

Original Article

Nasal bone fracture – timely intervention is a need

Manjunath KN¹

Abstract

Nose is a central projection in the face with fragile skeleton. A trivial trauma can result in a significant deformity. Although majority suffer a bony injury, overlying swelling masks the deformity. If such deformity is not identified and intervened, it can lead to soft tissue changes as well as bone deformity, which may require septoplasty or rhinoplasty later hence in nasal bone fracture intervention in the timely manner is a must to reduce the long term morbidity and the cost of treatment result in a significant deformity. Although majority suffer a bony injury, overlying swelling masks the deformity. If such deformity is not identified and intervened, it can lead to soft tissue changes as well as bone deformity, which may require septoplasty or rhinoplasty later hence in nasal bone fracture intervention in the timely manner is a must to reduce the long term morbidity and the cost of treatment.

Key words: *Nasal bone fracture; septoplasty; rhinoplasty*

Introduction

Nasal fractures are the most common facial fracture. Nasal bones and underlying cartilage are susceptible to fractures as the nose maintains a prominent position and central location on the face and because it has a low breaking strength they often go unnoticed¹. Patients with nasal fractures usually present with combination of deformity, tenderness, hemorrhage, edema, ecchymosis, instability, and crepitations. Sometimes, edema can mask underlying nasal deformity and further diagnosis and appropriate treatment may be hampered. Especially when the underlying structural integrity of bone and cartilage is lost, untreated nasal fractures can result both in unfavourable function as well as appearance and these accounts for the high percentage

of rhinoplasty and septoplasty procedures later on. Thus appropriate treatment is best done before scarring and soft tissue changes occur in irreversible fashion. To restore facial appearance nasal bones may need realignment and this reduction should take place within a certain period of time from the injury. Unless the injury is severe, waiting couple of days until most of the swelling reduced is advisable but, if we wait too long the operation becomes more difficult and success rate is reduced.

Methods

This study based on our experience of 16 patients of isolated nasal bone fractures. Patients having nasal bone fracture as a part of pan facial fracture (fractures involving other bones of face) were excluded from the study. No study tools were used as this is not a formal study

Address of Correspondence: Dr. Manjunath KN, MS. Ramaiah Medical College, India.

Result

Out of the 16 patients, 12 were male & 4 female. All had LMV (light motor vehicle) road traffic accident. 14 had displaced fractures which needed reduction, 2 were managed with splinting as fractures were not grossly displaced. Swelling and transient nasal bleed was the major complaints in all of them. Post operatively all were happy and no one required delayed septoplasty or rhinoplasty



Fig.1 a. *Grossly displaced nasal bones*



Fig.1 b. *2months post op picture*



Fig 2 a. *Deformity masked due to edema*



Fig 2 b. *1 month post op picture*

Discussion

Nose occupies the central position in face and due to the projection from the facial plane any trivial impact is borne by the nasal skeleton. Among the nasal structures nasal bones are thin and the bone - cartilage junction is weakest, hence the damage is mostly seen in this area. With forceful impact, the nasal septum may be involved. In septum either haematoma or the displacement from the bony attachment is major pathology. A septal haematoma can lead to infection later perforation which can be a permanent morbidity, which needs to be followed up

regularly. Although the studies show most nasal bone fractures in young adults and are related more to altercations and sporting injuries and less to motor vehicle accidents^{4,5,6}; in our institute most were middle-aged and all were due to motor vehicle accidents. The unpleasant deformity was not appreciated by the patient himself, probably due to the overlying oedema or haematoma. The use of plain images and computed tomography (CT) scans for the diagnosis and management of nasal fractures has been controversial. Several small studies have shown that use of these modalities is neither cost-effective nor beneficial to the patient or physician¹. We used in 3 patient CT scan where the indication was different from nasal fracture, rest were diagnosed with plain radiograph we reduced the fractured bone on 2/3rd day in our institute and splinting was done for 15 days maintains the alignment. Dr. Bermant has his patients wait a couple of days after early evaluation (until most of the swelling goes down) and inferred waiting too long makes the operation difficult.

After 6 months of follow up, no patient required any secondary procedures either for appearance or function but studies show untreated nasal fractures account for the high percentage of rhinoplasty and septoplasty procedures performed months to years after the initial trauma. Thus, appropriate treatment is best rendered in a timely manner, before scarring and soft tissue changes occur^{1,4,5,7,8,9,10}.

Conclusion

Nose being a fragile structure projecting from the facial plane, minimal assault can result in fracture. Most patients cannot recognise the underlying deformity because of oedema or haematoma and oedema can mask the deformity. Correcting the deformity prevents the scarring and the soft tissue changes avoiding the need of secondary septoplasty or the rhinoplasty. Hence, Recognising and reducing the nasal fracture in a timely manner reduces the cost of treatment as well as long term morbidity.

References

1. Murray JA, Maran AG, Mackenzie IJ, Raab G. Open v closed reduction of the fractured nose. *Arch Otolaryngol*. Dec 1984; 110(12): 797-802
2. Bremke M, Gedeon H, Windfuhr JP, Werner JA, Sesterhenn AM. Nasal Bone Fracture: Etiology, Diagnostics, Treatment and Complications. *Laryngo-rhinootologie*. Jun 26 2009; 136: 876-87
3. Carboni A, Perugini M, Palla L, Ramieri V, Taglia C, Iannetti G. Frontal sinus fractures: a review of 132 cases. *Eur Rev Med Pharmacol Sci*. Jan-Feb 2009; 13(1): 57-61.
4. Hussain K, Wijetunge DB, Grubnic S, Jackson IT. A comprehensive analysis of craniofacial trauma. *J Trauma*. Jan 1994; 36(1): 34-47.
5. Muraoka M, Nakai Y, Shimada K, Nakaki Y. Ten-year statistics and observation of facial bone fracture. *Acta Otolaryngol Suppl*. 1991; 486: 217-23.
6. Logan M, O'Driscoll K, Masterson J. The utility of nasal bone radiographs in nasal trauma. *Clin Radiol*. Mar 1994; 49(3): 192-4
7. Fraioli RE, Branstetter BF 4th, Deleyiannis FW. Facial fractures: beyond Le Fort. *Otolaryngol Clin North Am*. Feb 2008; 41(1): 51-76, 7. Fraioli RE, Branstetter BF 4th, Deleyiannis FW. Facial fractures: beyond Le Fort. *Otolaryngol Clin North Am*. Feb 2008; 41(1): 51-76
8. Tremolet de Villers Y, Schultz RC. Nasal fractures. *J Trauma*. Apr 1975; 15(4): 319-27
9. McRae M, Momeni R, Narayan D. Frontal sinus fractures: a review of trends, diagnosis, treatment, and outcomes at a level 1 trauma center in Connecticut. *Conn Med*. Mar 2008; 72(3): 133-8
10. Cummings CW, Fredrickson JM, Harker LA, et al, eds. Otolaryngology Head and Neck Surgery. Vol II. 3rd ed. St Louis: Mosby-Year Book; 1998.