Original Article

Three Years Audit of Maxillofacial Trauma at Abbasi Shaheed Hospital, Karachi

Maxillofacial Trauma

1. Zahid Ali 2. Saleem Shafique 3. Arsalan Ahmad Sheikh 4. Syed Sheraz Hussain

1. Asstt. Prof. of Oral & Maxiloficial Surgery, KM&DC, Abbassi Shaheed Hospital, Karachi 2. Asstt. Prof. of Oral & Maxiloficial Surgery, IM&DC, Hyderabad 3. Senior Registrar, Otorhinlogy, LUM&HS, Jamshoro 4. Assoc. Prof. of Orthodontists, KM&DC, Abbassi Shaheed Hospital, Karachi

ABSTRACT

Objective: The purpose of this retrospective study was to analyze the maxillofacial fractures treated during three years period with special attention to the age, causes, fractures pattern, clinical management and treatment modalities.

Study Design: Retrospective study

Place and Duration of Study: This study was carried out Oral & Maxillofacial Surgery Department of Abbasi Shaheed Hospital during the period of January 2008 to December 2010

Materials and Methods: 236 Patients data compiled. The data were reviewed and analyzed in terms of age, gender, aetiology, anatomical site and treatment methods.

Results: A total of 236 patients were included in this study presenting with maxillofacial trauma out of these 93.6% were males and 6.4 % female .Overall male to female ratio was 15:1.The most common age involved was second decade. The most common cause was RTA (82%)followed by fall (7.2%) and then assault (5.5 %). The fracture of the mandible was the most common constituting about (72.5%) of the maxillofacial fractures followed by Zygomaticomaxillary complex (ZMC) fracture (14.4%) and then Maxilla (5.9%). Regarding treatment more than 50 % patients received ORIF (Open reduction Internal fixation) via bone plates while remaining received MMF (Maxillo-mandibular fixation).In ZMC Fracture ,Gillies Temporal approach alone is the most common approach accounting 67% of cases while in Le-forte fracture ORIF constitute the most common treatment method.

Conclusion: The causes and pattern of maxillofacial fractures reflect trauma patterns within the community and, as such, can provide a guide for the design of programs geared towards prevention and treatment.

Key Words: Maxillofacial fractures, Mandible fractures, miniplates fixation,

INTRODUCTION

The Maxillofacial region occupies the most prominent position in the human body and rendering it vulnerable to injuries quite commonly. Injuries of the maxillofacial region may result varying degree of physical, functional and cosmetic disfigurement and it can occur as isolated injury or may be associated with multiple injuries.[1-3]

The incidence and aetiology of maxillofacial fractures vary widely between different countries and even within the same country as a result of various contributing factors such as age, gender, the environment and the socioeconomic status and culture of the patients.[4-6]

Road traffic accident (RTA) is reported the leading cause of maxillofacial fractures in developing countries while interpersonal violence is the leading cause in developed countries. The other aetiological factors are firearm injury, sports injury, falls and industrial trauma.[7,8-9] Most of the studies reported high frequency of fracture among males and young age group between the ages of 21-30 years.[4,5,7-10]

The purpose of this retrospective study was to analyze the maxillofacial fractures treated during three years period with special attention to the age, causes, fracture pattern, clinical management and treatment modalities. In addition this study will evidence for recommendation of possible preventive measures to be taken to reduce the incidence of maxillofacial fractures.

MATERIALS AND METHODS

This was a retrospective study which review the data of 236 patients sustaining maxillofacial fractures and who were attended between January 2008 to December 2010 at the Oral & Maxillofacial surgery Department, Abbasi Shaheed Hospital, Karachi Pakistan.

The data were reviewed and analyzed in terms of age, gender, aetiology,anatomical site and treatment methods. Age above 60 and isolated nasal and Nasoorbital ethmoid fractures were excluded in this study. The data was then computerized and subjected to statistical analysis using SPSS version 16

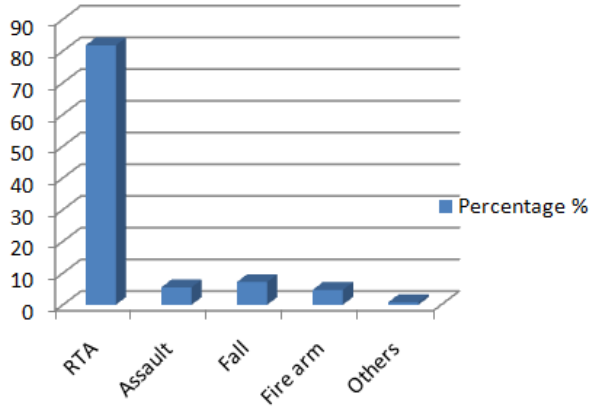
RESULTS

A total of 236 patients were included in this study presenting with maxillofacial trauma out of these 93.6% were males and 6.4 % female. Overall male to female ratio was 15:1.The age range from 13-40 years. The most common age involved was second decade (93%) followed by first decade (53%).

The most common cause of maxillofacial fracture was RTA (n=193, 82%), followed by fall (n=17, 7.2%) and then assault (n=13, 5.5 %) (Graph 1).

