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Management of zygomaticomaxillary complex fracture: A case report

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INTRODUCTION

The zygomaticomaxillary complex (ZMC) is major buttress of midfacial skeleton. The ZMC is important to structural, functional, and aesthetic appearances of the facial skeleton. Prominence of the zygomaticomaxillary complex (ZMC) convexity along the anterolateral portions of the face makes it more vulnerable to traumatic injury. ZMC fractures comprise up to 40% of facial fractures. Zygoma contributes both to facial aesthetics and function and forms the malar eminence, providing cheek projection, and the lateral and inferior portions of the orbit. Despite the prevalence of ZMC fractures, there is no consensus in the literature concerning the best approach to management and when repair is indicated. Standard treatment mostly involves internal fixation with plates and screws, but there is much debate regarding what qualifies as adequate fixation. Three-point fixation for treatment of ZMC fractures is traditionally recommended; however, there are varying opinions on what is truly necessary for adequate reconstruction.

CASE REPORT

A 29 year old female patient reported to the department of oral and maxillofacial surgery in PGIDS Rohtak, Haryana with chief complaint of pain and swelling on upper left side of face and around eyes from past five days. History revealed that patient slipped in bathroom at home. Physical examination revealed a soft, compressible, reducible and tender swelling on palpation which extends superoinferiorly from left infraorbital region to lower border of mandible and anteroposteriorly from left nasolabial fold to tragus of ear. Palpable step in infraorbital rim, zygomatic arch and lateral wall of orbit in the left eye region and flattening of zygomatic prominence was appreciable. Radiographic examination, including panoramic and computed tomography (CT) scans, confirmed the diagnosis of zygomaticomaxillary complex fracture.

After thorough clinical and radiographic evaluation, the patient was scheduled for surgical treatment. Under general anaesthesia open reduction and internal fixation of zygomaticomaxillary complex fracture reduction and rigid fixation was done. Existing lacerated wound over lateral wall of left orbit was used for Surgical approach and blunt dissection was carried out to expose the fracture site. High vestibular incision was used to expose the fracture site. Fracture was reduced at frontozygomatic suture and fixed with curved orbital titanium plate with screws and fixation at zygomatic buttress region was done with L shaped titanium plate and screws. Layerwise suturing was done to close the incisions.

DISCUSSION

Many surgeons agree on the conservative treatment of ZMC fractures in situations with no displacement of the fracture segments with a soft, non-chew diet for approximately 2 to 6 weeks and close monitoring for displacement. If the ZMC fracture is displaced and/or the patient has significant opthalmological or cosmetic deformity, rigid fixation is advisable for esthetic and functional rehabilitation.

Uda et al. introduced closed reduction and internal fixation using a Carroll-Girard screw. This method used a special instrument and a small external incision on the malar eminence. A large bone hook can also be used to reduce the fracture through a small incision at the inferior margin of zygoma . Rinehart et al. proposed 3 point fixation to prevent masseter force. various approaches are used in fixation like conjunctival incision, subcilliary incision, lateral eyebrow incision, superior gingivobuccal approach and coronal incision. Gingivobuccal incision will provide a stable zygomaticomaxillary buttress without an external scar. In this technique, aesthetically malar eminence symmetry is very important when precise reduction is performed on the lateral and inferior orbital rim. Lee et al. and Langsdon et al. used only conjunctival incision without external incision. It can cause some side effects, such as bradycardia, which can be caused by excessive pressure on the eyeball during the procedure. Subciliary incision can cause transient ectropion. However, it can be prevented by preserving the pretarsal portion of orbicularis oculi muscle and nerve innervation with

performing layer by layer repair. The key criterion for reduction is direction of the trauma event. Reduction with plate and screw can guarantee that there is no additional incision. As mentioned, many fixation procedures are available, however, a safe and facilitated procedure is always the best way.

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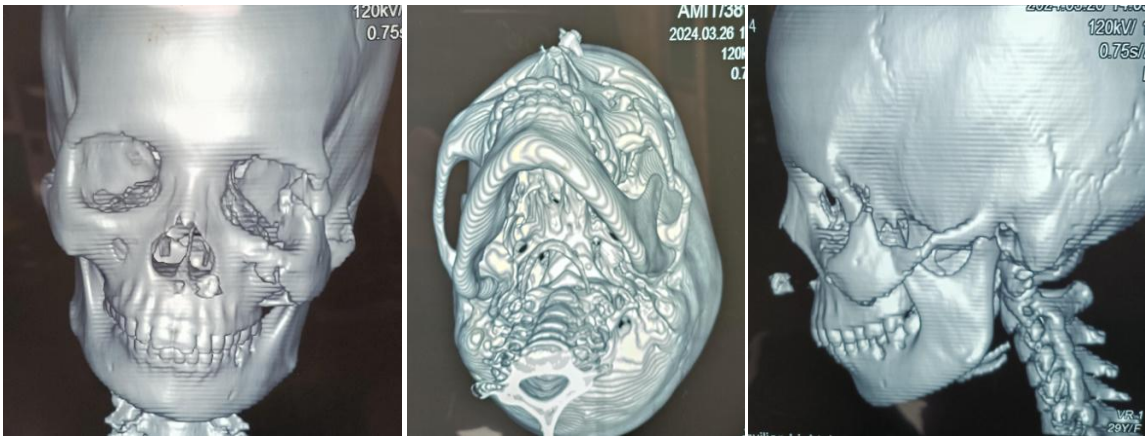
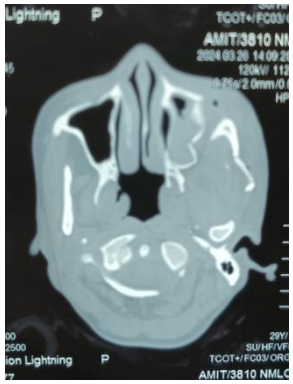
***Preoperative images* Profile**

CT with 3D sections:



Axial And Coronal Sections of CT Scan:



Intraoperative images:

Incision Exposure of fracture

Post Operative Radiograph: