Fortuitous Le Fort Osteotomy in an Interpersonal Assault- A Case Report.

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Abstract

Violence is one of the primary sources of facial injury. It forms a big part of emergency care and trauma and differs from each because of the physical, psychosocial and economic relations. Trauma from pointed arms happens less frequently affecting the head and neck region, most commonly affecting males. Facial injury: 83 percent comprises of bone fracture, 66 percent of lacerations & 53 percent comprises of hematomas.

Keywords: *Assault using sharp weapon, le fort osteotomy.*

Introduction

The form of injuries witnessed associated with the suspected weapon used, but only hematomas or fractures suffered by 20 percent of victims who reported attacks with sharp weapons. The most casualties are caused by punching (72% of assaults), or kicking (an attack of 42 percent). Only6% of victims registered with sharp weapon accidents & 11 percent of those wounded with drinking glasses. All injuries were classified as hematomas, lacerations, or fractures. It included intra-oral lacerations linked to the underlying fractures of the jaw including the surrounding alveolar mucosa of the hard palate. Weapons were classified as blunt, sharp, broken glass, fist, feet, firearm or 'other'. The level of seriousness of injuries was developed and were classified as:

Category I: Single laceration or single hematoma.

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Category II: Multiple soft tissue injuries.

Category III: Single fracture.

Category IV: Single fracture and soft tissue injury elsewhere.

Category V: Multiple fractures.

Case Report: A patient aged 28 years, male, reported the emergency department of SUM hospital with a history of assault using a sharp billhook due to interpersonal violence. On examination, the patient had a laceration about 10cm long extending from the nasal floor to the zygomatic buttress bilaterallyand a depth of about 2cm. The entire maxilla was mobile. There was a derangement of occlusion on both the left and right sides. In a pre-operative 3-dimensional computed tomography (CT) scan we see a linear fracture line seen passing from the right pterygomaxillary region crossing the floor of the nose to the left pterygomaxillary region fracturing a part of the left piriform aperture thus making the maxilla floating. The patient had difficulty in breathing so tracheostomy was done & initially the wound was cleaned, bleeding was arrested sutures were placed using 4-0 prolene and fluid transfusion was done.

Treatment Done: The patient was intubated through a preexisting tracheostomy tube. Local anesthetic agent 2% lignocaine with adrenaline (1:100000) was injected into the surgical area. The patient was subjected to

maxillomandibular fixation using the ivy-eyelet wiring technique. The fracture site was exposed via a pre-existing scar. The fracture site was reduced and fixed with one 1.5mm L-plate using four 6mm screws on the right side & using two 1.5mm L-plate and ten 6mm screws on the left side. Occlusion was achieved intraoperatively. The surgical site was irrigated thoroughly and hemostasis was achieved. Sutures were placed in the muscle layer using 3-0 vicryl and on the skin using 5-0 ethilone. A tight dressing was given in the incised area.

