Original Article

Maxillofacial Surgery

Maxillofacial Fractures in Hyderabad City: A 1-year Study of 448 Patients

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ABSTRACT

Objective: This descriptive study assesses the cause, type, incidence and treatment modalities of maxillofacial fractures managed at our center during the 1-year of time period.

Study Design: Descriptive Study.

Place and Duration of Study: This study was carried out at Department of Oral & Maxillofacial surgery Institute of Dentistry LUMHS, Jamshoro.

Materials and Methods: A total 384 cases were studied. A detailed history, clinical examination was performed and finally diagnosis confirmed with the help of radiograph, at least two radiographs were taken. Records of patients enrolled who were either treated in the Emergency Room, Out-Patients Department or in the Ward.

A numbers of parameters, including Age, gender, cause, type of injury and treatment provided were assessed.

Results: Out of 448 patients, 318 were male and 130 were female. Majority of patients belong to 3rd decade (21-30 years) of life. Road traffic accidents 56.91% accounted for the majority of cases of maxillofacial fractures followed by assault10.49%, fall 19.86%, sports 4.68% Mandible was seen as the most commonly fractured bone 44% (287) followed by maxillary bone 23.92% (156), Zygomatic bone complex 18.40% (120) and majority of the bony maxillofacial injuries were treated by open reduction and internal fixation (ORIF).

Conclusion: Males of age group 21-30 years were more frequently involved in maxillofacial fractures. Road traffic accident was the most common cause of trauma in this part of the country, which requires proper implementation of traffic legislation use of helmet while riding the cycle or motor bike. Mandible was fractured in majority of cases; common treatment modality of maxillofacial fractures at our center was Maxillo-mandibular fixation with miniplates.

Key Words: Maxillofacial trauma, road traffic accident, Hyderabad, Fire arm injury.

INTRODUCTION

Maxillofacial fractures present most challenging problems for healthcare providers throughout the world because of high incidence, assortment of facial fractures[1], associated with considerable morbidity, disfigurement and huge cost for treatment [2].

Various authors have been published articles on incidence and causes of maxillofacial injuries and it shows that some of the variations from state to state that can be attributed to social/ cultural background and ecological factors like Geography, community trends, Alcohol and drug abuse[1, 2,3,4,5].

The causes of maxillofacial fractures have been modified in last past three to four decades and until to continue. The main etiologies are Road traffic accidents, falls, sports-related injuries, and interpersonal violence throughout the World[1]. In western countries and developed countries inter personal violence is the commonest cause[6] and whereas in under developing and developing countries road traffic accidents is common cause of Maxillofacial fractures[7].

According to measurements of World Health Organization (WHO) in relation to the trauma toll, near about 1 million people expire and near about 20 million people get traumatized in road traffic accidents annually[5, 8].

In Scotland[9] assault is most common cause, where as in Libya[10] falls and in Japan[11], road traffic accidents and accidental falls were reported as the main basis of maxillofacial fractures.

In anatomical positions, nasal, mandibular and zygomatic complex fractures account for the majority of all maxillofacial fractures [12].

This study may provide the reason for recommendation of laws in keeping the etiology in view; for example introduction of seat belt legislation, use of helmet during bike and cycle riding. Young age and male gender is more involved in maxillofacial trauma like in any other part of world due to more involvement in social activities comparatively.

MATERIALS AND METHODS

This descriptive study was conducted on patients with maxillofacial fractures attending Out Patients Department / Emergency Room Department of Liaquat University Hospital Hyderabad, Pakistan from 1st Jan 2012 to 31st Dec 2012.

The tenacity of this study was to determine the pattern of presentation, causes and treatment modalities done at our center. History was taken from the patient or attendant to determine the cause of fracture, complete

physical examination of face was carried out to know sites of fracture and finally confirmed by radiography including plain radiographs like PA view of mandible, Orthopentomograph (OPG), PNS view, SMV view and CT scan imaging where required. All cases which requiring treatment were carried out under general anesthesia. Different types of approaches / methods like simple Intermaxillary Fixation, Intraoral cortical bone screws, miniplates, trans osseous wiring, suspension wiring were used. Postoperative radiographs were taken in selective cases. The data were put in a designed Proforma.

RESULTS

This descriptive study included 448 patients (318 males 130 females) aged group 10 to 70 years treated for maxillofacial fractures in one year study time peroid. A total 652 maxillofacial fractures were recorded.

