

ETIOLOGY AND INCIDENCE OF MAXILLOFACIAL SKELETAL INJURIES AT TERTIARY CARE HOSPITAL, LARKANA, PAKISTAN

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ABSTRACT

The objective of this study was to determine the causes, incidence and distribution of maxillofacial injuries. This was a descriptive study performed at the tertiary care hospital of Larkana (Accident & Emergency Department of Chandka Medical College, Hospital and Outpatient's Department of Bibi Aseefa Dental College Hospital, Larkana) from 1st February 2011 to 30th August 2013.

Two hundred and eighty eight patients of maxillofacial injuries were included in this study patients less than 11 years of age, suffering from neurological disorders and patients with isolated cases of dental and nasal injuries or only with facial lacerations were excluded. Information and data were collected from history, clinical examination and surgical preoperative records of each patient.

Results showed that the most common etiology was road traffic accident (170) 59%, interpersonal violence (31) 10.76%, gunshot injuries (28) 9.7%, falls (19) 6.5% and others (40) 13.88%. The mandible was the most frequent bone fractured, which accounted for (148) 50.38% followed by zygomatic complex (52) 18% and (24) 8.3% maxillary bone. Fracture in combination form involved (64) 22%.

It was concluded that road traffic accident was the most common etiological factor of maxillofacial skeletal trauma, while second most common cause was the interpersonal violence. Mandible was the most commonly fractured bone.

Key Words: *Maxillofacial skeletal trauma, fracture, road traffic accident.*

INTRODUCTION

Injuries to the maxillofacial region present one of the most challenging problems for health care professionals worldwide. Particular interest was developed by the high incidence and diversity of facial fractures.¹ Fractures of the maxillofacial skeleton are invariably associated with substantial morbidity, disfigurement, functional deficit and high cost for treatment.² The causes differ among developing countries from those in developed countries. In published studies from Nigeria,³

Libya,⁴ Europe⁵ and United States⁶ indicate that road traffic accidents was the main cause of maxillofacial injuries. Current studies show that interpersonal violence is leading source of facial fractures in developed countries, where as road traffic accident remains major etiology in underdeveloped countries.⁷ Socioeconomic status, social education and behaviour, various cultural thoughts, differences in sects and religions, industrialization, transportation, lack of driving skills, alcohol consumption, and legislation, all may contribute in establishing the prevalence of the various causes.⁴

According to anatomical site of distribution, mandible and zygomatic complex fractures are the most prevalent sites and their occurrence varies with the mechanism of injury and demographic factors.⁴

The coordinated and sequential collection of data concerning chronological and demographic patterns of maxillofacial injuries may help health care providers to make a record of facial trauma. Ultimately an understanding of the cause, severity, and chronological distribution of maxillofacial trauma permit clinical

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and research priorities to be established for effective treatment and prevention of these injuries.⁵

First time this type of study was carried out at peripheral areas of Sindh to highlight the main issues regarding causes, type and pattern of maxillofacial skeletal injuries in relation to age and gender.

The main aim of this study was to trace the full profile of maxillofacial trauma victims, seen at emergency or outpatient's department for understanding the causes, incidence and temporal distribution of maxillofacial trauma which may help to establish clinical priorities for the effective treatment and prevention of these injuries.

METHODOLOGY

Two hundred and eighty-eight patients with maxillofacial skeletal injuries were seen in the tertiary care hospital of Larkana (Accident & Emergency Department of Chandka Medical College Hospital and Outpatient's Department of Bibi Aseefa Dental College Hospital, Larkana), from 1st February 2011 to 30th August 2013. Patients who sustained maxillofacial skeletal injuries were included where as patients less than 11 years of age, neurological disorders and patients with isolated cases of dental and nasal injuries or only with facial lacerations were excluded. Information and data were collected from clinical examination and surgical preoperative records of each patient.

The obtained data included:

- Patient's demographic details including age, gender and race
- Etiology with respect to age group
- Fracture site with respect to age group

SPSS version 16.0 was used to analyze the collected data.

RESULTS

Two hundred eighty-eight patients with maxillofacial skeletal injuries formed the study group. Male were dominant with 81% (n-233) while 19% (n-55) were females Fig 1. Most effects patients were in second to third decades. Road traffic accidents were the most common cause (n-170) 59%. Furthermore motor cyclists and walkers were the top victims. Interpersonal violence (n-31) 10.76% was on second, followed by gunshot injuries (n-28) 9.7%, falls (n-19) 6.5% and others (n-40) 13.88% as mentioned in Table 1. Mandible was involved in 50.38% cases followed by zygomatic complex (n- 52) 18% and (n-24) 8.3% maxillary bone. Fracture in combination form involved (n- 64) 22% Table 2. Patients with significant proportion had fractures in combination form.

