



Unilateral Transnasal Endoscopic Extradural Optic Nerve Decompression for Idiopathic Intracranial Hypertension: A Small Clinical Series of Eight Patients

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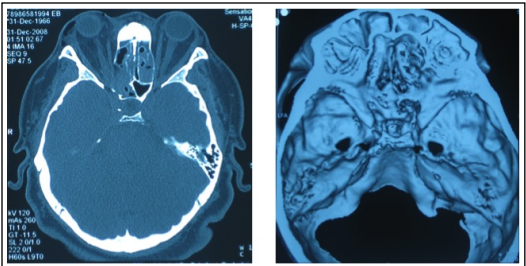


Introduction

Idiopathic intracranial hypertension (IIH), also referred to as pseudotumor cerebri, is a condition characterized by increased intracranial hypertension without an evident cause like intracranial mass lesions or vascular abnormalities. Diagnosis of IIH, which is a diagnosis of exclusion, has been established by Dandy criteria. Headache and visual disturbances secondary to the disease make patients seek medical attention. Although medical treatment should be the mainstay of management, refractory cases need surgical interventions. Several surgical modalities including CSF diversion procedures (shunting), optic nerve decompression and venous stenting have been advocated but an evidence-based advantage of one on another has not been found yet. In this study we have investigated the efficacy of endoscopic endonasal extradural optic nerve decompression.

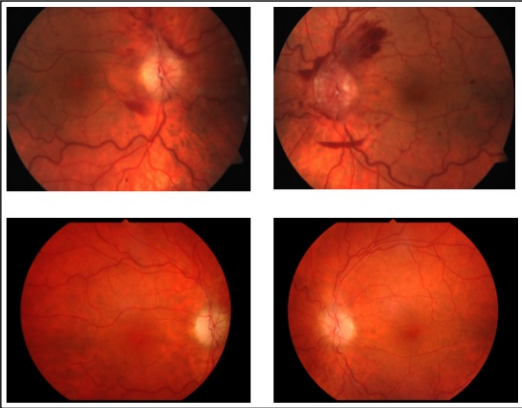
Methods

We reviewed a series of eight consecutive cases of IIH on which unilateral OND performed, using the endoscopic approach without nerve sheath fenestration between December 2008 and December 2011. Presenting symptoms, neurological examination finding, fundoscopic and visual acuity examination findings and automated perimetry test results were recorded. Perioperative results, including complications, length of hospital stay were evaluated. Findings at the follow-up evaluations were also recorded.

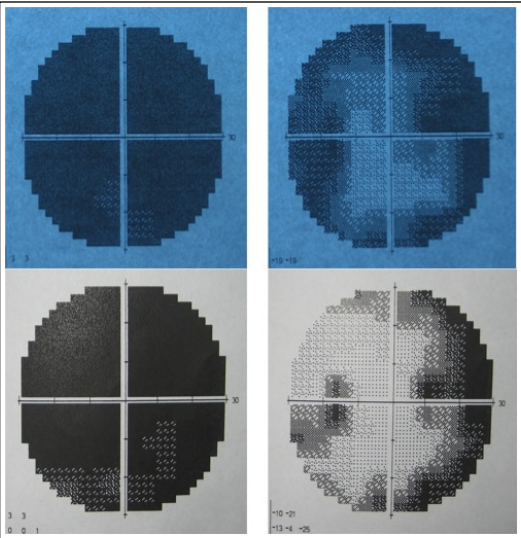


Results

Although seems small, this is actually the largest series of unilateral OND performed using trans nasal endoscopic approach without optic sheath fenestration. The mean patient age was 31 years (range 9-46), there were 7 female and 1 male patients. Visual impairment was the main symptom in our patient group, whereas headache was a secondary complaint in most. All of the patients were first managed with medical treatment for at least 3 months. Unilateral endoscopic OND was performed on the side with greater visual failure. Mean follow-up was 22 months (range 8-44).



Three of five patients who had headache prior to operation responded well and the headache ceased (60%). One of the other two experienced an initial improvement followed by recurrence. She responded well to re-administration of diazoxide. Visual field defects of five patients got better by at least 5dB increase in automated perimetry mean deviation (71%). Four of these five patients experienced perimetry improvement on the contralateral side. One of the patients had stress induced central serous retinopathy and had worsening on her visual field examination. Of those seven patients having visual acuity impairment four responded positively (57%). Again that particular patient because of central serous retinopathy had worsening on visual acuity. As for papilledema, four patients' fundoscopic examinations got better and edema resolved (57%). There were no surgical complications in this relatively small series.



Patient #	Operation Site	Visual Field	Visual Acuity	Papilledema
1	Right	Improved	Worsened	Resolved
2	Right	Improved	Improved	No Change
3	Left	-	-	-
4	Left	Improved	Improved	Resolved
5	Right	Worsened	Worsened	Resolved
6	Right	No Change	No Change	No Change
7	Right	Improved	Improved	Resolved
8	Right	Improved	Improved	No Change

Discussion

Recently there is a change in preferred surgical treatment of IIH from CSF diversion procedures towards OND due to high complication and revision rates of former. Pursuit of less invasive procedures has increased with the frequency of OND. Introduction of a less invasive procedure, endoscopic endonasal extradural decompression, followed endoscopic decompression. We could manage to find one report of extradural decompression written by Patrocinio in 2005. In his case report of one patient, visual field, visual acuity and papilledema improvement was observed. In our study of 8 patients we have reached satisfactory results. It was notable that in 4 patients we observed improvement in the contralateral eye. For a vague clinical entity like IIH for which surgical outcomes varies greatly we think our results are comparable to other surgical approaches.

Conclusions

In our study we have observed that satisfying clinical improvements could be achieved with endoscopic endonasal extradural optic nerve decompression. Nevertheless the ambiguity of mechanism of action renders this approach questionable. Further studies towards pathophysiology and higher numbers are required to have a better judgment on superiority of extradural optic nerve decompression over other interventions. A further step would be to design a randomized controlled clinical trial comparing commonly performed procedures.

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