

## CASE REPORT - RHINOPLASTY IN TRAUMA PATIENT DURING LATE ORIF

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### ABSTRACT

Nasal fracture are the most common facial fracture (51.3%) followed by the zygomatic-orbital fracture (25.1%) in the middle third of face. Most common causes of these injuries are falls and motor vehicle accidents (MVAs). We report a case of nasal injury including mid and lower facial fractures leading to nasal and facial deformities. We did external rhinoplasty and ORIF (Open Reduction internal fixation) simultaneously. It improved the patient's functional outcome and facial appearance.

### KEYWORDS

**Nasal trauma, External rhinoplasty, Late ORIF**

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### INTRODUCTION

Rhinoplasty is to correct nasal balance and establish harmony in the face while preserving or restoring a sufficient nasal airway<sup>1</sup>. The word "Rhinoplasty" is derived from two Greek words, rhino meaning nose and plasikos meaning to shape or mold.<sup>2</sup> Surgical rhinoplasty began in ancient Egypt and in ancient India. In India, it was developed by the ayurvedic physician Sushruta and the procedure was described in Sushruta Samhita (700 BC).<sup>2</sup> Traumatic nasal deformities cause various symptoms including anosmia, nasal obstruction, rhinorrhea etc. The high frequency of nasal fracture can be attributed to its prominent location in the facial skeleton and the comparatively smaller amount of force needed to produce a fracture when compared with other facial bones.<sup>3</sup> We report a case of nasal injury including mid face and mandibular fracture and also nasal septum deviation diagnosed by clinically and radiographically.

Initial surgical management within 19 days after injury reduces the complication of malunion and malocclusion<sup>4,5</sup>. Delay in seeking treatment for the fractures of facial skeleton is the cause of treatment delays and increased risk of malunion, nonunion and malocclusion<sup>4,6</sup>. In such cases late ORIF (Open reduction and internal fixation) is considered for the treatment option.

Any injury to the nasal septum, osseous or cartilaginous nasal skeleton results nasal airway obstruction. If primary reduction of fractured nasal bone is not done immediately, open reduction may be required to fracture the malunited bone through incision and osteotomies, which can be performed through an endonasal or external rhinoplasty approach.<sup>7</sup>

Traumatic injury resulting in nasal deformity poses unique challenges to the surgeon. The goals of the rhinoplasty are to correct both esthetic and functional aspect of nasal trauma.<sup>8</sup> Here we describe the correction of facial fractures and nasal deformity with late ORIF (Open reduction internal fixation) and external rhinoplasty respectively under general anesthesia.

### CASE REPORTS

A 27-year old male came to the department of oral and maxillofacial surgery of Dr. R. Ahmed Dental college & hospital with mobility of lower incisor teeth, difficulty in chewing of solid food, nasal airway obstruction and anosmia by the left side of Nostril with the history of trauma to the face in

## PRE-OPERATIVE



**Fig.-1: 3D CT View Of Fractures Bone**



**Fig: 2 Pre-Operative Frontal View**



**Fig: 3 Pre-Operative Deranged Occlusion**



**Fig: 4 Pre-Operative Supine View:  
Nasalaxis Deviation Left Side  
(Curve Shape, Arrow Shows)**

## INTRA- OPERATIVE



**Fig.-5: Incision Marking**



**Fig.-6: Fixation Of Plate In  
Mandible**



**Fig.-7: Fixation Of Plate In  
Maxilla**



**Fig.-8: Incision Marking**

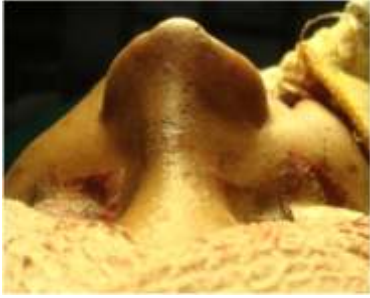


**Fig.-9: Nasal  
Flap Exposure**

**Fig.-9: Exposed  
Lower Lateral  
Cartilage**



**Fig.-10: Lateral Osteotomy**



**Fig.-11: Corrected Nasal Deviation**



**Fig.-12: Nasal Flap Suturing**



**Fig.-13: Application of Nasal Splint**

**POST OPERATIVE- 1 WEEK FOLLOW UP**



**Fig.-14: Frontal View**



**Fig.-15: Supine View Shows Corrected Nasal Deviation**



**Fig.-16: Corrected Occlusion**

**POST OPERATIVE -1 YEAR FOLLOW UP**



**Fig.-17: Frontal View**



**Fig.-18: Post operative Corrected Nasal Axis Deviation**



**Fig.-19: Postoperative Corrected Occlusion**

a road traffic accident two month ago. On examination there was asymmetry of mid face along with tenderness over right zygomatic buttress and bridge of the nose. Step deformity was present on the region of symphysis and right zygomatic buttress, deviation of nasal septum toward right side was evident along with scar mark over the dorsum of the nose. Patient had normal mouth opening and malocclusion. The patient was clinically diagnosed as nasal, mid face and mandibular fracture including nasal axis deviation. Computed tomography of face confirmed the diagnosis of nasal bone, right zygomatic buttress (displaced), left zygomatic buttress (undisplaced), left frontozygomatic (F-Z displaced), right F-Z (undisplaced) fractures and

symphysis fracture in mandible region (fig: 1).

Laboratory test shown no significant findings of any systemic disease. To improve his facial appearance and function, we did the open reduction immobilization and fixation (ORIF) and rhinoplasty via external approach after the ORIF in single sitting simultaneously (fig: 5-13).