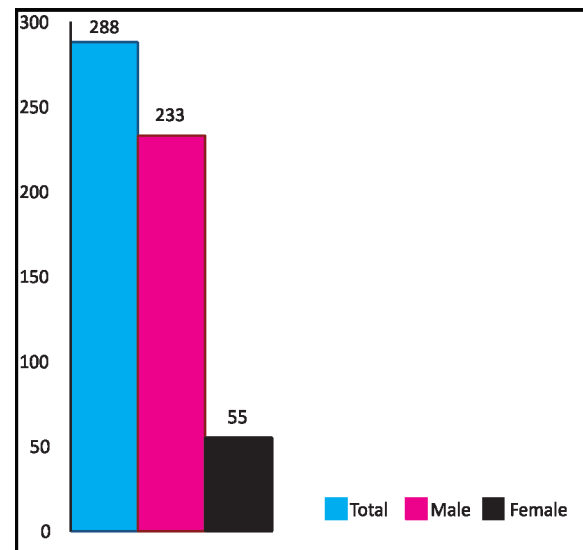


Fig 1: Sample size and gender distribution

TABLE 1: ETIOLOGY OF MAXILLOFACIAL SKELETAL INJURIES

S. No.	Etiology	No. of patients	Percentage
1.	Road traffic accidents	(n-170)	59%
2.	Interpersonal violence	(n-31)	10.76%
3.	Gunshot injuries	(n-28)	9.7%
4.	Falls	(n-19)	6.5%
5.	Others	(n-40)	13.88%

TABLE 2: DISTRIBUTION ON THE BASIS OF BONE INVOLVED (n=288)

S. No.	Bone involved	No. of patients	Percentage
1.	Mandible	(n=148)	50.38%
2.	Zygomatic bone	(n= 52)	18%
3.	Maxillary bone	(n=24)	8.3%
4.	Panfacial fractures	(n-64)	22%

DISCUSSION

Maxillofacial trauma is usually caused by a known and relatively constant set of etiological factors.⁸ Recent studies and surveys show that causes and incidence of maxillofacial trauma tend to vary with geographic region, road safety regulation, culture, social education and behaviours.⁹

In the current study population, 2nd to 3rd decade male gender was predominance. This finding is almost similar to the previous published studies.^{10,11,12} This could be because this is a male dominating society where males are mostly involved in outside activities, and more exposed to such accidents as compared to females. Moreover the study was conducted in interior of

Sindh province where the culture and social behaviours restricts the females to domestic activities.

In contrast to this study, 90% male population was the victim of maxillofacial trauma in Zimbabwe¹³ which is again explaining the male dominance.

In this study, road traffic accidents, especially motorcyclists were the most common victims 59%. This could be because in our setup, motor bikes are usually provided to youngsters, and they use motorbikes rather carelessly. Other study from Pakistan showed similar results (57%).¹⁴ Similar results were shown in studies from India (62%)¹⁵ and 52.2% Jordan¹⁶, whereas in a study from England, only 24.7% patients were registered with maxillofacial trauma due to road traffic accidents,¹⁷ they were using the seat belts, and were following traffic rules and regulations that decreased the ratio of injuries.

Second most common etiological factor noted in the present study was the interpersonal violence 10.76% Table 1. Current study was conducted in Larkana and its neighbouring small cities of interior Sindh located near the peripheral cities of Balochistan, in these areas tribal fighting is common.

Mandible was the most common site involved 50.38% followed by zygomatic complex in this study. Similarly, Cheema¹⁸ and Ahmed et al¹⁹ found 51% mandibular bone involvement which is almost equal to the results of this study.

In contrast to the present study, Rana¹⁴ found 75.6% mandibular bone involvement which is quite higher percentage. In addition the involvement of site and occurrence varies with the mechanism of injury and gender and age, for instance in road traffic accidents, the most prevalent site is mandibular body and condyle²⁰ while in younger age group, condylar fractures are more common. In the current study it was the body of the mandible, opposite to the findings by Motamedi MH²¹ who found condylar region as the more prevalent site.

CONCLUSION

Motor vehicle accidents due to the condition of the roads, driving skills and violation of traffic rules was the main factor responsible for maxillofacial injuries, which can be overcome by putting sufficient stress on the use of seat belts and head gears in case of motorcycles and strict enforcement of traffic rules.

Following the comparison of the obtained data with literature, it can be stated that causes and incidence would vary from one country to another still vary from rural to urban or from area to area.

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