

**Zygomaxillary Injury Re-Traversed: An Intricate Case Report**Dr. Anand Amirthraj<sup>1</sup>, Dr. Subhagata Chakraborty<sup>2\*</sup>, Dr. Surya Mithra Majety<sup>3</sup><sup>1</sup>Professor and head, Department of Oral and Maxillofacial Surgery, Manipal College of Dental Sciences, Manipal Academy of Higher Education, Mangalore, India<sup>2</sup>Postgraduate, Department of Oral and Maxillofacial Surgery, Manipal College of Dental Sciences, Manipal Academy of Higher Education, Mangalore, India<sup>3</sup>Postgraduate, Department of Oral and Maxillofacial Surgery, Manipal College of Dental Sciences, Manipal Academy of Higher Education, Mangalore, India**Case Report****\*Corresponding author**

Dr. Subhagata Chakraborty

**Article History**

Received: 13.03.2018

Accepted: 21.03.2018

Published: 30.03.2018

**DOI:**

10.21276/sjodr.2018.3.3.9



**Abstract:** Zygomaxillary complex (ZMC) fractures are second commonest fractures in facial skeleton, with nasal fractures being the first. Common causes include altercations, motor vehicle accidents (MVAs) and sport injuries. This report highlights a case that presented with secondary blow to the malar region following MVA but without any fracture. The patient had suffered a similar injury with ZMC fracture, four years ago and was treated with open reduction and miniplate fixation. Hence the question arises, if the malar bone strengthened by the miniplate resisted the fracture or the force was insufficient to cause an impact. Considering the literature to be limited, further studies with this thought can open up a new plethora in the history of miniplates.

**Keywords:** Zygomaxillary complex (ZMC), Motor vehicle accidents (MVAs), miniplates, malar bone.

**INTRODUCTION**

Zygomaxillary complex (ZMC) fractures are second commonest fractures in facial skeleton, after nasal fractures [1-4]. ZMC fractures have peak incidence in second and third decade of life [5] with male predilection. Unilateral ZMC fractures are more common than bilateral [6]. The main cause of ZMC fractures in various geographic areas depends on the nature of population living. Common causes include altercations, motor vehicle accidents (MVAs) and sport injuries [3, 7]. Force tolerance of ZMC to fracture ranges from 200 – 475 lbs [8]. In our region, the main cause of ZMC fracture is mainly due to MVAs. This case report highlights a rare case of one such injury.

**CASE DESCRIPTION**

A 21-year-old male reported to our casualty with sustained injuries on the left side of the face, due to skid and fall from bike. On examination, patient was conscious, cooperative and well oriented. He was under the influence of alcohol. No neurological deficit was detected. On local examination, 2 cm laceration was present on the Left infraorbital region, 1.5 cm laceration

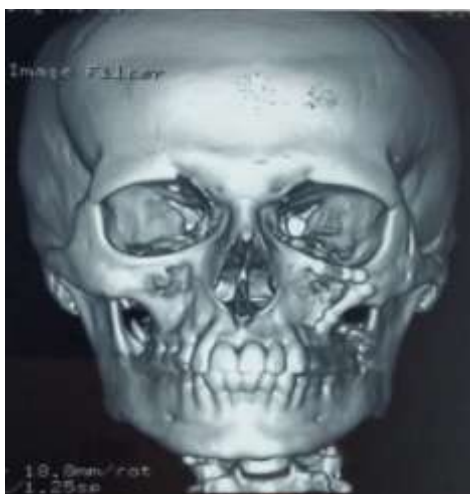
on the medial half of the left upper eyelid. Periorbital edema was noted on left side with sub conjunctival haemorrhage. Extraocular movements could not be assessed due to presence of edema. Mouth opening was normal. Tenderness over the left infraorbital rim and frontozygomatic region was present on palpation. CT scan was advised to detect fractures. The lacerations were sutured using 4 – 0 prolene sutures.



**Fig-1: Presentation of patient to Casualty**

The CT scan findings did not reveal any fractures but well osseointegrated titanium miniplates

were seen, one each on the left infraorbital region the left zygomaticomaxillary buttress region respectively.



**Fig-2: 3D reconstructed CT**

On taking history, patient had similar facial injury 4 years ago for which he was operated for Open Reduction and Internal Fixation (ORIF) under general anaesthesia (GA). The patient was admitted for observation and for evaluation of any functional

deformity after the acute symptoms subsided. Patient was evaluated for visual acuity, diplopia, extraocular movements, mouth opening and lateral excursive movements on the 3<sup>rd</sup> day. No functional deformity was detected and the patient was discharged on the 4<sup>th</sup> day.



**Fig-3: Before discharge**

## DISCUSSION

A great volume of literature is available on the surgical management of malar bone fractures, but there has been no consensus yet. Plate and screw fixation has revolutionized the treatment of Zygomaticomaxillary complex fractures. According to Ellis *et al.*, 1996, More stable fixation can be provided with plate and screw fixation than with wire fixation, even when fewer points on the ZMC are stabilized [9]. In this patient, the surgical management with two miniplates was done previously, to treat the ZMC fracture. On the next episode of MVA, the patient had a similar injury, but the CT findings did not reveal any fractures. The clinical picture of the patient though mimicked a classical ZMC fracture, the CT scan reported otherwise. Does this imply that the miniplates present on the patients left infraorbital and the zygomatic buttress region resisted the fracture to occur by absorbing shock or was the force insufficient to cause a fracture?

The role of miniplates in absorbing shock and preventing fractures cannot be conclusive, as the existing literature is scarce. Future research on this topic might open up a new chapter in the history of miniplates.

## REFERENCES

1. Dawson, R. L. G., & Fordyce, G. L. (1953). Complex fractures of the middle third of the face and their early treatment. *British Journal of Surgery*, 41(167), 254-268.
2. Middleton, D. S. (1953). Management of injuries of the nose and upper jaw. *Proceedings of the Royal Society of Medicine*, 46(7), 476-479.
3. Ellis III, E., El-Attar, A., & Moos, K. F. (1985). An analysis of 2,067 cases of zygomatico-orbital fracture. *Journal of Oral and Maxillofacial Surgery*, 43(6), 417-428.
4. Lundin, K., Ridell, A., Sandberg, N., & Öhman, A. (1973). One Thousand Maxillo-Facial And Related Fractures At The Ent-Clinic In Gothenburg A Two-Year Prospective Study. *Acta oto-laryngologica*, 75(2-6), 359-361.
5. Lund, K. (1971). Fractures of the zygoma: a follow-up study on 62 patients. *J Oral Surg*, 29, 557-560.
6. Balle, V., CHRISTENSEN, P. H., Greisen, O., & Jørgensen, P. S. (1982). Treatment of zygomatic fractures: a follow-up study of 105 patients. *Clinical Otolaryngology*, 7(6), 411-416.
7. Hitchin, A. D., & Shuker, S. T. (1973). Some observations on zygomatic fractures in the eastern region of Scotland. *British Journal of Oral Surgery*, 11(2), 114-117.
8. Martin, B. C., Trabue, J. C., & Leech, T. R. (1956). An analysis of the etiology, treatment and complications of fractures of the malar compound and zygomatic arch. *The American Journal of Surgery*, 92(6), 920-924.
9. Ellis, E., & Kittidumkerng, W. (1996). Analysis of treatment for isolated zygomaticomaxillary complex fractures. *Journal of oral and maxillofacial surgery*, 54(4), 386-400.