

# CORRECTION OF POST TRAUMATIC SADDLE NOSE DEFORMITY: A CASE REPORT

Muhammad Nazir Khan<sup>1</sup>, Soha Kiyani, Zahra Saeed, Taha Rehman, Nazish Rasheed  
Armed Forces Institute of Dentistry (AFID), Rawalpindi, Pakistan

---

## ABSTRACT

Nasal bone deformities are common and could be caused by many factors such as genetic, traumatic, biological, or iatrogenic. Post traumatic nasal deformities account for major part of nasal abnormalities. A variety of treatment and grafting options are available for correction of nasal deformities. The purpose of this case report is to highlight the importance of proper treatment of Naso-orbito Ethmoidal fractures in first surgery and to advocate use of mandibular symphysis graft for correction of post traumatic saddle nose deformity.

**Keywords:** maxillofacial trauma, nasal deformity, saddle nose, rhinoplasty.

**How to cite:** Khan MN, Kiyani S, Saeed Z, Rehman T, Rasheed N. Correction of Post traumatic saddle nose deformity. HMDJ 2021; 01(01): 46-48

---

## INTRODUCTION

Nose is the most prominent feature of human face contributing both to aesthetics and function<sup>1</sup>. It is most commonly involved in facial trauma with highest incidence of fracture<sup>2</sup>. Post traumatic nasal deformities contribute to both aesthetic and functional complaints and has the incidence rate of 14 to 50 percent. The factors that determine the nasal deformity include direction, mechanism, and severity of the original trauma<sup>3</sup>. The presenting complaint of a patient is usually a more prominent, deformed, or asymmetric nose, and/ or nasal obstruction. Treatment of nasal deformities is complicated further by the presence of fractured and deformed nasal septal cartilage<sup>4</sup>. Surgical correction of the post traumatic deformity mostly includes bone or cartilage grafting. Mandible symphysis provides an easy donor site for bone grafting, its use for the correction of saddle nose deformity is not commonly reported. The purpose of this case report is to highlight the importance of proper treatment of Naso-orbito Ethmoidal fractures in first surgery and to advocate use of symphysis graft for correction of post traumatic saddle nose deformity.

## CASE REPORT

A 37-year-old male patient visited the Oral and maxillofacial Surgery Department of Armed Forces Institute of Dentistry, Rawalpindi – a tertiary care hospital - with the complaint

---

*Correspondence to: Brig. Muhammad Nazir Khan, Deputy Commandant (Clinical & Training), Armed Forces Institute of Dentistry (AFID), Rawalpindi, Pakistan.*

*Email: nazeerkhan996@gmail.com*

*Conflict of interest: None*

*Financial Disclosure: Nil*

---

*Received: 28-07-2021*

*Accepted: 29-08-2021*

---

of nasal deformity and compromised esthetics. He was a previously treated case of fracture Le-Fort I, Naso-orbito-ethmoidal (NOE) and zygomaticomaxillary complex fractures that were treated with open reduction and internal fixation.

On presentation to our setup in March 2021 post traumatic saddle nose deformity was appreciated with obstruction of right nasal pathway, flared nostrils, deviation of nasal tip and alar widening along with visible scar. Radiographically two plates, one linear and the other Y shaped could be appreciated in the nasofrontal region.

The clinical and radiographic examination confirmed a malunited NOE fracture.

The treatment plan formulated for correction of nasal deformity was rhinoplasty with bone grafting from the mandible symphysis region under GA. Other options discussed with the patient included:

- Costochondral graft
- Iliac crest
- Calvarial bone

Symphysis was opted for graft due to less chances of morbidity and intraoral incision mark.

After pre anesthesia assessment patient was admitted and prepared for surgery. Under aseptic conditions patient was orally intubated. Existing scar was used to place the incision onto the nasofrontal region. Vestibular incisions were made to approach nasomaxillary buttress and the symphysis.

Plates were removed from nasomaxillary and nasofrontal region. Bone graft from symphysis was harvested, shaped to the nasal dorsum and fixed using miniplate (12 holes x 7 Screws). After achieving hemostasis, the intra and extra oral incisions were closed using Vicryl and Silk sutures. The patient recovered



Figure 1: Pre and post-operative picture .



Figure 2: Post-operative clinical & Radiographic Appearance.

and healed uneventfully with satisfactory functional and esthetic results. Figure 1 explains pre and post-operative profile pictures of patient. Figure 2 explains post-operative lateral view (radiograph) and frontal view (photograph) of same patient.

## DISCUSSION

Nasal bone is the most commonly affected bone in facial trauma and accidents due to its prominence<sup>5</sup>. The saddle nose is most commonly seen after trauma or infections or as a sequel to NOE fractures. Villella stated that maxillofacial trauma frequently results in depression of the dorsum of nose which can lead to nasal coloboma, damage to lacrimal duct system and nasal obstruction.

