

Maxillofacial Fractures: Its features and Occurrence in Western Uttar Pradesh, India- A Retrospective Study.

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ABSTRACT

Introduction: The successful surgical treatment of maxillofacial fractures consists of early recognition of fractured site, etiologic factors and demographic patterns. In Western Uttar Pradesh, Road Traffic Accidents are leading cause of maxillofacial fractures followed by facial assault. Mandibular fractures followed by upper face fractures are the leading causes of maxillofacial fractures.

Aim and Objectives: The aim of this retrospective study is to investigate the pattern of maxillofacial fractures in western Uttar Pradesh, India

Material and Methods: This study was conducted at Teerthankar Mahaveer Medical College & Research Center and associated Teerthankar Mahaveer Dental College & Research Center, TMU situated on Moradabad -Delhi national highway. Most patients admitted here are referral patients from adjacent territory.

Results: There were about 76% cases of mandibular and 24% cases of mid-face fractures. Among mid-face fractures Zygoma fractures constituted about 35.5% cases. Male to female ratio was found to be 3.5:1.

Conclusion: In conclusion, it seems that RTAs remain the biggest etiological factor of maxillofacial fractures in (Western Uttar Pradesh) India.

Key words: Fractures, Le-Fort, RTA.

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Introduction

Maxillofacial trauma can pose considerable long-term esthetic, complication [1,2]. Maxillofacial fractures vary markedly from one country to another and even within the same country. This variability is due to different socioeconomic status, sex distribution and environmental factors. A WHO statistics report indicated that each year one million people die and between 15 and 20 million are injured due to Road Traffic Accidents [3].

A clear picture of the etiologic and demographic patterns of maxillofacial injuries can assist medical service providers to plan for better management of such cases. Mandible is the most com-



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mon site of fracture on the face. Even though it is a very strong bone, its position on the face makes it particularly vulnerable for fracture. Mandibular fractures can lead to swelling, restriction of movement of the jaw, and can cause changes in the contour of the jaw. Unlike upper jaw fractures, lower jaw injuries are more likely to heal incorrectly because the bone is much thicker than the upper jaw and prone to problems such as infection.

Upper jaw fractures (maxillary fractures) occur in three most common types called the Le Fort I, Le Fort II and Le Fort III fractures, with Le Fort I being the mildest and Le Fort III being the most severe.

Head and brain injuries are commonly associated with facial trauma, particularly that of the mid face; brain injury occurs in 15-48% of people with maxillofacial trauma [4]. Despite the increasing frequency of morbidity and mortality associated with maxillofacial fractures in India, little has been published in this regard. A scanty literature is available for such type of injuries, even though we see such type of cases in our daily life.

The aim of this retrospective study is to investigate the pattern of maxillofacial fractures in western Uttar Pradesh, India over a 3 year period with special attention on age, sex, site, etiologic factors and associated injuries, and complications.

MATERIALS AND METHODS

Teerthankar Mahaveer Medical College & Research Center and associated Teerthankar Mahaveer Dental College & Research Center are situated on Moradabad -Delhi National highway [NH -24].

Traffic being very fast on national highway is the leading cause of RTA. Specially during winters due to foggy weather the incidence of such road traffic accidents increases to many fold. Since last three years [September 2010 to August 2013] 85 patients of RTA were admitted in these tertiary level institutions, in which we conducted our study.

Most of the patients admitted here were referral cases from nearby nursing homes.

We collected data from the hospital records regarding name, age, sex and place from where they were brought. The radiographs of patients who were referred and hospitalized for treatment over a 3-year period [2010-2013] were reviewed.

RESULTS

During a 3-year period, from September 2010 to August 2013 a total of 85 patients were studied. Each patient had more than one fractures and some were seriously injured. Patients age ranged from 8 to 62 years with a mean of 28 ± 12 . The age group 21-30 constituted the biggest group of patients representing 30% of total population. There were about 76% cases of mandibular and 24% cases of mid-face fractures. Among mid-face fractures Zygoma fractures constituted about 35.5% cases. Male to female ratio was found to be 3.5:1. Occurrence of lower and mid face

Table.1 Location of lower jaw fractures

Location	Patients (%)
Body	27
Parasymphysis & Symphysis	22
Condyle	21
Angle	16
Ramus	10
Coronoid	2
Dentoalveolar	2
Total	100

Table.2 Location of mid-face fractures

Location	Patients (%)
Zygoma	35.5
Orbital wall	23.5
Nasal complex	18.5
Zygomatic arch	11.0
Blow out	1.5
Dentoalveolar	2.0
Le Fort I	3.0
Le Fort II	2.5
Le Fort III	2.5
Total	(100)

fractures is as per Table.1 and 2 represented below.

