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ORIGINAL ARTICLE

Frequency, Etiology and Presenting Complaints Associated With Zygomatic Complex Fractures

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ABSTRACT

Aim: To investigate the etiology, gender distribution and presenting complaints associated with zygomatic fractures
Method: This cross sectional study was done in Oral and Maxillofacial Surgery Department of King Edward Medical University from April to D3ecember 2019. Patient data was collected from OPD and analysed with SPSS.
Results: We analyzed the data of 162 patients with zygomatic bone fracture. Out of this 148 were male and 14 were females. There were bilateral cases, more affecting right side of face and affecting left side of face. The most common etiology was road traffic accident followed by interpersonal violence and occupational injuries. When we consider presenting complaints 87 patients came with difficulty in chewing, 45 with limited mouth opening, 23 with depressed malar eminence and only 7 patients with nerve paraesthesia.
Conclusion: Considering the geographic and cultural indices of the evaluated population, it can be concluded that the patients gender and trauma causes significantly affect the prevalence of zygomatic bone fracture
Keywords: Zygomatic bone, nerve paraesthesia, limited mouth opening

INTRODUCTION

One of the most prevalent injuries presenting to general and hospital practices alike are maxillofacial in nature[1].

Zygoma occupies a significant position on the face and so the zygomatic fractures are second most common fractures of the facial skeleton after nasal bone fractures[2,3,4].

Although the causes of fractures may be vary between countries, most common can be related to cultural, social and environmental influences.[5]Statistics revealed the etiology as being road traffic accidents (RTA) (83.56%), proceeded by accident falls (8.9%), sport injuries (4.65%) and interpersonal violence (2.81%).[6]From the above mentioned values, it is evident that with the involvement of ride side, the road traffic accidents are main causative agent of zygomatic complex fractures and seems to show the poor road traffic sense amongst users and lack of adherence to precautionary measures and regulations[7].

A wide range of signs and symptoms exhibited by zygomatic complex fractures includes pain, deformity or displacement, ecchymosis, a flattened arch or malar prominence, displacement of palpebral fissure, diplopia, conjunctival hemorrhage and crepitus from air emphysema[8].

Disruption of the malar bone position also carries psychological, esthetic and functional significance causing impairment of ocular and mandibular function. Therefore, for both cosmetic and functional reasons, it is mandatory that zygomatic bone injury be properly diagnosed and adequately managed[9].

The aim of this study is an attempt to identify the common causes of zygomatic complex fractures presented in oral and Maxillofacial Surgery Department, Mayo Hospital Lahore in order to help people to take adequate precautionary measures, to reduce its complications and occurrence.

METHOD

This cross sectional study was performed from April 2019 to December 2019 in the department of oral and maxillofacial surgery of Mayo hospital, Lahore after IRB permission. During this period, patients of either gender with a history of maxillofacial trauma was included in this study. Patients from outdoor patient department were also included having any oral and maxillofacial trauma. This analysis did not include the orbital floor fractures. All the patients were asked for the complaints i-e pain, facial asymmetry and difficulty in chewing regarding the fractures. The data was analysed on SPSS version 20.

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RESULTS

Of 162 patients, 148 cases (91.3%) were male and 14 subjects (8.6%) were female (Fig. 1). The commonest etiology was road traffic accidents (151), followed by interpersonal violence and occupational injuries (Fig. 2). When we compared the side of impact and trauma 80 patients suffered on right side of face, 68 patients had zygomatic bone fractures on left side and 14 patients suffered fractures of zygoma on both sides (Fig. 3).

