Medico Research Chronicles

ISSN No. 2394-3971

Case Report

ASSAULT INJURY TO THE FACE WITH AN AXE- A RARE CASE REPORT

Dr Sandhya K[1], Dr Bobby John[2], Dr Shobitha G[3]

1 Senior resident, Department of Oral and Maxillofacial Surgery, Government Dental College, Kottayam

2 Assistant Professor, Department of Oral and Maxillofacial Surgery, Government Dental College, Kottayam

3 Junior resident, Department of Oral and Maxillofacial Surgery, Government Dental College, Kottayam

Submitted on: April 2017
Accepted on: April 2017
For Correspondence
Email ID:
ksandhya053@gmail.com

Abstract

The prevalence of facial injury due to various causes has increased recently. The article is a rare case of assault to the face with an axe. The patient had a compound zygomaticomaxillary complex fracture on the left side. Following emergency management, the patient was shifted to the operation theater and underwent definitive management of zygomatic complex fracture. Conclusion: Immediate management of compound facial bone fracture is essential to obtain better cosmetic and functional result.

Keywords: Assault, axe, compound, zygomatic complex, fracture.

Introduction

The face is the most preferred target in an assault. Stab injuries to the face are common. Facial injury varies from a simple laceration to complicated maxillofacial compound fracture. Maxillofacial injuries are thus frequently encountered in the emergency department. Diagnosis and management facial injuries are a challenge. The Proper systematic approach is needed for the management of facial injuries as it can cause a high psychological impact on the patient.

Case report

A 38-year-old male patient reported to our casualty with an alleged history of assault by a known person with an axe. Emergency care was provided and the patient was stabilized. Computed tomography (CT) was taken which showed left zygomaticomaxillary complex fracture, without any evidence of intracranial pathology. On detailed general examination, the patient had lacerated wound of 2.5*2 cm on the left upper eyelid involving the lid margin with disruption of the levator palpebrae muscle. The lacerated wound of size 4*2Cm was present on the left lower eyelid involving the lid margin. An irregular lacerated wound of size7*4*3 cm was present in left forehead extending from the supraorbital ridge to the temporoparietal junction with exposed temporalis muscle. Left side globe was partially exposed. Figure 1 shows a preoperative photograph and figure 2 shows CT scan.

Figure 1 shows preoperative photograph

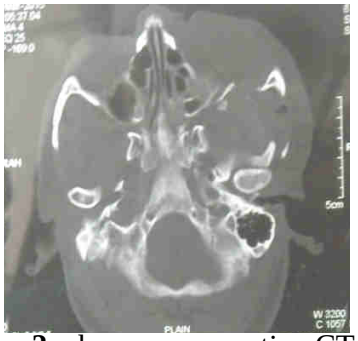

Figure 2: shows preoperative CT scan

Ophthalmology consultation was done and injury to the globe and optic nerve also was ruled out. Inj. T.T 0.5 ml I/M stat and Inj. Ten globe 250 IU I/M stat was administered. Routine antibiotics and analgesics were administered and the patient was transferred to emergency operation theater. The wound was then debrided under general anesthesia. Then the lateral orbital wall was exposed through the laceration and fracture segments identified (figure 3).

Figure 3 shows the exposed wound through the laceration and lateral orbital wall segments identified.

The lateral orbital wall was fixed with 2mm four hole orbital plate and 2*6 mm screws (figure 4).

Figure 4 shows lateral orbital wall fixed with 2mm four hole orbital plate and 2*6 mm screws
The infraorbital wall was then exposed through laceration and the fracture segments identified and fixed with 2mm four hole orbital plate and 2*6 screws (figure 5).

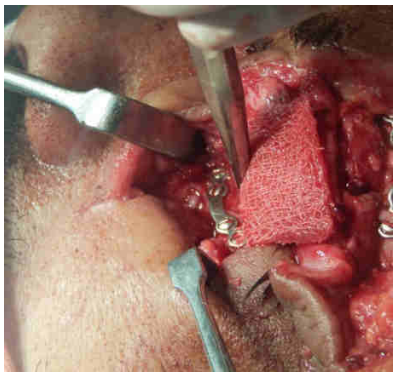

Figure 5 shows infraorbital wall exposed and fixed with 2mm four hole orbital plate and 2*6 screws

The zygomatic buttress was exposed by intraoral incision and the fracture segments stabilized with 2mm L-shaped four hole plate and 2*6 mm screws. The intra-oral wound was then closed with 3-0 vinyl. Lateral canthotomy was done followed by medial advancement of lids.Wound was closed in the triple layer. The eyelid skin was closed with 6-0 PDS and forehead skin closed with 4-0 nylon. Vertical mattress technique was used for closure as it will result in a better-looking scar (figure 6).

