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RESEARCH ARTICLE

INTRAORAL SEPTORHINOPLASTY- A MAXILLOFACIAL SURGEON'S PERSPECTIVE.

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Abstract

Nasal fractures are amongst the most commonly encountered facial injuries befalling across a broad spectrum of age groups. Failure to or improper treatment can lead to persistent deformities like airway obstruction and visual nasal deformities that are consequently more difficult to correct. Managing post traumatic deformities require expertise in complex septo-rhinoplasty procedures using trans-nasal or extra-oral incisions usually performed by trained Plastic or ENT surgeons. In this case report, we propose an intraoral approach to provide adequate exposure of all nasal components for performing the procedure with greater ease and reliability by maxillofacial surgeons who are trained in orthognathic procedures.

Introduction:-

The nose being the central and most forward projection of the face makes the nasal soft tissue, cartilage and bone more prone to injury. Based on the location and projection, it is not very difficult to foresee that the components of the nose will endure and be involved in a high percentage of trauma induced afflictions in humans (1).So, it should not be surprising that fractures of the nasal bones are the most common facial fractures (39 to 45% of all facial fractures) and the third most common fracture in the human skeleton (2). Blunt trauma such as motor vehicle accidents, sport injuries, and physical altercations are the most common causes of nasal fractures (3).

Because many nasal fractures are associated with multiple trauma, a high percentage of them are not promptly diagnosed and imprecise treatment of a well-recognized fracture of the nasal pyramid often leads to secondary deformities and chronic nasal impediments. However, the management of traumatic nasal injuries remains a debated issue among surgeons. Commended management diverges widely between no intervention at all to extensive open procedures involving rhinoplasty techniques. Conventionally, the treatment of nasal fractures is divided into closed reduction and open reduction. Closed reduction is a reasonably simple procedure, at times producing adequate outcomes if performed in an acute setting. However, advocates of open reduction purport better aesthetic results and a high prospect that closed reductions will eventually need secondary corrective procedures using an open technique. Thus, determining the type of technique to be used for a given nasal fracture can be a challenging task for a surgeon (4).

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Gross post traumatic or postoperative nasal deformities are common and obvious even to the untrained eye; however, only with deliberate inspection and palpation can the surgeon correlate these problems to specific anatomic sites and thereby formulate a surgical plan (5). Apart from the complex diagnostic approach, management of post traumatic nasal deformity requires surgical expertise in septorhinoplasty procedures using endonasal and trans columellar incisions for which every oral and maxillofacial surgeon is not trained in, facial incisions like open sky, H- shaped or Lynch incisions are also used which sometimes do not provide appropriate exposure and leave significant scars on the face. Keeping this in mind we tried to devise a complete intraoral approach to nasal pyramid and septum for adequately managing nasal complex fractures or their post traumatic deformities.

The upper vestibular (trans-mucosal) approach as used for Le Fort-1 osteotomies and other oral surgical procedures provide advantages like adequate exposure to all nasal components, ease to perform simultaneous septoplasty and an approach which can be used by most of the oral and maxillofacial surgeons trained in orthognathic surgeries with relative ease and confidence.

Case Report

A 20 year old male presented with the chief complaint of non-pleasing appearance of his nose and slight difficulty during breathing from right side of nose since 2 months. Patient gave history of road traffic accident two months back during which he suffered multiple facial injuries with associated limb injury for which he was managed primarily and was admitted in orthopaedic surgery unit. After about two months he got concerned for his deformed nose and reported to the Department of Oral and Maxillofacial Surgery, PGIMS, Rohtak, Haryana. Thorough clinical and radiological examination revealed depressed nasal bridge along with deviated nasal septum and nasal tip towards left with no clinical mobility and crepitus of fractured segments. There was a small existing scar over dorsal aspect with excessive tissue formation over that area. On performing nasal patency tests, left nostril was found to be more patent as compared to the right side. He was advised radiographic investigation- cone beam computed tomography of face which revealed fractured root of nose with complete collapse of nasal pyramid as bilateral frontal process of maxilla were fractured and impacted. Bony septum was also fractured along with detachment of anterior nasal septum from the crest.

Patient was cleared from Department of Anaesthesia after thorough pre-anaesthetic check-up and planned for the correction of residual deformity of nose under general anaesthesia.

Operating Technique

Patient was made to lie supine and intubated orally with endotracheal tube passing through retro molar space for the ease of surgery. Tube was anchored to left first molar with the help of stainless steel wire. Injection adrenaline was locally infiltrated in maxillary labial and buccal vestibule. After achieving complete vasoconstriction, vestibular incision was placed from maxillary right first molar to left first molar. Full thickness mucoperiosteal flap was raised to expose the piriform aperture and bilateral frontal processes of maxilla which seemed to be impacted. After exposure, the impacted osseous segments were reduced to their anatomic position and fixation was done using 1.5 millimetre titanium miniplates at bilateral frontal process of maxilla. Further exposure of nasal septum was done which was found to be detached from the crest. Septum was reduced using Asche's forcep and secured to its midcentral anatomic location applying cinch sutures anchored to anterior nasal spine. Alar width of 38 mm was achieved intra-operatively in contrast to preoperative 42 mm width. Extra nasal reduction of depressed nasal bone was done and maintained using merocel (polyvinyl alcohol) intranasally and by extra nasal thermoplastic splint. Existing scar with excessive tissue over dorsum was revised and intraoral closure was done under aseptic conditions.

