lately affected eye.

In November, both vitreous bodies were cloudy, discs red, fundus details obscure, but no intra-ocular hemorrhage, floating opacities in each vitreous. Old choroiditis lower quadrant in R. Small posterior polar cataracts.

Diagnosis of retrobulbar optic neuritis of probably four months' duration was made and the usual nasal operation was performed with the hope of improving the left eye and preventing total blindness.

In two months the vision has fortunately improved to 5/6, which we think will be permanent.

This case illustrates the fact that it is justifiable to perform the nasal operation even at a late date to preserve the remaining vision.

Case IV. Woman, age 38, married. Referred to me by Dr. George F. Libby, who made the ocular diagnosis of retrobulbar optic neuritis. Two years ago, blindness one-half hour in both eyes.

Vision much blurred in past ten days and has floating specks before eyes. Binocular central scotoma present. R.V. 5/30 partly, L.V. 5/30 mostly, fundus normal, Wassermann negative.

Nose showed deflection of the nasal septum to the right with synechia between the middle turbinate and septum posteriorly. The right middle turbinate was abnormally close to the external wall. The left middle turbinate was apparently hyperplastic.

Correction of the nasal septum and the usual operation upon both sides was advocated. As I was leaving the city the next day one of my confreres kindly performed the operation as advised.

Two diseased teeth were also extracted and a tonsillectomy performed later. Improvement followed in a very few days after the nasal operation.

Six weeks after the nasal operation R.V. is 5/4 partly and L.V. 5/4 mostly.

In this case complete restoration of vision was obtained by prompt diagnosis and immediate operation.

California Building.