

Optic Neuropathy: Endoscopic Optic Nerve Decompression for the Treatment of Rhinogenous Optic Neuritis

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Abstract

Purpose: Rhinogenic optic neuropathy is a clinical term used for optic neuritis or neuropathy caused by paranasal cysts or mucocele. Optic neuropathy associated with sphenoid sinus mucocele is usually associated with poor prognosis. The prognosis in all these cases depends upon visual acuity at presentation and duration of disease. Delay in surgery in all such cases leads to extremely poor visual outcome. We herewith report a rare case of rhinogenic optic neuropathy that presented with complete loss of vision and had partial recovery of vision even after surgery being delayed for almost 3 weeks. The patient age, sex, preoperative and postoperative visual acuity, duration from visual deficit to surgery, use of steroids, type of rhinogenic optic neuropathy, and the part of sinus lesion were analyzed. We also examined postoperative visual acuity for patients whose preoperative visual acuity was less than light perception.

Results: The type of optic neuropathy was sinusitis in 7 cases, mucocele in 5 cases, and pyocele in 3 cases. Visual acuity was improved in 9 cases and deteriorated or unchanged in 6 cases. Patients in the improvement group were significantly younger than those in the nonimprovement group. In univariate regression analysis, preoperative visual acuity and type of optic neuropathy significantly related to postoperative visual acuity. Finally, 4 of the 15 cases (27%) had preoperative visual acuity less than light perception, but there was an improvement in postoperative visual acuity in 2 of 4 cases (50%).

Conclusions: Preoperative visual acuity is the predictive factor for postoperative visual acuity in patients with rhinogenic optic neuropathy, but even if the preoperative visual acuity is less than light perception, it can be improved by surgical treatment.

Introduction

Rhinogenic optical neuropathy is a condition in which sinus lesions affect the optical whim-whams, leading to vision impairment. Rhinogenic optical neuropathy is substantially divided into compressive optical neuropathy and optical neuritis. Pyocele and mucocele in the sphenoid sinus or ethmoid sinus are compressive optical neuropathy. They cause inflammation and pressure of the optical whim-whams and deteriorate visual perceptivity [1]. On the other hand, visual deterioration due to sinusitis caused by fungi and bacteria can also do. The clinical symptoms of rhinogenic optical neuropathy are colorful and include visual disturbance, central scotoma, oculomotor paralysis, and abducent paralysis. To treat the condition, the tubercle is marsupialized using endoscopic sinus surgery in the sphenoid sinus or the ethmoid sinus, and communication with the nasal depression is attained. Still, the factor related to postoperative visual perceptivity in cases with rhinogenic optical whim-whams neuropathy isn't clear [2].

The period between opinion and surgery has been considered as one visual prognostic factor. The shorter the period to surgery, the better the visual perceptivity. Still, other reports have set up that there was no relationship between postoperative vision and either the duration of surgery or preoperative visual perceptivity. The impact of postoperative steroid use on postoperative visual perceptivity is also unclear.

Accountments and Styles

We retrospectively studied the medical records for 15 eyes of 15 cases that passed surgery for the treatment of rhinogenic optical neuropathy between 31 January 2010 and 30 April 2018 at Toyama University Hospital. Study blessing was attained from the institutional review board of Toyama University Hospital. All cases were placed under general anesthesia for endoscopic surgery by a sanitarium

otolaryngologist. The wall of the mucocele or pyocele was removed using endoscopic sinus surgery ways to release pressure on the optical whim-whams [3]. To distinguish between mucocele and pyocele and fungal and bacterial infections, we reckoned on findings during surgery and culture results. There were no complications during the surgery.

In cases entering postoperative steroid palpitation remedy, either 1000 or 500 mg of methylprednisolone was administered for 3 days from the day after surgery as applicable grounded on the case's general condition. Short-term antibiotics were used for sinus surgery for sinusitis. A visual perceptivity test, fundus examination, reckoned tomography (CT), and glamorous resonance imaging (MRI) were performed ahead and after surgery, and it was verified that visual perceptivity had declined due to optical whim-whams complaint [4].

Bracket of the type of rhinogenic optical neuropathy was divided into mucocele, pyocele, and sinusitis. In all of our cases with sinusitis, the condition appeared to have been caused by bacteria and fungi. Cases of excrescence- convinced optical neuropathy were barred from the study [5]. The visual perceptivity was calculated as the logarithm of the minimal angle of resolution value as described in a former

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report; the visual perceptivity in our cases was 2.8 for those with light perception and 2.9 for those without light perception.

Results

The mean age was 67.8 ± 16.4 times. The mean duration from visual deficiency to surgery was 7.6 ± 5.4 days. One case had a large excavation of the optical whimp-whams head, but the other cases had normal fundi. The type of optical neuropathy was sinusitis in 7 cases, mucocele in 5 cases, and pyocele in 3 cases. Three eyes had oculomotor whimp-whams paralysis. There were 6 cases with paranasal surgery history, and there were 11 cases in which postoperative steroid palpitation was performed. Eight cases had lesions in the sphenoid sinus and 9 cases had lesions in the ethmoid sinus. The mean preoperative visual perceptivity was 1.34 ± 1.03 , and the mean postoperative visual perceptivity was 0.674 ± 1.05 [6]. When converted to decimal visual perceptivity, it bettered from 0.05 to 0.21. Visual perceptivity was bettered in 9 cases and was deteriorated or unchanged in 6 cases. Visual perceptivity was deteriorated in 4 cases. The age was significantly youngish in the enhancement group than in the nonimprovement group, but coitus, preoperative visual perceptivity, presence or absence of steroid palpitation operation, and type of optical neuropathy weren't significantly different between the two groups. Although there was no significant difference with respect to duration from visual deficiency to surgery, shorter duration tended to be more common in the visual perceptivity enhancement group [7, 8].

Discussion

The utility of endoscopic paranasal sinus surgery for rhinogenic optical neuropathy has been reported in several reports. Nakaya et al. reported that visual perceptivity bettered in 31/38 eyes of cases with paranasal mucocele treated with endoscopic sinus surgery [9]. Lee et al. reported on 15 eyes in cases witnessing endoscopic surgery for sphenoid complaint and set up that visual perceptivity was bettered in 9/15 eyes. Although the prognostic factors for rhinogenic optical neuropathy have been studied in the history, these analyses have been limited due to the small number of cases. In the present analysis, we examined implicit prognostic factors, similar as the age, coitus, type of neuropathy, presence or absence of steroid palpitation operation, duration from visual deficiency to surgery, preoperative visual perceptivity, and the part of sinus lesion [10, 11]. Our results showed that youngish age was significantly associated with an enhancement in visual perceptivity and preoperative visual perceptivity, and type of optical neuropathy significantly was related to postoperative visual perceptivity. Studies also reported that steroid palpitation didn't affect visual perceptivity. Therefore, depending on the general condition of the case, we may not inescapably employ steroid palpitation remedy. Nevertheless, farther analysis will be demanded in a large number of cases before reaching any definitive conclusions [12].

Conclusions

In conclusion, we examined factors related to the postoperative visual acuity of patients treated surgically for rhinogenic optic neuropathy. Our results showed that preoperative visual acuity was the factor most predictive of a postoperative improvement in visual acuity. However, an improvement in visual acuity could be obtained even in cases without light perception. It is thus important that rhinogenic optic neuropathy be diagnosed as soon as possible and surgically treated by an otolaryngologist.

Conflict of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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