**SURGICAL PROCEDURE**

First, we performed the open reduction and fixation of maxillary and mandibular fracture. Surgical intervention was not required in simple

undisplaced stable facial fractures. It is done in displaced unstable fractures. The fractures of the mandible and right maxilla were opened and reduced. Two 2 mm titanium mini plates were fixed in symphysis region ( fig:6). Two 2 mm mini plate was fixed in the right maxillary buttress area (fig:7). After completion of fixation surgical wounds were closed with 3-0 vicryl.

External rhinoplasty consists of Marginal and transcolumellar incision and was applied in our case. We exposed the nasal framework, after mobilization of the nasal skin flap. Septorhinoplasty was done. It is one of the surgical procedure done after elevation of the mucoperichondrium and the mucoperiosteum by giving abasal cartilaginous incision on the deviated side of the septum<sup>9</sup>.The deviated part of the bony septum can now be exposed by swinging the cartilaginous septum laterally. The deviated part of the bony and cartilaginous septum is now removed with forceps or an osteotome. Lateral nasal osteotomy has done by using 3 mm osteotome, given the bilateral cuts in the nasal pyramid to narrow the nose (fig:10). After the lateral osteotomy, the lateral bony wall is now moved in, as nasal bone and frontal process of maxilla are moved inward with operator's thumb and fingers, the bone carry the upper lateral cartilages medially into proper position. Closure is done after squeezing the blood or blood clots under the soft tissues by applying pressure with two square gauze pieces, one held in right hand against the nostril while supporting the tip, and other in left hand squeezing and compressing the skin of the dorsum of the nose gently from above downward. The septal mucosa and columellar skin was sutured with 4/0 chromic catgut and 5/0 prolene respectively ( fig:12). Post operatively nasal cavities were packed loosely with Vaseline lubricated 1 cm ribbon gauze.

Packing serves to reapproximate the unsutured incision and to prevent septal hematoma. The packing should be snugly but not tightly packed. After nasal packing, nose was splinted externally with plaster of paris soaked guage pieces (fig: 13). Packing was removed after 72 hours. The splinting helps in preventing swelling, maintaining the position of the mobilized bones, and prevent their displacement. The postoperative period was uneventful, and deviated nasal dorsum has been corrected. The splint was removed on 8th post-operative day. Anosmia was absent on 8th post operative day. At 1 year follow up there was no post-operative complication, and result shows correction of deviated nasal dorsum and occlusion clinically (fig: 17-19).

## DISCUSSION

Literature revealed that rhinoplasty in the treatment of traumatic nasal deformity remains one of the most challenging problems for surgeons. Not only is the skeletal structure severely deformed, but

the soft tissue may also be disfigured by a previous injury. Although autogenous bone and cartilage have been the primary choice for nasal reconstruction, synthetic material is also desirable.<sup>10</sup>

We described a case of facial trauma including traumatic nose leading to nasal and Facial deformities. We performed delayed or late open reduction & fixation and rhinoplasty via external approach simultaneously. First we did the open reduction and fixation of plate in the maxilla and then mandible. After that rhinoplasty was done via external approach. Esthetic outcome shows correction of nasal deviation. And functional outcome shows clearance of nasal airway obstruction, anosmia and correction of occlusion.

The fracture of nose is quite common and make up to 39% of all facial fractures, Lundin, (1972).<sup>9F</sup>. Pourdanesh and R. Tabrizi (2015) done rhinoplasty in 23 cases of traumatic nose out of which 14 were males and 9 were females with mean age 27 years.<sup>11</sup> Males are more susceptible to fracture of nose due to trauma and average age group was 17-27 years. The incidence of post traumatic nasal deformities varies in the literature from 9% to 62%.<sup>12-17</sup> A blow or hit on the nose may cause displacement, impaction, or comminuted fractures of the nasal bones. The fractures of the nasal bone are generally comminuted. The frontal injuries of the nose cause fractures of the lower part of the nasal bones and flattening of the bony and cartilaginous vaults resulting in flat or saddle shaped deformity. The septal hematoma may be associated with nasal injuries followed by scar tissue formation. In traumatic nose, the shape of the nose is altered, deviation of the nasal septum, depression of the nasal dorsum occur. Therefore, esthetic deformity as well as functional obstruction may occur. The mobility of the fractured bones or crepitus is a significant sign. Subcutaneous emphysema may appear rarely on blowing the nose if there is mucoperiosteal disruption.<sup>9</sup> In the young nose, much of the structure is cartilage, which compresses or flexes and is more likely to buckle from trauma. Higher potential for cartilage displacement or fracture exists. Increased incidence of greenstick fractures, splaying, flattening, and cartilage avulsions also result from their normal anatomy.<sup>18</sup>

## CONCLUSION

Adequate knowledge of surgical anatomy of the nose help in good surgical technique. Rhinoplasty is a type of cosmetic surgical procedure that is used to enhance the function or appearance of the nose. Nose-reshaping surgery is frequently performed to correct the depressed nasal dorsum, refine the tip, and narrowing the width of the nose. The goal of rhinoplasty is to refine the natural appearance of the nose so that it is in harmony with the face.

Fractures of mid face should be managed

surgically within 2 weeks of trauma. Fortunately, we could achieve normal anatomical reduction and good occlusion after fixation in a case with late treatment and give an aesthetic contour of the nose by performing a secondary rhinoplasty.

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