



Management of Bilateral Le Fort II Fracture - A Case Report

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ABSTRACT –

An attempt to classify mid-facial fractures was made by Rene Le Fort who categorised them into LeFort I, II and III. Le Fort II fracture is also known as ‘PYRAMIDAL or “SUBZYGOMATIC FRACTURE’. The Lefort fracture line runs from the frontonasal suture line originating from the thin nasal bones running down on either side , crossing the frontal process of maxilla into the medial wall of each orbit . Within the orbit , the fracture line runs across the lacrimal bone posterior to the lacrimal sac and crosses the infra orbital margin medial to or through the infra orbital foramen. The line then extends downwards and backwards across the lateral wall of the antrum inferior to the zygomaticomaxillary suture and divides the pterygoid laminae. Pterygoid process of sphenoid bone is involved in all Lefort fractures . The LeFort fractures are further classified depending upon the involvement of the zygomatic , nasal and the maxillary bones . Trauma to the mid face due to motor vehicle collisions , physical assault , falls or sports injuries are the most common causes. In this case , LeFort II fracture resulted due to a rod traffic accident.

KEYWORDS- LeFort Fracture , Trauma , Computerized Tomography , Facial Bones , Open reduction .

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I. INTRODUCTION

Sports injuries account for a high percentage of facial injuries among the young individuals .^[1] Mid facial injuries represent the most common form of trauma mainly because of the central position and fragility of the midface. ^[2] Mid face fractures comprise a wide array of fracture combinations , involving a variety of etiologies and complexities .The immediate management of mid face fractures in the emergency department comprises of maintenance of patent airway , achieving cessation of haemorrhage , replenishing fluid , antibiotic prophylaxis , tetanus prophylaxis , monitoring vitals at regular intervals , Glasgow Coma scale scoring (CNS Assessment) , Evaluation of cervical spine injuries and pain control. Signs and symptoms of LeFort II include circumorbital edema and ecchymosis (black eye) . ballooning of face (moon face) , subconjunctival hemorrhages confined to medial half of eye , impaction of fragment against the base of the skull .There may be gross elongation of the face if there is a downward and backward displacement of the fragment . In addition to these , surgical emphysema , CSF leak , airway obstruction and paresthesia of the cheek may be noted . In this article , we report a case of Le Fort II in which Open Reduction and Internal Fixation was done .

II. CASE REPORT

A 18 year old boy reported to the department with a chief complaint of pain and swelling over the right and left cheek region since 2 days. The patient was apparently asymptomatic 2 days back when he allegedly got injured due to trauma from road traffic accident . The patient does not report loss of consciousness . No ENT bleed reported. Patient was taken to a nearby hospital where primary management and suturing of extra oral wounds was done .

The patient then reported to our institution in a fully conscious and oriented state with the vitals well within the normal range . On local examination , periorbital edema and ecchymosis was present in relation to the right eye . Right subconjunctival haemorrhage was present .(figure 1) Extra oral laceration was present in the philtrum region which was already sutured . On intra oral examination, there was avulsion of 11, 12 and 21 .(figure

1) Routine blood investigations were carried out such as CBC , Hb , BT , CT , RBS , LFT , KFT . Other pre operative investigations such as ECG , Chest X Ray were carried out . All the parameters were within the normal limits .



Figure 1

CT scan of the face (coronal and axial views) (figure 2 and figure 3)alongwith a 3D Reconstruction CT was advised (figure 4) . On examining the CT scan , the fracture line starting at the frontonasal suture extended bilaterally across the medial wall of the orbit , infraorbital rim on the right side and through the zygomaticomaxillary suture bilaterally .There was slight degree of separation at the right frontozygomatic suture. Hence , a diagnosis of Bilateral LeFort II fracture was framed . The fracture was confirmed as it proceeds posteriorly through the nasal septum and the pterygoid plates .

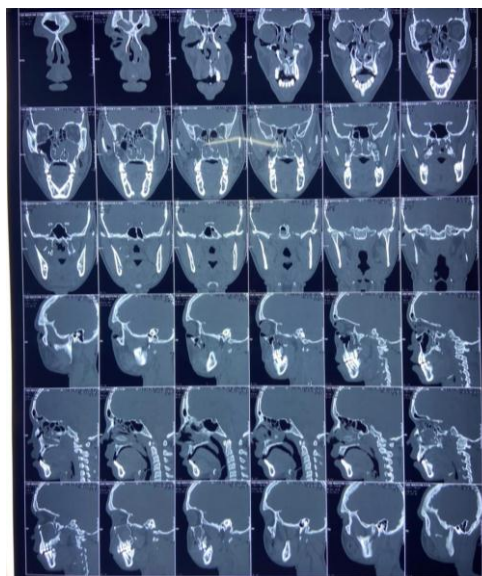


Figure 2



Figure 3



Figure 4

Arch bar fixation was done pre-operatively .(figure 5 and figure 6)Neurosurgery clearance was obtained and after the pre anesthetic check up , the patient was deemed fit for surgery . The patient was operated under general anesthesia using sub mental intubation. Skin preparation was done using povidone-iodine solution.



