

Repairing Orbital Floor Fracture with Autologous Nasal Septal Cartilage by using Endoscope through Transoral Maxillary Sinus

Sir,

A 31-year male presented to the Department of Otolaryngology with complaints of right ocular pain and vision loss, diplopia, nasal root pain, bleeding, and headache. Computed tomography (CT) of the head revealed fractures involving orbital floor, medial orbital wall of right eye, and nasal bone (Figure 1A). The fracture of nasal bone was reduced and a nasal endoscope was used to assist in correcting the nasal septum. Then, the orbital floor wall was reconstructed through the maxillary sinus. Considering that nasal septum correction and nasal bone reduction under nasal endoscopy are not difficult to perform, this report only discusses the reconstruction of the orbital floor through the maxillary sinus.

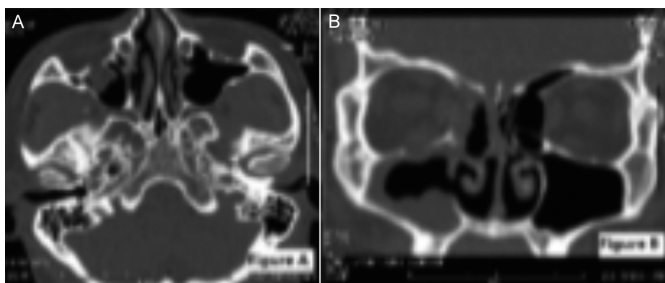


Figure 1: CT scan findings before and one month after operation (A: Before operation; B: After operation).

The operative process included the following steps:

First, a piece of nasal septal cartilage was obtained and immersed in gentamicin solution. The fracture of the orbital floor, fracture piece, and herniated orbital contents in the sinus cavity were identified. The fractured piece was removed, the wound edge was repaired, and the orbital contents were returned, including the inferior rectus muscle and orbital fat, into the orbit.

After flushing the operative cavity with diluted iodophor, the trimmed nasal septum cartilage was placed around the orbital margin of the fracture, and the intraorbital tissue was returned to the orbit.

We covered the separated mucosa on the surface of the cartilage. We inserted an iodoform-infiltrated gauze through the lower nasal passage into the nasal cavity as a support for the graft.

The patient returned after a month for follow-up, it was observed that the facial swelling disappeared without diplopia (Figure 1B). Two months after the surgery, CT revealed slight

oedema of the sinus mucosa, and there was a good shape of the orbital floor and bilateral eyeball symmetry.

Numerous reports^{1,2} recommend using an endoscope to help reconstruct fractures of the orbital wall with nasal septal cartilage. Compared to other restorations (e.g., there are some late complications associated with the use of titanium mesh.^{3,4}), autogenous nasal septum cartilage has many advantages.^{1,2} The autologous tissue is an easy-to-obtain material, and there will be no transplant rejection. The cartilage of the nasal septum is tough enough to support the weight of the orbital contents, so it integrates well with the surrounding tissue and does not cause postoperative complications. Incarcerations and herniations in fractures of the inferior wall of the eyeball are common, but incarceration and herniations in medial orbital wall fractures are rare. These fractures can be repaired by using different surgical methods with autologous nasal septal cartilage, as was done in the present case. However, some reports conclude that it is possible to repair orbital floor fractures using an endoscope via the transconjunctival route without using nasal septum cartilage.⁵

The present report suggests that using autogenous nasal septum cartilage and endoscopy can be an accurate, safe, and effective method for repairing orbital floor fractures.

To the best of our knowledge, this is the first report of using an endoscope via the transoral maxillary sinus path to repair fractures of the inferior orbital wall with autologous nasal septal cartilage.

PATIENT'S CONSENT:

Informed consent was obtained from the patient.

ETHICAL APPROVAL:

The Ethics Committee of Shuyang Hospital approved this study on Dec 15, 2019.

COMPETING INTEREST:

The authors declared no competing interests.

AUTHORS' CONTRIBUTION:

QL: Data collection, data interpretation, and literature search. GMZ: Study design, data interpretation, manuscript preparation, and literature search.

All the authors have approved the final version of the manuscript to be published.

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