The fracture of the mandible was the most common constituting about (n=171, 72.5%) of the maxillofacial fractures followed by Zygomaticomaxillary complex (ZMC) fracture (n=34, 14.4%) and then Maxilla (n=14, 5.9%). (Table 1)

In Mandible the most common site involved was Parasymphysis (n=82, 27%) followed by Body (n=77, 26%) and then Angle (n=41, 14%). (Table 2)



Graph 1: Causes of Injury

Table No.1: Distribution of Fracture Site

Site of Fracture	Frequency(n)	Percentage %
Mandible	171	72.5
ZMC	34	14.4
Maxilla	14	5.9
Panfacial	17	7.2
Total	236	100

Table No.2: Distribution of site of Mandible Fracture

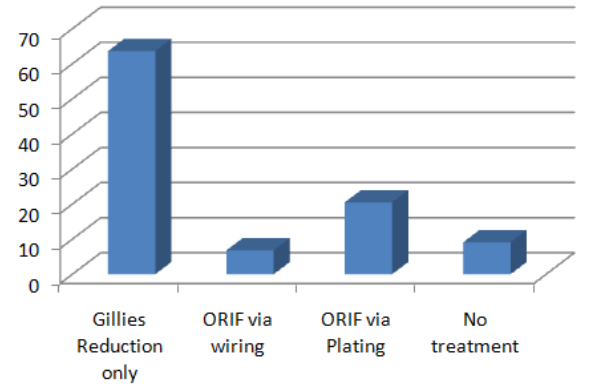
Fracture Site	Frequency(n)	Percentage %
Symphysis	18	6
Parasymphysis	82	27
Body	77	26
Angle	41	14
Ramus	8	3
Coronoid	6	2
Condyle	67	22

Table No. 3: Treatment of mandible fracture

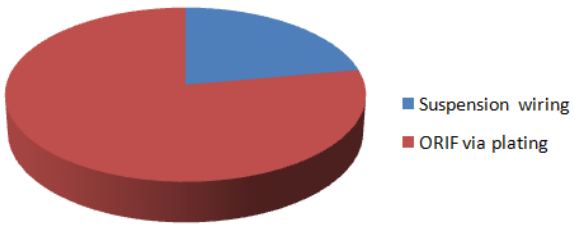
Method of Treatment	Frequency (n)	Percentage %
MMF via Arch bar	42	22
MMF via eyelet wiring	38	20
Circum-mandibular wiring	4	2
Bridal wiring	2	1
Occlusal splint	2	1
ORIF via wiring	16	9
ORIF via plating	82	44
No treatment	2	1
Total	188	100

In Maxilla the most common fracture was Le-Fort II (n=14, 67%) followed by Le-Fort I fracture (n=8, 38%) while In ZMC fracture the left site was most commonly involved (n=25, 41%) while 8% bilateral involvement. ZMC arch was involved in 16 % of cases.

Regarding treatment of Mandible fractures more than 50 % patients received ORIF via bone plates while remaining received MMF (Table 3).In ZMC Fracture ,Gillies Temporal approach alone is the most common approach accounting 67% of cases while in Le-forte fracture ORIF constitute the most common treatment method.(Graph 2 & 3)



Graph No.2: Treatment of ZMC Fracture



Graph No.3: Treatment of Le-Fort Fracture

DISCUSSION

In the present study there is male preponderance.The male to female ratio is 15:1 which is very high compare to most of the studies even though it is higher than other cities of Pakistan.[6,7,11] However the results are similar to those studies from Iran (12:1) and Nigeria (17:1).[10,12] The preponderance of male subjects could be attributed to the fact that males are the main earner of the family and work outdoor and most of them have motorbikes. They do not wear helmet and drive recklessly. This will be attributed in the present study where 2nd decade male commonly involved in maxillofacial trauma. The result is consistent with most of the studies.[10, 13, 14 &15]

In the present study RTAs (82%) constituted the most common cause of injury. The studies done in various cities of Pakistan other than Karachi showing 40-50 % of RTA involvement in maxillofacial trauma however similar percentage showed in studies conducted in India(80%)[15] ,Iran (91%)[10] and Nigeria (83%).[12]

In contrast, studies conducted in Australia, Europe and North America found Assault to be the leading cause of maxillofacial trauma (30-40%) while in the present study assault contributed only 5.5 %.[16,17]

Mandible is the bone most frequently involved in maxillofacial fractures. The frequency of mandible fracture in our population was 72.5% followed by ZMC (14.4%) and then Maxilla (5.9%). The result is similar with most of the studies [4, 6, 7, 8,11]while in contrast few studies reported maxilla to be the most common site for midfacial fracture[18, 19].

In this study Parasymphysis fractures of mandible were the most common followed by Body fractures. This result is consistent with the studies done in other cities of Pakistan[6,7].Studies done by Subodh S et al.[20] in India,Ozkaya O [4] in Turkey, Elgehani RA [21] in Libya reported the same site of fracture. In contrast few studies refracted condyle is the most common site of mandible fracture [22, 23].

In ZMC, Left Zygoma fracture was most commonly involved while in maxillary fracture Le-Fort II was most commonly involved.

There are many treatment regimen in maxillofacial fracture but the selection may change according to the type & location of the fracture, patient characteristics and the surgeon`s preference and experience. In the past most of the Mandible fractures operated by closed reduction only where the miniplate system was not popular. From last two decades ORIF (Open reduction internal fixation) via miniplates is very common because it is very comfortable to the patients and the patient recovered earlier but he has to face the cost of implant and hospital stay. In this study more than 50% cases operated by ORIF via miniplates while 40% cases operated via closed reduction either with arch bar or eyelet wirings

CONCLUSION

As this study revealed the most common cause of maxillofacial trauma is road traffic accident and mainly young adults are involved so strict traffic rules and regulations should be enforced and use of helmet with chin cap should be mandatory. The Government should adds few chapter regarding cause and consequences of head and maxillofacial trauma in text books so the young generation will alert for safe driving and follow the road crossing safety.

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Address for Corresponding Author:
Dr. Zahid Ali,
Asstt. Prof. of Oral & Maxiloficial Surgery,
KM&DC, Abbassi Shaheed Hospital, Karachi