Figure 5



Figure 6

Vestibular incision was placed in relation to 17 – 26 region. Mucoperiosteal flap was elevated and the fracture site was exposed. The fracture site was reduced using Rowe's disimpaction forceps. After the Intermaxillary fixation, the fracture fragments were stabilised. Fracture fixation was done on the right side using 5 hole 2mm L-shaped plate and 2 (2 Hole 2 mm plates) on the right side at the zygomatic buttress and the piriform aperture using 8 (2 x6 mm) screws. (Figure 7)

On the left side, fracture fixation was done using 4 hole 2 mm L Plate and 2 (2 Hole 2 mm plates) using 8 (2x 6mm) screws. (Figure 8)

The right frontozygomatic suture was exposed using a lateral brow approach and after reduction was fixed using a 4 hole 2 mm orbital plate using 4 (2 x 6 mm) screws. (Figure 9)



Figure 7



Figure 8



Figure 9

POST OPERATIVE PICTURES



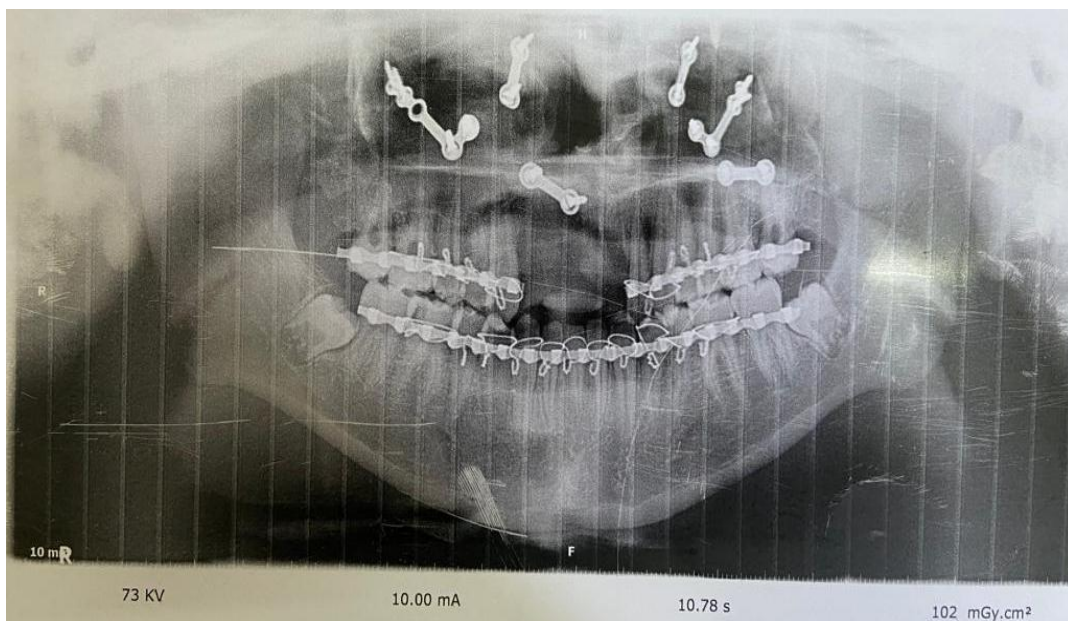
Post Operative Frontal View



Post Operative Right Side Occlusion



Post Operative Left Side Occlusion



Post Operative OPG

III. DISCUSSION

The management of LeFort fractures involves open reduction and internal fixation (ORIF). The fracture fragment should be reduced using a Rowe's Disimpaction forceps. The direction of manipulation should be away from the base of the skull until it is freely mobile.^[3] The fixation methods employed can be divided into internal fixation (within the tissues) and external fixation (extra oral immobilization). Majority of the mid face fractures can be adequately reduced and immobilized using internal fixation. The more complex and extensively comminuted fractures and those associated with fractures of the mandible require external / extra oral support.^[4] Rene Le Fort described the classification after analysis of facial crush injuries in the cadavers. He experimented

by delivering blunt force at various angles on cadaveric heads and read about the mid facial fractures. [5] He concluded that all the mid facial fractures can be categorized as horizontal , pyramidal or transverse and coined the term Le Fort I for horizontal fracture , LeFort II for pyramidal and Le Fort III for transverse fractures involving the mid face.

In LeFort I fracture , the fracture line runs horizontally across the maxilla and so involves the pterygoid process of the sphenoid bone. In LeFort II fracture , the line is pyramidal in outline running from the nasal bridge , lacrimal bones , orbital rims and floors extending across the maxilla till the pterygoid plates . In LeFort III , there is separation of the skull and facial bones with the fracture line running posteriorly from the nasal bridge towards the zygomatic arch passing through medial and lateral orbital walls on both sides , associated with cerebrospinal fluid (CSF) leak. [6]

The three lines – Orbital , Zygomatic and Maxillary lines on radiographs are called Dolan's Lines . [7] The zygomatic and the maxillary lines together resemble the head of an elephant which is called the Elephant of Rogers . The aim of LeFort II fracture management is to control infections , reduce and to fix fracture segments and immobilization . Increased movement of fracture fragment after surgical management can hinder new bone formation and lead to infection . [8]

Reduction should be targeted at restoration of important aspects such as form , function and aesthetics . Proper occlusion should be achieved . Open reduction and internal fixation will be more difficult if it is delayed more than 10 days in mandible and 3 weeks in the maxilla . [9] IMF immobilization should be done for 4 to 6 weeks for the mandible and 3 to 4 weeks for the maxilla to obtain good occlusion. [10]

The complications arising from the management of LeFort II fracture reduction include lengthening or flattening of the face or the entire profile leading to a DISH-FACE deformity , palatal defects , anterior open bite . Partial or complete obstruction of the nasolacrimal duct is one of the most common complications of LeFort II fractures – DACROCYSTITIS . Diplopia , oculomotor and abducent nerve damage can also occur . Mal union and non – union of the fracture fragments are other reported complications .

IV. CONCLUSION

The management of LeFort II fracture should be carried out in a step-wise pattern. This makes the reduction of complex comminuted fractures possible .Restoration of occlusion remains the mainstay of the management . Maintenance of facial esthetics are early indicators of successful fracture management . Understanding the pattern of mid facial fractures and early identification of the associated trauma can help in improving the management of these complex facial fractures.

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