Fig. 1

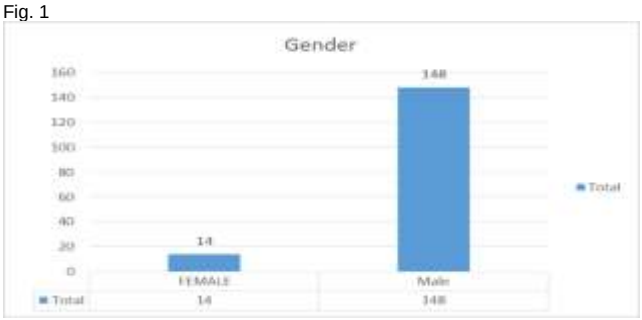


Fig. 2

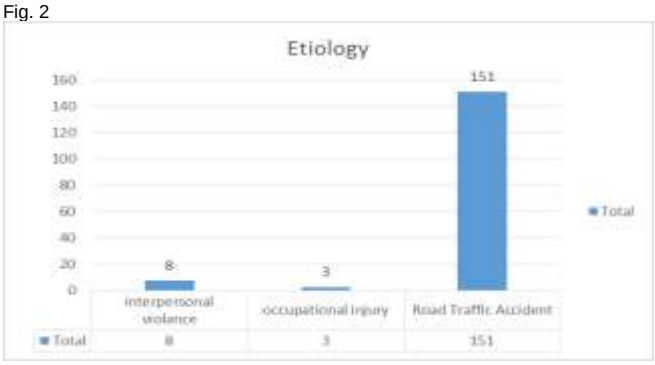
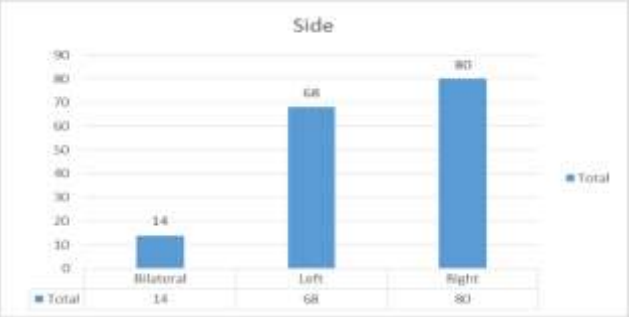
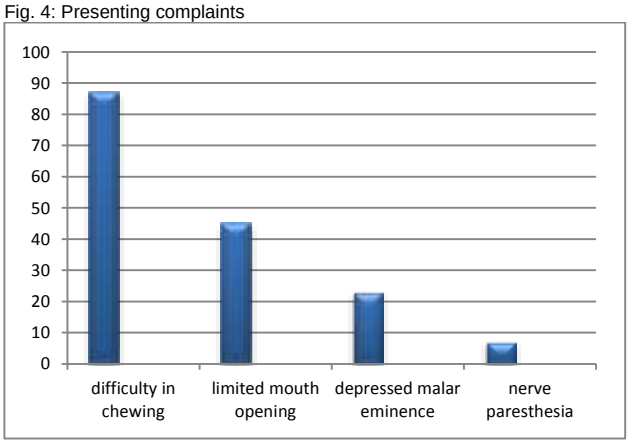


Fig. 3



In cases of presenting complaints, difficulty in chewing was the most significant. Out of 162 patients 87(53%) patients came with this complaint. Limited mouth opening was on second with 45 patient (27%) followed by depressed malar eminence with 23(14%) and nerve paresthesia with 7(4%) patients (Fig. 4).

Fig. 4: Presenting complaints



DISCUSSION

The incidence of maxillofacial trauma is increasing day by day. Augmentation of clinical examination with radiological investigations provides a correct diagnosis of the extent of trauma. The increase in rates of motorized population and violation of traffic rules leads to increased incidences of RTA. Along with this, there is increase in the rate of interpersonal violence and falls all of which led to injuries of the maxillofacial region[17,18].

This article provides an overview of the epidemiology, etiology, and presentation and cases of ZMC fractures at our major trauma centre over a nine months' period.

The demographic data showed the incidence was significantly greater (148 males) in men compared to women[14], which was in keeping with the current literature[10-12]. The commonest etiology was road traffic accidents (151), followed by interpersonal violence and occupational injuries. The reason for this is similar to that for increased RTA in males, as males are more exposed to traffic as drivers, and frequently travels for work, business and leisure activities. In Pakistan, due to the non-enforcement of the traffic rules, many drivers exceed the speed limit; do not use seat belts and sometimes drive under the . [13,14]Furthermore, because of the economic hardship in Pakistan, most vehicle and motorcycle owners fit fairly used tyres on their automobiles, and years of neglect have left the highways in a state of dispair. All these factors have contributed to the increased prevalence of RTA as a leading aetiological factor of maxillofacial injuries. According to existing literature, aetiology is variable, with one study in Poland quoting assault as the most common, followed by RTC and other studies from Brazil and Amsterdam, showing RTCs to be most common, followed by assault[11,12,13,14]. Obuekwe et al concluded RTA as the most common etiological factor of ZMC fractures with a male predilection in Nigerian population 19. Singaram M et al studied the pattern and etiology of ZMC fractures in Indian population, he found RTA as most common cause. The individuals presenting with these fractures had a male to female rato of 3:1[20]. These variations suggest that the cause of ZMC fractures is influenced by various factors, including geographical location, incidence of RTCs and socioeconomic trends. Within our demographics, the majority were road traffic accidents.

In our study when we compared side of the trauma, we found out that 80 patients had trauma on right side, 68 had trauma on left side and 14 patients had bilateral trauma of the zygomatic bone. Our findings are consistent with a study done in India by Singaram et al[20].

