Saudi Journal of Medicine (SJM)
Scholars Middle East Publishers
Dubai, United Arab Emirates
Website: http://scholarsmepub.com/

ISSN 2518-3389 (Print)
ISSN 2518-3397 (Online)

Noe Fracture: A Case Report

Dr. Philip Mathew[1], Dr. Abhishek Jairaj[2], Dr. Shilpa PH[3], Dr. Rahul VC Tiwari[4]*, Dr. Salood Sadique[5], Dr. Heena Tiwari[6]

[1]HOD, OMFS & Dentistry, Jubilee Mission Medical College Hospital & Research Institute, Thrissur, Kerala, India
[2]Senior Lecturer, Faculty of Dentistry, AIMST University, Jalan Bedong-Semeling, 08100 Bedong, Kedah, Malaysia
[3]Senior Lecturer, Faculty of Dentistry, AIMST University, Jalan Bedong-Semeling, 08100 Bedong, Kedah, Malaysia
[4]MDS, OMFS & Dentistry, Fellow in Orthognathic Surgery, Jubilee Mission Medical College Hospital & Research Institute, Thrissur, Kerala, India
[5]MDS, OMFS & Dentistry, Jubilee Mission Medical College Hospital & Research Institute, Thrissur, Kerala, India
[6]BDS, PGDHHM, Government Dental Surgeon, CHC Makdi, Kondagaon, C.G. India

***Corresponding author**
Dr. Rahul VC Tiwari

Article History
Received: 22.07.2018
Accepted: 06.08.2018
Published: 30.08.2018

DOI:
10.21276/sjm.2018.3.8.4

Abstract: Naso-Orbito-Ethmoidal fractures can occur in single entity or in conjunction with other craniofacial fractures. Most often they are associated with frontal Le Fort II or Le Fort III fractures. It involves nasal bones including bony septum, the frontal process of the maxilla and nasal–orbital–ethmoid complex bilaterally. Open and Closed reduction are the two ways of management which are adapted by surgeons according to the situation and severity. This article describes a case report of 21-year male patient with history of road traffic accident who is diagnosed with naso-orbito-ethmoid fracture and was treated with open reduction and internal fixation.

Keywords: Maxillofacial Injuries, Naso-Orbito-Ethmoid Fracture, Canthopexy, ORIF.

INTRODUCTION

The nose is the most much of the time harmed facial structure, representing roughly 40% of hard wounds in facial injury [1]. The region of crack of nasal bones is slenderer lower than 66% [2]. Classification is based on Type I, Type II and Type III. Type I is single non-displaced or displaced segment at the internal angular process of frontal bone. In Type II comminution in the central fragment remains external to the insertion of medial canthal tendon. In Type III facture of central fragment includes region of canthal insertion. Canthal stripping, transnasal canthopexy and bone grafting are the keys to management. Craniofacial skeletal defects remain a significant clinical challenge for the facial reconstructive surgeon [3].

Current approaches use various techniques of autologous tissue grafts and alloplastic implants to augment and replace deficient sites. Most important clinical feature is telecanthus and CSF leak. 3DCT is best reliable tool for evaluation.

Open reduction and internal fixation are often chosen treatment plan. Main goals are establishment of proper nasal projection, narrowing of the intercanthal distance, and the establishment of the frontonasal and lacrimal fluid route. Medial canthopexy is done by transnasal wiring. Secondary or late reconstruction is much more difficult. Therefore, timely correction is helpful in correcting aesthetic and functional defects. Besides, the early administration of NOE fractures, even on account of seriously comminuted Type III cases, is of impressive significance to dodge auxiliary distortions. Frontal sinus assessment radiographically is most extreme critical [4].

CASE REPORT

A 21-year male patient with allied history of motor vehicle accident reported to our department of casualty. On physical examination GCS was stable with no long bone injury or blunt trauma. On extra oral clinical examination there was presence of telecanthus, increased intercanthal distance and deviated nasal bridge (Figure-1A). On palpation there was tenderness and depression on the frontonasal junction and medial walls of the orbits. A three-dimensional computed tomography scan was taken to evaluate the extent of lesion which showed a clear naso-orbito-ethmoid fracture (Figure-3A). as per the severity of fracture an open reduction and internal fixation was planned. Under aseptic precautions and general anesthesia bi coronal approach was used for opening the fracture site. A 1.5 mm 8-hole plate with gap was used to fix the frontal bone near the frontonasal junction. Treatment of nasal bone fractures can be by two methods, open and closed reduction. Due to comminuted fracture we preferred closed reduction of fragments by combination of

Walsham's forceps and digital manipulation and stabilization with nasal pack and external cast splint. Other method is open reduction and fixation using mini plate or wires. Each of these methods has varied results because of the technique involved. Closed method in combination with nasal pack and external cast splint may not establish the contour and projection of the nasal bridge. In this method, intranasal packing can lead to over correction and widening of nasal bridge. External cast splint was used and it can become loose after 48–72 h postoperatively once the oedema settles (Figure-2). There was mild CSF leak post operatively for 3 days which gradually reduced with the medical management. This requires another cast to be replaced which was done after a week during suture removal. A new splint was kept and it was removed after 2 weeks when the patient came for follow up. Post operatively we achieved patients and our expectations by achieving proper intercanthal distances and removing telecanthus (Figure 1B). Post-operative 3DCT scan showed the better results (Figure-2B).

Fig-1A:Pre-operative Clinical Picture

Fig-1B: Post-Oprative Clinical Picture

Fig-2A & B: Immediate Post-Oprative Picture (A-Without Splint, B-With Splint

Fig-3A: Pre-operative 3DCT Scan

Fig-3B: Post-Oprative 3DCT Scan

CONCLUSION

Naso-Orbito-ethmoid fractures due to their complexity are often missed by surgeons. Even in the present decades most of the surgeons get confused to choose between open and closed reduction of NOE fractures. Coronal, Transconjunctival, subciliary and maxillary buccal sulcus incision gives a wide range of accessibility to these fractures. Three-dimensional computed tomography including axial, coronal and sagittal section gives an excellent view to diagnose the defects. Advances occurred in treatment of NOE fractures in the past decades has led to an ease of operation for the oral and maxillofacial surgeons. Minimally invasive techniques not only make the surgery smooth but also increase the quality of life of patients. Ongoing advances in procedures for the remaking of the craniofacial skeleton have brought about a need to refresh our insight with respect to new strategies for the administration of NOE fractures.

REFERENCES

1. Bartkiw, T. P., Pynn, B. R., & Brown, D. H. (1995). Diagnosis and management of nasal fractures. *International journal of trauma nursing*, *1*(1), 11-18.
2. Cox 3rd, A. J. (2000). Nasal fractures--the details. *Facial plastic surgery: FPS*, *16*(2), 87.
3. Elahi, M. M., & Markowitz, B. L. (2000). Nasal and nasoethmoidal-orbital fractures: A continuum of injury. *Canadian Journal of Plastic Surgery*, *8*(2), 73-77.
4. Sh, M. E., Shahnaseri, S., Soltani, P., Motamedi, M. R. K., Fararoei, M., Sadat, S. J., ... & Khankeh, H. R. (2016). Management of Naso-Orbito-Ethmoid Fractures: A 10-Year Review. *Management*, *7*, 8.