



## CASE REPORT

### Delayed Correction of Post Traumatic Malocclusion – A Case Report.

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**ABSTRACT:** Dentofacial and maxillofacial deformities are common in the general population, ranging from mild abnormalities of the teeth to extensive and widespread deformities involving the entire face and skull. The incidence of maxillofacial trauma is steadily increasing, maxillary fractures being extremely severe. More extensive deformities require a surgical approach in treating dentofacial and maxillofacial deformities. Typically, both the soft and hard tissues of the face, along with the teeth and bite, need to be considered in formulating a definitive treatment plan, which will lead to the best outcome. Here we report a case of residual deformity resulting in disturbance in occlusion, function and esthetics where a single piece osteotomy with a single semi-rigid fixation was performed to restore the occlusion.

**Key words:** *Unilateral LeFort I osteotomy, Post traumatic malocclusion, Residual deformity*

Correction of bony deformities may be carried out by using osteotomy, onlay grafting or a combination of both techniques. If an individual component of the facial skeleton is of normal morphology but in abnormal position (displacement), osteotomy is usually the technique of choice. If the bulk of the bone is in normal position but there is abnormal morphology as in localized contour deficit (deficiency) then onlay grafting may be appropriate. If both displacement and deficiency exist, then both techniques may be required. However, the choice of technique must take into account the concerns of the patient, as well as the nature and degree of deformity, the extent of surgery required, potential complications and a realistic assessment of the likely outcome.<sup>[1]</sup>

Secondary osteotomies for trauma patients are usually carried using conventional surgical techniques with the use of inter positional bone grafting if required to fill gaps created by the bony movements, to ensure primary bone healing, stability of the bony movement and support for overlying soft tissues.<sup>[2]</sup>

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A 32 year old gentleman reported to the department of



Fig: 1A. Preoperative profile. 1B. Post traumatic malocclusion in right side. 1C. Normal occlusion in left side. 1D. Oronasal communication in the palate.

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Fig: 2. Dental Study Model

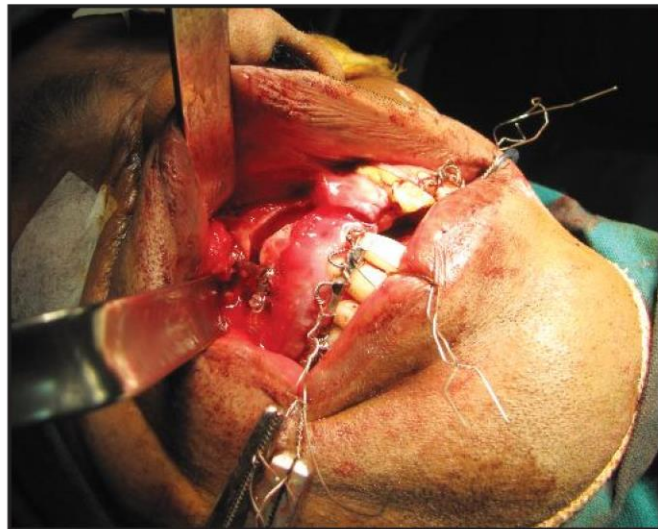


Fig: 3. Intraoperative photograph after unilateral Lefort I osteotomy stabilized with an L-shaped miniplate fixation

Oral and Maxillofacial Surgery with a chief complaint of inability to chew food for the past two years. He gave a history of road traffic accident two years ago. He was well oriented and conscious.

Extraoral examination revealed facial asymmetry. Further examination revealed a malunited Lefort I, II, III fracture, palatal split and naso-orbito-ethmoidal complex fracture with loss of vision of the left eye (Fig1).

Intraoral examination showed a patent oronasal communication and open bite was present in relation to the right side with normal occlusion on the left side. The patient was not concerned about his appearance, but was

really worried about his inability to chew the food during mastication.

Radiographic investigations were carried out to confirm the diagnosis. Routine hematological investigations were found normal and the patient was posted for surgery under general anesthesia for post traumatic occlusal correction. Study models were mounted on the articulator (Fig-2) and mock surgery (unilateral Lefort I osteotomy) was performed which showed satisfactory achievement of occlusion. In this position a surgical splint was fabricated.

A unilateral modified Lefort I osteotomy was performed on the right side, down fractured and brought into occlusion with the use of surgical splint. The segment was stabilized with the help of inter maxillary fixation (IMF) and an L shaped stainless steel plate with three 2 mm X 6 mm stainless steel screws were fixed (Fig-3). The wound was irrigated well with povidone iodine and normal saline. After achieving adequate hemostasis, wound was closed with 3-O vicryl sutures. The palatal mucosa in the region of the oro nasal communication was freshened up and sutured with 3-O vicryl. IMF was released and patient was extubated. Patient recovery was satisfactory.

Post operative arch bar with guiding elastics was placed for a period of 5 weeks. The patient regained his normal Angle's class I malocclusion and was happy that he was able to chew the food. Periodic follow up showed no signs of relapse.

## DISCUSSION

Post traumatic malocclusion may present following malunion of any fracture that directly or indirectly involves the alveolar segments of the maxilla or mandible. These include isolated dentoalveolar fractures of maxilla or mandible, maxillary fractures including Lefort I, II or III with or without palatal split, zygomatic complex fractures and mandibular fractures. Before the introduction of mini plating, stabilization of the occlusion by IMF was the primary aim of treatment of facial fractures. The introduction of internal fixation makes direct anatomical segment reduction the primary aim.



Dental study models are necessary to assess whether segmental surgery or whole jaw surgery should be undertaken. If the pre traumatic occlusion is obtainable with the existing arch form, then one piece jaw surgery is indicated. Face bow recording, anatomical articulation and fabrication of surgical splint are useful in planning treatment for correction of open bite.<sup>[3]</sup>

In order to correct occlusal abnormalities due to maxillary malunion, Lefort I osteotomy is indicated. A low level Lefort I osteotomy was performed in our case due to the presence of tissue scar contracture and malunion of bone present in relation to the nasal floor.<sup>[2]</sup>

Although the use of rigid fixation of bony segments in orthognathic surgery has become a standard of care, the question still remains. Because of the problems with various methods of osteosynthesis for the osteotomies commonly used in orthognathic surgery, semi rigid fixation method is used to stabilize the osteotomized fragments for bone healing with enough flexibility to avoid the problems arising from absolute rigid fixation. Mild occlusal correction can be obtained with the use of semi rigid fixation in combination with IMF.<sup>[4]</sup>

## CONCLUSION

In our case, stability of the segment was achieved with the use of anterior internal semi rigid fixation alone which coincides with the study conducted by Yoon HJ et al.<sup>[5]</sup>

## REFERENCES

1. Gruss JS. Fronto-naso-orbital trauma. Clin Plast Surg 1982;9(4):577-89.
2. Cohen SR, Kawamoto HK. Analysis and results of treatment of established post traumatic facial deformities. Plast Reconstr Surg 1992;90(4):574-84.
3. He D, Zhang Y, Ellis E. Panfacial fractures: analysis of 33 cases treated late. J Oral Maxillofac Surg 2007;65(12):2459-65.
4. Mavili ME, Canter HI, Saglam-Aydinatay B. Semirigid fixation of mandible and maxilla in orthognathic surgery: stability and advantages. Ann Plast Surg 2009;63(4):396-403.
5. Yoon HJ, Rebellato J, Keller EE. Stability of the Le Fort I osteotomy with anterior internal fixation alone: a case series. J Oral Maxillofac Surg 2005;63(5):629-34.

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