.

Figure 6 shows the sutured wound

The postoperative period was uneventful. Satisfactory results were obtained, except for the presence of ptosis which occurred as a result of severe injury to levator palpebrae superioris (figure 7).There was no visual disturbance and eye movements were all within normal limits (figure 8-11).

Figure 7 showing persistent ptosis

Figure 8 showing eyeball movement to right

Figure 9 showing eyeball movement to left

Figure 10 showing eyeball movement in an upward direction.

Figure 11 showing eyeball movement in a downward direction.

Postoperative x-ray – paranasal sinus view was taken to evaluate the reduction (figure 12).

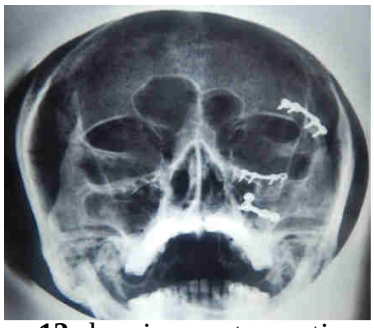

Figure 12 showing postoperative x-ray

Discussion

Assault injuries to face are common, but an injury to face with an axe is usually a rare occurrence. The increase in assault-related facial injuries on weekends has been reported by Shephard *et al*.,[1] and also by Gilthorpe *et al*.,[2] and is believed to be associated with increased alcohol consumption on these days.A study from Brazil reported that falls and assaults were the leading cause of zygoma fractures [3].In this case, the victim was lucky enough not to sustain an injury to the globe or optic nerve. Advanced trauma life support (ATLS) principles must be applied for the initial assessment of all MF injury victims as in any trauma patient[4]. After the patient is ensured to be stable, a systematic approach should be undertaken.Tetanus prophylaxis should be given for dirty or contaminated wounds when the patient has not had a booster in 5 years, or for clean wounds when the patient has not had a booster in 10 years.

Evaluate the wound to determine the most appropriate closure. Examine thoroughly for movement, sensation, and pulsation distal to the wound. Anesthetize the patient. Clipping the hair leads to less infection than shaving. Methodical irrigation is the best way to decrease infection risk. Everything needed for repair should be available at the bedside, including laceration kit, gloves, suture material, and dressing. All wounds should be explored, evaluated for tendon injury or presence of the foreign body. Extremity injuries should be explored while putting the extremity through a range of motion. Debridement of the devitalized tissue is the most important step in the repair. Reevaluating the wound is essential when the repair is near completion to determine the need for additional sutures. Educate the patient on how to care for the wound, signs of infection, and the timing of suture removal is very essential.

The classic ZMC fracture disrupts all four articulations and, although frequently known as a tripod fracture, it is more accurately termed a tetrapod fracture. The lateral orbital rim is fractured with an injury to the zygomaticofrontal articulation; the inferior orbital rim, orbital floor. Maxillary sinus

walls are fractured with an injury to the zygomaticomaxillary articulation. The zygomatic arch articulates with the zygomaticotemporal articulation; and the lateral orbital wall with the zygomaticosphenoid articulation (figure 13). The intimate association of zygomatic complex with the remaining bones of the facial skeleton usually result in accompanying facial bone fractures [5,6,7].

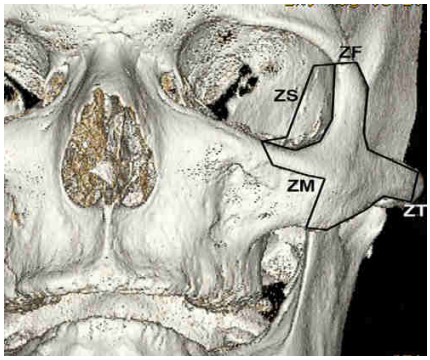

Figure 13 shows the articulations of the zygomatic complex

Facial asymmetry with depression of malar prominence are the common features of zygomatic complex fractures. The pull of the masseter muscle, which extends from the zygoma to insert the ramus of the mandible, can cause an additional rotational deformity of the zygoma and male depression. Enophthalmos is another significant cosmetic complication. Functional complications of the zygomatic complex fracture are trismus, diplopia and infraorbital anesthesia. Globe injury can lead to blindness. [5,8,9,10,11].