Regarding associated injuries lacerations and pelvic fractures were most common

DISCUSSION

In developing countries traffic accidents remain the major cause of facial trauma [5]. Literature reviewed shows that mandibular fractures are more common than mid-face fractures [6-20].

Most facial bone fractures involve the mandible and this might be related to the direction and quantity of force that the mandible is exposed to [12]. The mobility of the mandible and the fact that it has less bony support

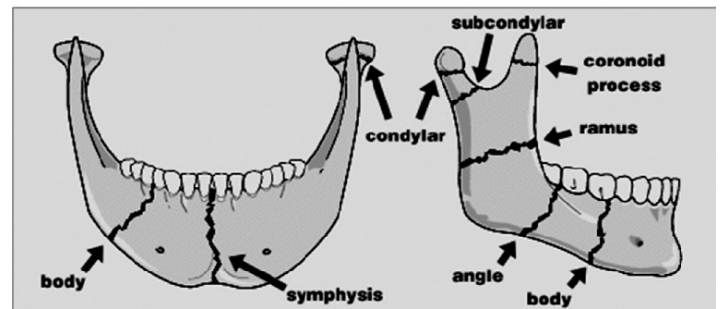


Fig.1 Sites of Mandibular Fractures



Fig.1:LE-FORT-1



Fig.2:LE-FORT-1



Fig.3:LE-FORT-2



Fig.4:LE-FORT-2



Fig.5:LE-FORT-3

than the maxilla has also been implicated in its cause of injury [21].

The body of the mandible was the most common mandibular fracture site [11, 18 19,22,23]. Same pattern is seen in our study 27%. Patients with mandibular fractures caused by alleged assault had mandibular body fractures accounted for 33% followed by the angle of the mandible 31% [24]. In our study condylar fractures were 21%, because it is not due to assault on the face but it was the result of RTA. Ramus, coronoid and dentoalveolar regions, being the least common sites of mandibular fractures 10, 2 & 2% respectively. Fractures of the mid-face are more rare than lower jaw fractures. Mid-face fractures are often associated

with fractures to the other parts of the central face. Maxilla acts as a central support bone in the face, and impact to it can affect bone around the nose and eye. The three ways in which fractures of maxilla occurs are Le Fort I fracture, which is a (horizontal crack across the maxilla, which separates off the maxilla and teeth from the bone above [Fig.1&2]. Le Fort II fracture, forms a line from the sides of the maxilla and over the nose [Fig.3&4], & the Le Fort III fracture (break in the eye socket and bridge of the nose, [Fig.5&6]. International studies from Jordan, [25] Singapore, [26] and New Zealand [27] have reported RTAs as the most common cause of maxillofacial fractures, while in the USA, [28] Sweden, [29] and Finland [30] assault has been reported as the leading etiological factor. Male to female ratio was found to be 3.5:1. This ratio is comparable with studies from England, [20] France, [31] India, [20] and Nigeria [22].

The age group 21-30 constituted the



Fig.6:LE-FORT-3

biggest group of patients representing 30% of total population.

In the current study, as also found in other countries, [20,22,23,31-34,] the peak incidence of fracture was in the age range of 21-30. It has been shown that in general young people suffer more from trauma than elder people [25,31,32]. This is conceivable because the third decade of life represents an active period when individuals are more energetic involved in high speed transportation and outdoor activities which account for a major proportion of maxillofacial traumas.

CONCLUSION

In conclusion, it seems that RTAs remain the biggest etiological factor of maxillofacial fractures in India. The demographic pattern is in general similar to those of the literature. This includes the higher incidence of fractures in men than women and also in the age span of 20-30. There seems to be an urgent need for enhanced monitoring and regulation on motor vehicles to reduce the morbidity and mortality associated with RTAs. It is hoped that epidemiological surveys, such as the one presented here will help the health care professions and policy makers in planning future programs of prevention and treatment.

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