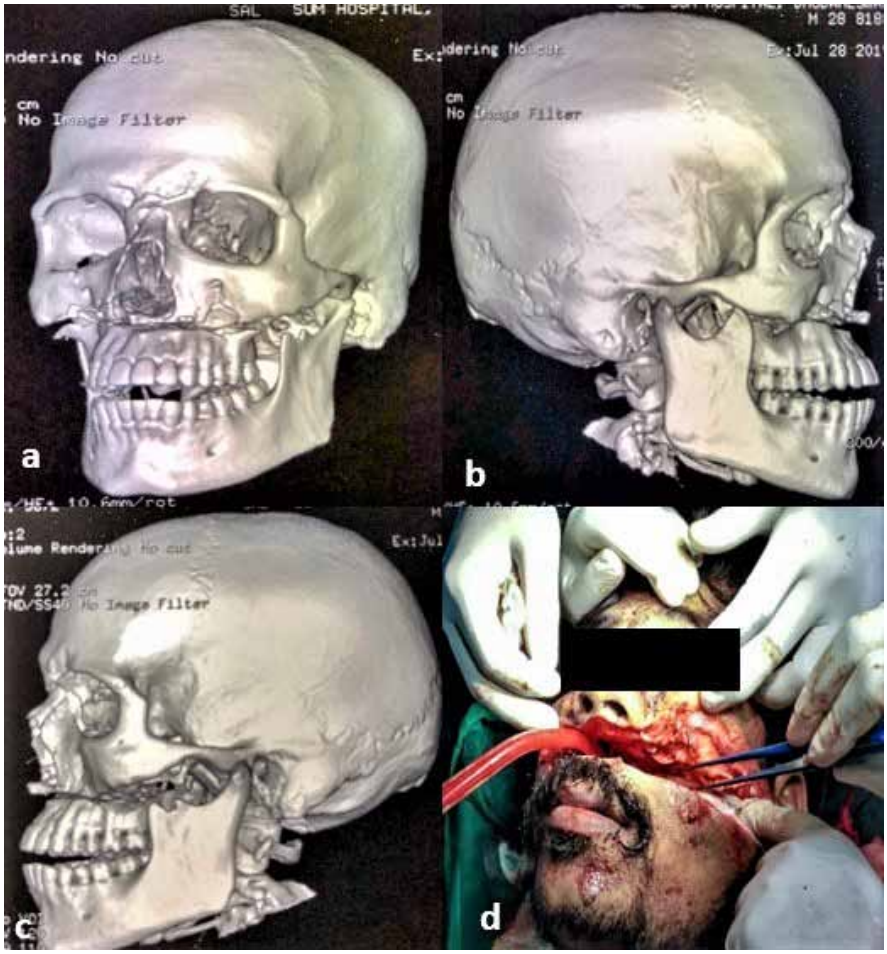

Figure 1. a, b,c : PRE-operative CT showing frontal, right and left view. d: PRE OP pic of patient

Intra-Operative Pictures:

Figure 2. a: Right Side 1.5mm L-plate. b: Left side single 1.5mm L-Plate c: Left side placement of both plates.

Post-Operative Pictures:

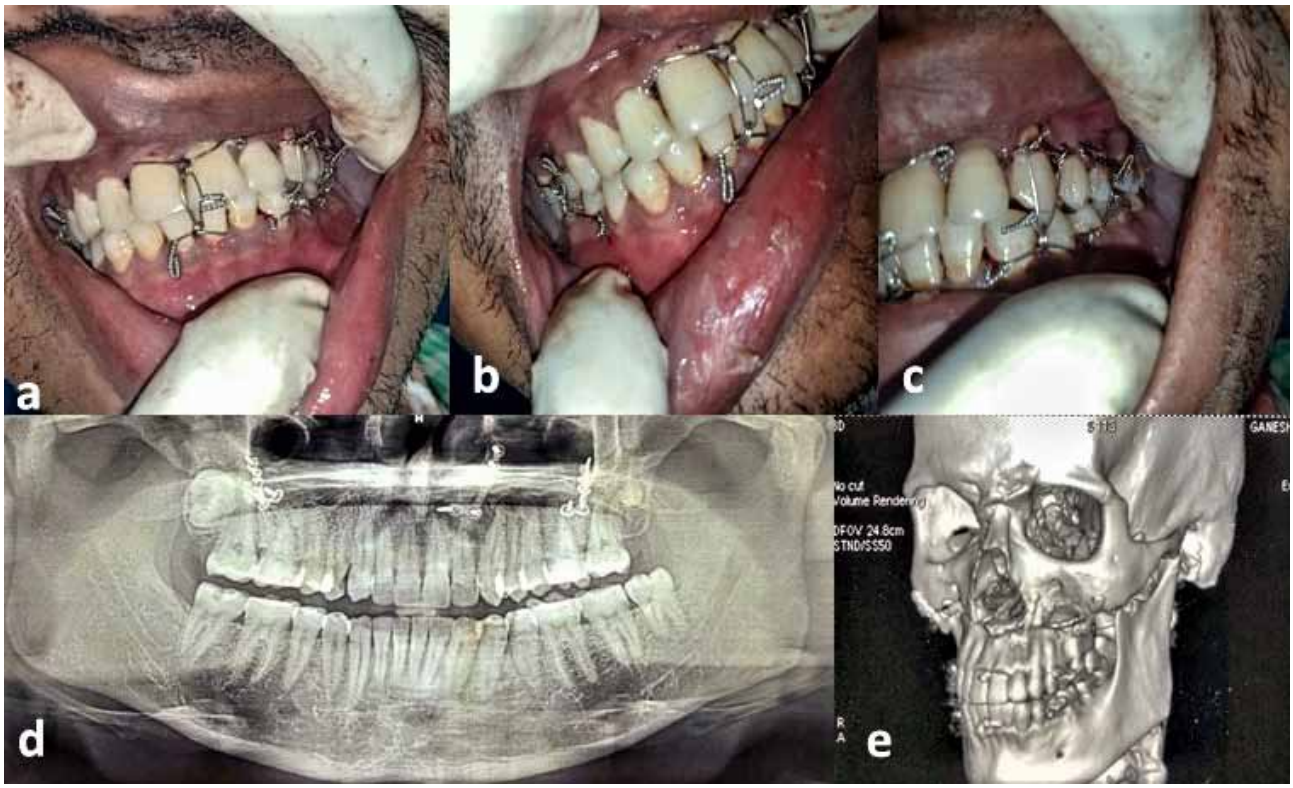

Figure 3: a,b, cno occlusal discrepancy present; c,d: Postoperative OPG and 3D CT.

