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Image-guided endoscopic transnasal optic nerve decompression for patients with compressive optic neuropathy resulted from fibrous dysplasia

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Background: Visual loss is a dreaded outcome of patients with fibrous dysplasia due to compressive optic neuropathy resulted from excessively abnormal growth of the sphenoidal bone. Even though there are many controversies, to remove the hypertropic bone to release the compression on the optic nerve is the base for vision recovery. Till now many methods have been applied to unroof the nerve therapeutically to recover the visual acuity in the setting of optic nerve dysfunction, however, the reported outcomes are mixed. Here we introduced a novel mini-invasive surgical approach to decompress the optic nerve which was guided by navigation surgical system and its results were reported.

Methods: From 2014.1 to 2015.12, patients who were diagnosed compressive optic neuropathy just resulted from fibrous dysplasia were performed the surgery of endoscopic transnasal optic nerve decompression guided by a magnetic navigation surgical system. Before operation, pupil examination, vision function examinations included Snellen's visual acuity, 30° visual field and pattern VEP, the orbital high-resolution CT scan were conventionally performed. Patient's age, demographics and the surgical procedures, follow-up time, results of the surgery and complications were recorded.

Results: Totally, 8 patients received the surgical treatment of endoscopic transnasal optic nerve decompression. All patients were determined compressive optic neuropathy according to the history and various clinical examinations. All surgeries were uneventfully completed. The patient age ranged from 8 years to 16 years, with male 3 and female 5. The history of obvious visual disorders ranged from 11 months to 3 years. Six patients had bilateral compressive optic neuropathy, and while, only one side was performed the surgery and the other as the control. All patients were followed up for 9 months to 15 months, with an average of 12.1 ± 2.5 months. The surgical time ranged from 2.5 hours to 6.5 hours, with an average of 3.4 ± 1.2 hours. The visual acuity ranged from light perception (LP) to 0.4. After surgery, the visual acuity improved significantly in all 8 patients and no changes in the controlled sides. No complications, including visual decent, infection, CSF leakage, and nose disorders, happened.

Conclusions: The therapeutic surgery of endoscopic transnasal optic nerve decompression guided by navigation surgical system would be an advocated treatment of visual recovery for patients with continuous deterioration of vision resulted from fibrous dysplasia, with advantages of reliable outcomes of visual recovery, minimal morbidity, safety and few complications.

Biography

Wencan Wu has completed his PhD from Xiangya Medical College of Central Southern University and from Oct 2013 to June 2015, he studied as a clinical and research fellow at Bascom Palmer Eye Institute of University of Miami. He specialized on the endoscopic techniques in the ophthalmology. At present, he is the Director of the Center of Orbital and Oculoplastic Surgery in the Eye Hospital of Wenzhou Medical University. He has published more than 22 papers in reputed journals and has been serving as an Editorial Board Member of many journals.

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