As per LIMA, the saddle nose deformity can be anterior or posterior depending on the mode of injury and anatomical location.

Grafting options include autogenous tissue such as

- bone (calvarium, costae, ulnae, symphysis, iliac crest)
- cartilage (costae, septum or combination)
- alloplastic augmentation such as silicon, silastic, polyethylene
- fillers<sup>6</sup>

Autogenous grafts lead to advantage of less chances of graft rejection, infection and inflammation and balances flexibility and rigidity; however, the main disadvantage is donor site morbidity and prolong operating time<sup>7</sup>.

The first calvaria graft was performed by Tessier. It was stated by Thomason et al that calvaria graft has less resorption, however, it is contraindicated in cases of monocortical cranial vault or alopecia<sup>8</sup>.

For Class 1 and class 2 nasal deformities with minimum loss of dorsal support columellar retraction concha and septal cartilage grafts are proven to be adequate and effective<sup>9</sup>. The ease with which they can be transplanted and provide sufficient elasticity and support makes them favorable for small defects. The septal cartilage grafts however carry the risk of contour irregularities.

Extensive saddle nose deformities (class III and IV) require more rigid and reliable grafting options such as costal cartilage. It provides more stability and has been material of choice since ages<sup>10</sup>.

The iliac crest bone graft provides adequate bone and stability but carries morbidity of donor site and requires longer duration of surgery<sup>11</sup>.

The bone of the symphysis for saddle nose deformity is optimum as it provides adequate flexibility and support with minimum donor site morbidity and its ease of harvesting.

## CONCLUSION

NOE fractures should be addressed with great care in the primary surgery so as to avoid post traumatic deformities which are difficult to correct. However, if they do occur a variety of graft materials are present for correction of the post traumatic nasal deformity. The author's choice of graft material highlights his experience, patient consideration and amount of bone required for the correction. Bone from the symphysis region can provide excellent strength and flexibility. The ease of access and less post-operative donor site morbidity are additional advantages.

## AUTHORS' CONTRIBUTION

Brig. Muhammad Nazir Khan: Conceptualization, write up & proof reading.

Dr. Zahra Saeed: Write up.

Dr. Taha Rehman: Literature review.

Dr. Nazish Rasheed: Literature review.

## REFERENCES

1. Rohrich RJ, Adams Jr WP. Nasal fracture management: minimizing secondary nasal deformities. *Plast reconstr surg.* 2000;106(2):266-73.
2. Karakurt SE, Orhan Z, Karakus MF, Cetin MA, Ikinciogullari A, Dere H. Impact of Nasal Trauma on Olfactory Function. *J Coll Physicians Surg Pak* 2020; 30(09):912-916.
3. Genther DJ, Papel ID. Posttraumatic Nasal Deformities. In *Facial Trauma Surgery 2020*; (pp. 395-416).
4. 4. Marcus BC. The Traumatic Nasal Deformity. *Facial Plastic Surgery.* 2020;36(01):018-23.
5. Mahaseth RK, Gurung U, Thapa N, Pradhan B, Kharel B. Fracture Nasal Bone: Causes, Presentation and Management in a Tertiary Care Center in Nepal. *J Inst Med.* 2020 30;42(1):21-5.
6. Fattahi T, Salman S. Management of nasal fractures. *Atlas Oral Maxillofac Surg Clin North Am.* 2019;27(2):93-8.
7. Sawhney R, Chan D, Ducic Y. Principles of Correction: An Overview of Secondary Correction of Posttraumatic Bony Deformities. *Atlas of Operative Maxillofacial Trauma Surgery.* 2020:93-100.
8. Malhotra M, Varshney S, Joshi P, Gupta S, Malhotra R, Singh V. A Modified technique of rhinoplasty using cortical bone graft to correct saddle nose deformity with loss of septal cartilage. *Exp Rhinol Otolaryngol.* 2018; 2:101-4
9. Rašić I, Košec A, Pegan A. Semilunar conchal cartilage graft in saddle nose reconstruction. *European annals of otorhinolaryngology, head, and neck diseases.* 2018;135(5):357-60.
10. Gundeslioglu AO, Yildirim ME, Yazar S, Uyar I, Ismayilzade M. A different stabilization technique of autogenous cartilage grafts in saddle nose deformity: prevention warping and resorption. *J Craniofac Surg.* 2019;30(3):811-5.
11. Wexler AM, Baker SB. 42 Posttraumatic Facial Restoration—. *Aesthetic Surgery of the Facial Skeleton-E-Book.* 2021; 10:468.

-----