Discussion

A rise in the cases of maxillofacial injuries due to assaults may be attributed to the country's low socio-economic circumstances, contributing to tension/stress and criminal propensity. The job rate for university students has generally increased from 4 percent in the early 1970s to 45 percent today.[1,2] The face is the first point of touch in the various people-to-people encounters, and the goal for maxillofacial injuries is often chosen especially in assaulted cases. The peak age rate for assault was observed to be 20-29 years.[3-7] The higher frequency recorded by males[3,4] is in support of other related research, this may be because males are more likely to participate in interpersonal altercations, probably due to the use of alcohol or psychoactive drugs in males compared with females.

Blunt objects were reported as the most common assault mechanism for maxillofacial injuries. Shepherd et al.[8] related the assault mechanism to the form of injury, indicating that assaults with blunt objects may produce sufficient force to cause fractures, leading in particular to dento-alveolar fractures/facial skeleton fractures.[8] The Olasoji et al study identified attack as the major cause of facial injury, as 48 percent of their patients had facial damage due to assault-related injuries.[9] This discovery is counter to the pattern identified in the past hence assault is suggested as a recent phenomenon and should not be underestimated as the most popular etiology of maxillofacial injury. During this research, the injuries suffered as a result of an attack ranged from abrasion to soft tissues to facial bone fractures. Laceration of the soft tissues of the nose and subsequent invasion of the middle third of the face. Bite wounds are mostly seen on the face and women tend to be more affected in their third decade of life, with the lips and ears being the most common target.[2]

Barde et al found that injuries suffered in car collisions are normally very different from those incurred in personal disturbance; while victims of automobile and motorcycle collisions tend to have multiple mandibular injuries, those patients struck by a fist typically have single non-displaced fractures. Victims in violent

offenses like assault and gunshot injuries are most likely to sustain fractures in the mandibular body and angle. Barde et al also recorded fractures of the mandibular angle to be the most frequent in their study, whereas symphyseal and condylar fractures were rare.[10] Any of the soft tissue lesions are treated with antiseptic fluid washing and dressing. Gentle violet solution has in some cases been applied to avulsed areas to aid with wound healing.[2] Lacerated wounds were sutured in layers, while the case of extreme avulsion on the lower lip due to human bite was healed with good results. The fragments of the broken jaw were sufficiently limited, strengthened by intraosseous wiring and immobilized by intermaxillary fixation. The damaged teeth were either removed or endodontically treated in fracture rows.

Drugs such as analgesics, antibiotics, anti-inflammatory medicines, and anti-tetanus medicines were prescribed as necessary. In this situation, recovery was uneventful, with strong results.[2]Biomechanical injury research uses mechanical principles to investigate and explain the physical and physiological reactions to impact injury resulting from that.[6]Both penetrating and nonpenetratinginjuries may be addressed, but the latter are morecomplex, less well understood, and offer greater opportunities formitigation through technological advances. The risk of injury isrelated to the energy delivered to the body by the impacting objectas well as to the object's shape. Penetrating injuries are caused by high-speed missiles, such as bullets, or by sharp objects traveling at very low speeds, such as blades, axes, and daggers in this type of injury, impact energy is concentrated in a small region of the body, there is no chance of dissipating this force, and the structural risk processes are relatively clear. ContradictoryHowever, injuries occur when the body is struck by a blunt object, such as a vehicle instrument panel, at a moderate velocity but the impact force is distributed over a wide area".In this case, padding or other crushable materials may absorb impact energy, which makes the impact and impact surfaces to bend and thereby increase impact length and its frequency rising.[6] After studying the various classifications and biomechanics of facial skeletal fractures, the present case may be classified as bilateral maxillary alveolar process fracture or unfinished Le Fort I fracture due to high penetrating injury.

Conclusion

Sharpened facial traumas have a tremendous aesthetic & functional loss. However, with proper diagnosis, adequate planning, and immediate surgical treatment, the maxillofacial surgeon can minimize sequelae and ensure patient rehabilitation as well as reduced risk of infection.

Financial support and sponsorship: Nil.

Conflicts of Interest: There are no conflicts of interest.

Ethical Permission: Approved

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