Total 287 (44.0%) were mandibular fractures, 156 (23.92%) maxillary, 89 (13.65%) naso-orbital and 120(18.40%) zygomatic bone complex fractures. (Table 1)

Different causes of maxillofacial fractures were reported; (RTA) road traffic accident was 255 (56.91%), Assault 47 (10.49%), fall 89 (19.86%), Firearm injuries (FAI) 17 (03.79%), Sports 21 (04.68%) and others 19 (04.24%). (Table 2)

While the distribution of mandibular fractures were 88 (31%) Condyle, 06 (2%) Ramus, 79 (27%) Angle, 60 (21%) Body, 26(9%) Parasymphysis, 17(6%) Symphysis and 11(4%) Dentoalveolar (Fig-1) and for maxillary Le Fort I 42 (27%), Le Fort II 25 (16%), Le Fort III 21 (13%) and Dentoalveolar fractures were 68 (44%) (Fig 2)

Table No. 1: Pattern of Maxillofacial Fractures

Fracture Type	Numbers	Percentage
Mandible	287	44.0%
Maxilla	156	23.92%
Naso-orbital	89	13.65%
Zygomatic Bone complex	120	18.40%
Total	**652**	**100%**

Table: 2 Causes of Maxillofacial Fractures

Cause	n = #	Percentage
RTA	255	56.91%
Assault	47	10.49%
Fall	89	19.86%
FAI	17	03.79%
Sports	21	04.68%
Others	19	04.24%
Total	**448**	**100%**

Different treatment modalities were used for the proper reduction and fixation of the fracture sites. Standard close / open reduction method was done which was suitable for each case, stabilization and fixation was done with one of the following methods IMF with Eyelets / Erich Arch Bar, intraoral cortical bone screw, Trans osseous wiring, Miniplates and suspension wiring done respectively

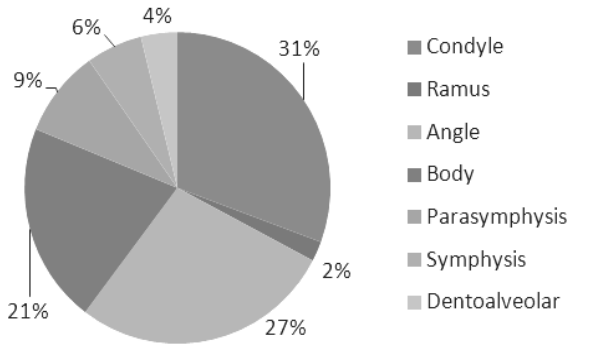

Figure No. 1: Site Distribution for Mandibular Fractures

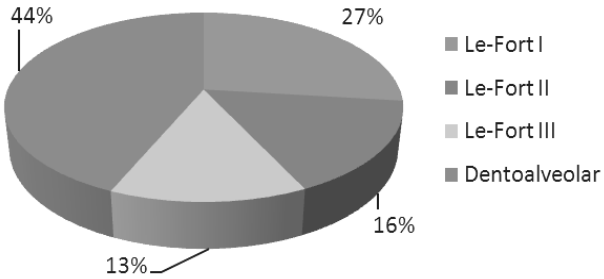

Figure No. 2: Site Distribution for Maxillary Fractures

DISCUSSION

The management of fractures to the maxillofacial region endures a challenge for oral and maxillofacial surgeons, demanding both proficiency and a high level of capability.[13]

Now a day's trauma is major consideration issue of young people, the age group of 21-30 years when majority adolescent publics complete their education and start travelling for their job searching and having aggressive nature with hasty driving on roads. The results of our study also were similar with El-Sheikh [14]. This suggests that proper education, monitoring and guidance to this group of age may reduce their participation in such accidents [14,15,16,17].

In our study group population higher numbers of maxillofacial trauma were males as compared to females, may be attributed to the reason that the females of our country most often are confined to housework, they drive less frequently and also taking less part in outside working like farming, sports, assault and firearm injuries as shown in other studies [14,15,16,17].

The study results of Yoffe[18] has found 'falls' as the major etiological factor for maxillofacial trauma whereas studies conducted by Kontio [19] and others [20] have found fights and assaults as the main cause for maxillofacial trauma and by Gassner [16] has reveal

everyday activities and sports as the core etiology, but our study results shown RTA is major etiology followed by Fall, Assaults and others.

Mandible may be attributed to its prominence and also to its exposed anatomical position on the face and victims of RTAs will try to avoid their head against injury at the time of accidents. Thus, in the process of avoiding their head, may receive maximum impact to the mandible. This can also be a factor responsible for the higher involvement of mandible compared to other facial bones in the maxillofacial region.[21]

The study results of Ugboko [22] Veeresha [23] Motamedi, [24] Ortakoglu [25] and Mansour Q [26] have also found mandibular fracture was common entity of fracture in maxillofacial ragion trauma with respective sites condylar , angle and Parasymphysis region.

The studies of Le et al. [27] and Al Khateeb et al. [28] indicates that involvement of nasal bone in the middle third of face fractures may be attributed to its prominent position and relative structural weakness but the results of our study showed zygomatic bone complex as the most common site of middle third of face injury, the results of this study were coinciding with Ugboko, [22] Veeresha, [23] and Ortakoglu. [25]

Majority of the patients treated under general anesthesia; reduction were done open / closed or remote, immobilization with following techniques' simple Inter maxillary fixation with Intra oral cortical bone screw, arch bar or eyelets and fixation with miniplates , suspension wiring and Tran-osseous wiring respectively.[29-30]

CONCLUSION

Males of age group 21-30 years were more frequently involved in maxillofacial fractures. Road traffic accident was the most common cause of trauma in this part of the country, which requires proper implementation of traffic legislation use of helmet while riding the cycle or motor bike. Mandible was fractured in majority of cases common treatment modality of maxillofacial fractures at our center was IMF with miniplates.

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