The extent of fracture displacement and comminution guides surgical decision making with respect to the type of reduction performed (open versus closed), the type of exposure and incision made, and the extent of fixation required. Restoring a patient's premorbid facial contour is a chief goal of the surgeon. Re-establishing accurate alignment across the zygomaticofrontal and zygomaticomaxillary articulations, inferior orbital rim, and lateral orbital wall (zygomaticosphenoid suture) is the most challenging part.Various approaches to the zygomatic complex is reported [12,13,14,15]. Postoperative facial asymmetry was reported in 20–40% of patients [16]. In the present case, the zygomatic complex was approached through the existing laceration. Three-point fixation was done at the lateral orbital wall, infraorbital rim, and the zygomaticomaxillary buttress. Excellent cosmetic and functional result was obtained except for the ptosis.

Conclusion

The early repair of compound zygomatic complex fractures can provide a better cosmetic and functional result. A proper fracture reduction and fixation are essential to obtain a normal bony framework. This combined with a skillful suturing technique will restore the patient's premorbid facial contour.

Footnotes

Source of support: nil
Conflict of interest: none declared

References

1. Shepherd JP, Al-Kotany MY, Subadan C, Scully C. Assault and facial soft tissue injuries. Br J Plast Surg. 1987; 40:614–9. [PubMed]
2. Gilthorpe MS, Wilson RC, Moles DR, Bedi S. Variations in admissions to hospital for a head injury and assault to the head Part 1: Age and gender. Br J Oral Maxillofac Surg. 1999; 37:294–300. [PubMed]
3. Gomes PP, Passeri LA, Barbosa JR: A 5-year retrospective study of the

zygomatico-orbital complex and zygomatic arch fractures in Sao Paulo State, Brazil. J Oral Maxillofac Surg. 2006, 64 (1): 63-67. 10.1016/j.joms.2005.09.012.

4. Ceallaigh PO, et al: Diagnosis and management of common maxillofacial injuries in the emergency department. Part 1: advanced trauma life support. Emerg Med J. 2006, 23 (10): 796-797. 10.1136/emj.2006.035931.
5. Banks P, Brown A. 1st ed. Oxford: Wright; 2001. Fractures of the Facial Skeleton; pp. 40–155.
6. Ellis E, 3rd, el-Attar A, Moos KF. An analysis of 2,067 cases of zygomatico-orbital fracture. J Oral Maxillofac Surg. 1985;43:417–28. [PubMed]
7. Nam IW. Clinical studies on treatment of fractures of the zygomatic bone. Taehan Chikkwa Uisa Hyophoe Chi. 1990; 28:563–70. [PubMed]
8. . Jansma J, Bos RR, Vissink A. Zygomatic fractures. Ned Tijdschr Tandheelkd. 1997; 104:436–9. [PubMed]
9. al-Qurainy IA, Stassen LF, Dutton GN, Moos KF, el-Attar A. Diplopia following midfacial fractures. Br J Oral Maxillofac Surg. 1991; 29:302–7. [PubMed]
10. Nam IW. Clinical studies on treatment of fractures of the zygomatic bone. Taehan Chikkwa Uisa Hyophoe Chi. 1990; 28:563–70. [PubMed]
11. Zachariades N, Papavassiliou D, Christopoulos P. Blindness after facial trauma. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 1996;81:34–7. [PubMed]
12. Covington DS, Wainwright DJ, Teichgraeber JF, Parks DH. Changing patterns in the epidemiology and treatment of zygoma fractures: a 10-year review. J Trauma. 1994; 37:243–8. [PubMed]
13. 37. Jayamanne DG, Gillie RF. Do patients with facial trauma to the orbito-zygomatic region also sustain significant ocular injuries? J R Coll Surg Edinb. 1996; 41:200–3. [PubMed]
14. 38. Zachariades N, Papavassiliou D, Christopoulos P. Blindness after facial trauma. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 1996;81:34–7. [PubMed]
15. 39. Ashar A, Kovacs A, Khan S, Hakim J. Blindness associated with midfacial fractures. J Oral Maxillofac Surg. 1998; 56:1146–50. [PubMed]
16. Perino KE, Zide MF, Kinnebrew MC. Late treatment of malunited malar fractures. J Oral Maxillofac Surg. 1984; 42:20–34. [PubMed]
17. Zargar M, Khaji A, Karbakhsh M, Zarei MR. Epidemiology study of facial injuries during 13 months of trauma registry in Tehran. Indian J Med Sci. 2004; 58:109–14. [PubMed]
18. Chuong R, Kaban LB. Fractures of the zygomatic complex. J Oral Maxillofac Surg. 1986;44:283–8.[PubMed]