

# Frontal bar reconstruction with autologous tissue secondary to facial trauma. A case report

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Case Report

PLASTIC SURGERY

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**Abstract:** Facial trauma is one of the most frequent causes of visits to the emergency department and is associated with polytraumatized patients. Frequency male - female ratio 3:1. We will present the following clinical case of a male patient suffering from facial trauma who underwent surgery with reconstruction of the frontal bar with autologous tissue.

**Key words:** Trauma, fracture, reconstruction.

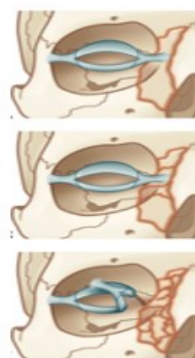
## Introduction

Facial trauma is one of the most frequent causes of visits to the emergency department and is associated with polytraumatized patients. Frequency male - female ratio 3:1. Among facial trauma injuries, maxillofacial injuries such as frontal sinus and naso-orbito-ethmoidal (NOE) injuries are the most frequent causes of trauma injuries.<sup>1</sup> Frontal sinus fractures account for 5% to 15% of all facial fractures and are usually the result of motor vehicle accidents, assaults, and sports injuries.<sup>1</sup> Among frontal sinus fractures, approximately 33% are isolated fractures of the anterior table, while combined fractures involving the anterior table, posterior table, and frontal sinus outflow tract (FSOT) account for the remaining 67%. The NOE region consists of the bones between the nose, orbit, maxilla and skull.<sup>2</sup> Its anterior component consists of a bony pillar formed by the frontal process of the maxilla, the nasal process of the frontal bone, and the proximal nasal bones. Other boundaries include the medial orbital walls laterally, the cribriform plate superiorly and the posterior sphenoid sinus. Within this region the central fragment is the feature of the Markowitz NOE fracture classification.<sup>3</sup> (Table 1). The following is a case of a patient with blunt facial trauma secondary to a motor vehicle accident with a fracture of the anterior and posterior table of the left frontal sinus and a Markowitz III NOE fracture. In patients with frontal sinus fractures in general terms the treatment options include observation, open reduction and internal fixation (ORIF), frontal sinus obliteration and cranialization.

His condition began after a motorcycle accident, without safety measures, under the influence of alcohol.

He suffered severe TBI, transferred by paramedics to PPS, where he underwent complete ATLS and wound closure at the frontal level and then sent to Issemyn National Medical Center (CMN ISSEMYN) for evaluation by neurosurgery.

He was evaluated by neurosurgery who requested computerized axial tomography (CAT) with the following findings of frontal sinus fracture anterior and posterior displaced table with exposure of encephalic mass for which he was scheduled and underwent surgery by the neurosurgery service performing RAFI with placement of titanium mesh and obliteration of the nasofrontal duct. Subsequently assessed by plastic and reconstructive surgery service.



Type I	Single central segment, without compromise of the internal canthus.
Type II	Comminuted central segment, without involvement of the internal canthus.
Type III	Comminuted central segment with disinsertion of the internal canthus.

**Table 1.** Markowitz classification. Naso-orbito-ethmoidal fractures.

## Case report

20-year-old male patient with no comorbidities.

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**Figure 1.** Reconstruction of the NOE complex with bone graft plus mini plate placement and transnasal canthopexy and reconstruction of the medial wall of the left orbit with lactosorb.

A craniofacial CAT scan with 3D reconstruction was performed with findings of fracture at the level of the floor of the right orbit (14.6mm x 13.9 mm) and medial wall of the right orbit (10.1 mm x 16.3 mm), fracture of the anterior wall of the right maxillary sinus not displaced, left simple nasal fracture with the following diagnoses: blunt facial trauma, fracture of the frontal sinus anterior and posterior table displaced with exposure of the encephalic mass + PO of RAFI with placement of titanium mesh and obliteration of the nasofrontal duct, fracture of the left orbit medial wall (17x13 mm), fracture NOE Markowitz I right, fracture NOE Markowitz III left.

She was programmed for surgical management, reconstruction of the NOE complex with bone graft plus placement of miniplates and transnasal canthopexy and reconstruction of the medial wall of the left orbit with lactosorb. The postoperative course was without complications and with favorable evolution.

**Conclusion**

In the treatment of frontal sinus fracture and NOE represent a significant percentage of surgical



**Figure 3.** Craniofacial CT with 3D reconstruction of fracture at the level of the floor and medial wall of the right orbit, non-displaced fracture of the anterior wall of the right maxillary sinus, simple nasal fracture.

repairs in the treatment of cranio maxillofacial trauma. The goal of surgical treatment is to address the intracranial and orbital injuries associated with these trauma fractures and NOE type fracture repairs are to restore intercantal distance, dorsal support of the orbital volume and nasal tip distance.

The evolution of minimally invasive surgery offers better results for patients as well as minimizes risks and morbidity associated with them unlike traditional treatment.

### Conflicts of interests

There was no conflict of interest during the study, and it was not funded by any organization.

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