Fig1:-Septal detachment

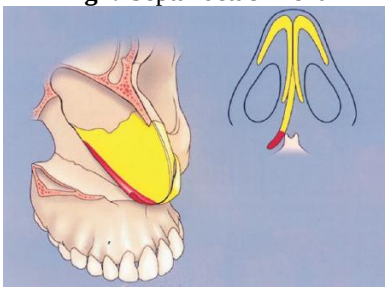
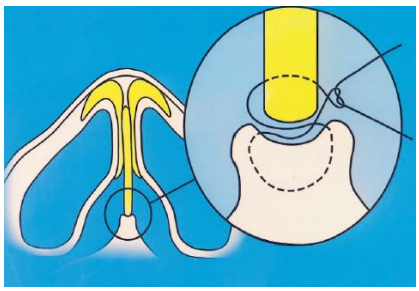


Fig 2:-Septal anchorage sutures



Discussion:-

A fracture of the nasal pyramid is the most common facial fracture, requiring suboptimal force than that for any other facial bone. The increasing prevalence of this injury presents the Maxillofacial, Plastic and ENT surgeons with challenging treatment options. Although nasal fractures are often neglected and conferred as minor injury, the incidence of post-traumatic nasal deformity remains high (14- 50%). Revision or secondary procedures for correction of traumatic nasal deformity are considered as difficult requiring higher training and expertise (6,7). Deviated and impacted nasal pyramid is frequently caused due to incomplete acute management and often results in suboptimal surgical outcome because deformities presented in the deviated nose differ from patient to patient and also both functional and aesthetic problems must be addressed concurrently (8). Precise anatomic analysis of the deformity and the application of well thought-out osteotomy techniques are important when correcting bony deformities. Various surgical techniques to correct the deviated nose have been styled, but there is no single method that should or can be used for every deviated nose (9).

Another significant determinant of success is the treatment of the nasal septum in the acute setting. The proverbial "dorsum follows the septum" cannot be exaggerated when addressing nasal complex fractures (10).

Limitations of the Approach

The proposed limitations of the trans-oral approach are:

1. Endotracheal tube can be problematic as the surgical site is same as the intubation site.
2. This technique can only provide adequate exposure of the nasal pyramid if the anterior nasal septum is detached from the pyriform crest.
3. Dorsum of the nose cannot be accessed through this approach.

Conclusion:-

The surgical approach technique presented in this study, which includes exposure of the nasal pyramid through intraoral (upper vestibular incision) approach was found to be simple, effective, safe and provided adequate exposure of the nasal pyramid for correcting post-traumatic nasal deformity, which produced satisfactory results.

We propose that this approach can be consistently used by Maxillofacial surgeons for refracturing malunited sites and anatomic reduction of refractured nasal bone. It can also be used for performing simultaneous septorhinoplasty which is often required for correcting nasal deformities.

Fig 3:-Preoperative frontal view

Fig 4:- Birds eye view

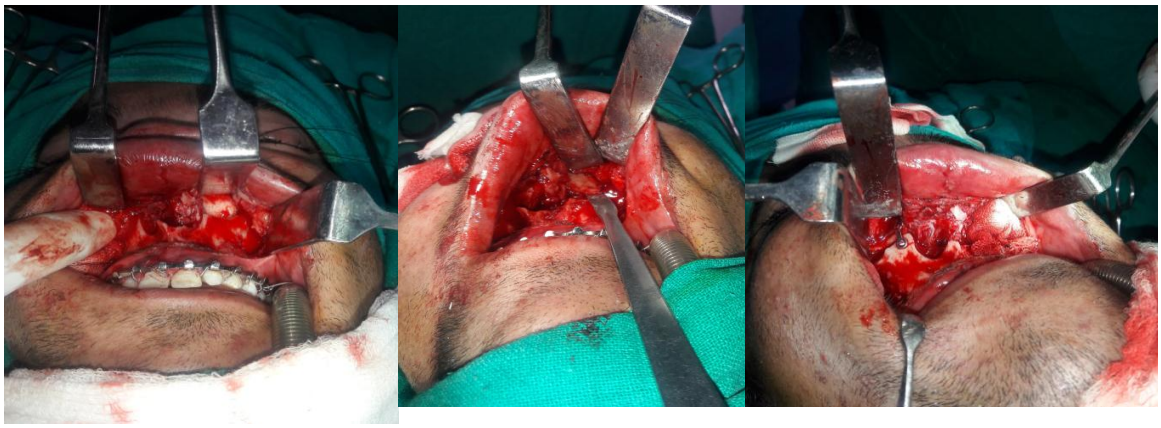


Fig 5:-Intraoperative photographs

Fig 6:- 1 month postoperative photograph

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