When we talk about the presenting chief complaint, we came to know that most common complaint was difficulty in chewing. Out of 162 patients 87(53%) patients came with this complaint. Limited mouth opening was on second with 45 patients (27%) followed by depressed malar eminence with 23(14%) and nerve paresthesia with 7(4%) patients. Limitation of mouth opening occurred in less than half the cases. This finding is associated with impingement of the coronoid process by the displaced fragment of the zygoma or zygomatic arch. Although trismus may be the chief complaint in zygomatic arch fracture[15,16]. So this scenario is directly related to our social and cultural conditions where people are mostly concerned about their functional needs and don't bother much about the esthetics and numbness. The aim of treatment for such fractures should be primarily functional rehabilitation. Patient concerns, risk to benefit ratio and socioeconomic status lead us to opt for patient specific treatments ranging from conservative management to open reduction and internal fixation.

CONCLUSION

Considering the geographic and cultural indices of the evaluated population, it can be concluded that the patients' gender and trauma causes, significantly affect the prevalence of zygomatic bone fractures. The most significant complaint is limited mouth opening. This could be useful for appropriate health care policy and management set up in every society.

Conflict of interest: Declared none

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REFERENCES

1. Lynham A, Tuckett J, Warnke P. Maxillofacial Trauma. Aust Fam Physician. 2012;41(4):172-80
2. Israr M, Shah AA. Retrospective study of zygomatic complex fractures in Sheffield, England. Pak Oral Dental J 2001; 21: 50-59.
3. Fonseca, Marciani, Turvey. Oral and Maxillofacial Surgery, 2nd ed, St. Louis, Missouri, Mosby Elsevier, 2009. 182-201.
4. Masood AZ, Taqeer I, Sohail M, Aleem A. The pattern of maxillofacial injuries received at Abbasi Shaheed Hospital, KMDC, Karachi. Ann Abbasi Shaheed Hosp Karachi Med Dent Coll 2002; 7: 291-293.
5. Danda AK, Muthusekhar MR, Narayanan V, Baig MF, Siddareddi A. Open versus closed treatment of unilateral subcondylar and condylar neck fractures: A prospective, randomized clinical study. J Oral Maxillofac Surg. 2010; 68(6):1238-41.
6. Menon S, Sinha R, Thapliyal G, Bandyopadhyay T. Management of Zygomatic Complex Fractures in a Tertiary Hospital: A Retrospective Study Journal of Maxillofacial and Oral Surgery 2011;10(2):138-41.
7. Punjabi SK, Rehman H.U, Ali Z, Ahmed S.J. Causes and management of zygomatic bone fractures at Abbasi Shaheed Hospital Karachi. Pak Med Assoc. 2011; 61(1):36-9.
8. Fonseca, Marciani, Turvey. Oral and Maxillofacial Surgery, 2nd ed, St. Louis, Missouri, Mosby Elsevier, 2009; p182-201.
9. Nayyar MS; Management of zygomatic complex fracture. J Coll Physicians Surg Pak, 2002; 12: 70070
10. Venugopal MG, Sinha R, Menon PS, Chattopadhyay PK, Roy Chowdhury SK. Fractures in the maxillofacial region: a four year retrospective study. Med J Armed Forces India 2010;66:14-7.

11. Brasileiro BF, Passeri LA. Epidemiological analysis of maxillofacial fractures in Brazil: a 5-year prospective study. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2006;102:28-34.
12. Forouzanfar T, Salentijn E, Peng G, van den Bergh B. A 10-year analysis of the "Amsterdam" protocol in the treatment of zygomatic complex fractures. J Craniomaxillofac Surg 2013;41:616-22.
13. Calderoni DR, Guidi Mde C, Kharmandayan P, Nunes PH. Seven-year institutional experience in the surgical treatment of orbito-zygomatic fractures. J Craniomaxillofac Surg 2011;39:593-9.
14. Bogusiak K, Arkuszewski P. Characteristics and epidemiology of zygomaticomaxillary complex fractures. J Craniofac Surg 2010;21:1018-23.
15. Shroeder H G, Albanese S I. Fractures of the zygoma. Facial Plast Surg. 1990; 7:167-175.
16. Baldin C, Beltrane M, Dazzi P, Musola L. Contributo clinico-casistico su 370 casi di fratture C.O.M.Z," Minerva Stomatol. 1984; 33:729- 735.
17. [Internet]. 2020 [cited 21 September 2020].
18. Zygomatic Complex Fractures: Background, Pathophysiology, Epidemiology [Internet]. Emedicine.medscape.com. 2020 [cited 21 September 2020].
19. Ozoemene Obuekwe O. Etiology and pattern of zygomatic complex fractures: a retrospective study. [Internet]. PubMed Central (PMC). 2020 [cited 21 September 2020].
20. PMC E. Europe PMC [Internet]. Europepmc.org. 2020 [cited 21 September 2020].