

# Patient's Presentation with Mandibular Fractures at Liaquat Medical University Hospital, Hyderabad

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## ABSTRACT

**OBJECTIVES:** To determine Patient's presentation with mandibular fractures at Liaquat Medical University Hospital, Hyderabad

**METHODS:** This descriptive study was carried out in the Department of Oral & Maxillofacial Surgery, Faculty of Dentistry Liaquat University of Medical & Health Sciences, Jamshoro. Sample size of (n=88) with inclusion Criteria: Patients from 10-70 years of age with either gender group, Patient with clinical signs and symptoms / radiological evidence of Mandibular fracture, exclusion Criteria was medically compromised patients, Previously maltreated cases, Patients with associated other facial skeletal fractures for the year 2010-2011.

**RESULTS:** A total of 122 mandibular fractures were recorded with male: female ratio 7:3. The road traffic accident (RTA) was the leading (42%) cause, while assault represented 21% followed by fall (15%), FAI (09%), Sports (07%) and other causes (06%). Regarding the site distribution of mandibular fractures, (15%) occurred in the condyle, (23%) in the angle, and (21%) in the body, (16%) parasymphysis, (15%) symphysis, (1%) ramus and (9%) dento-alveolar. Different treatment modalities were used for the proper reduction and fixation of the fracture sites. Majority of patients treated open reduction with miniplates fixation.

**CONCLUSION:** The commonest cause of Mandibular fractures in our setup was road traffic accident, and the results of this study may be helpful for the government and public to improve road traffic sense in road users, action taken or awareness of seat belt and helmet while driving and legislation in our population.

**KEY WORDS:** Mandible, Fracture, ORIF, IMF, Miniplates.

## INTRODUCTION

The mandibular fractures sketch was as early as 1650 BC, when an Egyptian papyrus illustrated the examination, diagnosis, and treatment of mandibular fractures. Many patients died due to either they received inappropriate treatment or no treatment subsequently<sup>1,2</sup>.

The Mandible is the largest, strongest mobile bone of the human frame with the common risk to fracture, it is the tenth most common bone to fracture in human frame but in relation with face only it second rank<sup>2,3</sup>. Mandibular fractures may occur alone or combination with other bones of the human frame, fracture site and severity totally depend upon the prominence, anatomy, mechanism, magnitude and direction of injury<sup>4,5,6</sup>.

The causes and incidence of mandibular fracture vary with geographic area, socioeconomic status, culture, religion, and era<sup>2,7</sup>.

Some studies done in past indicates that higher incidence of mandibular fracture between the age of 21-30yrs through the male to female ratio of 3:1<sup>8</sup> with common cause of Road traffic accident<sup>9,10</sup> while oth-

ers keep assault<sup>11,12,13</sup> on the top.

Mandibular fractures can cause array of issues once not treated properly, like temporomandibular joint pain dysfunction syndrome, malocclusion, poor mastication, obstructive sleep apnea, and some times there is issue of chronic pain<sup>2</sup>.

Re-approximation and Immobilization with the help of circumdental wiring or external bandage was first illustrated by Hippocrates through the use of circumdental wires and external bandage<sup>1</sup>.

Current established methods for the management of mandibular fractures include conservative treatment like; intermaxillary fixation (IMF) with dental wires, Arch bars, Intra oral cortical bone screws and Gunning splints for edentulous patients and open reduction like; intraosseous wiring and rigid internal fixation by miniplates, non-compression plates, compression plates and lag screws<sup>4,14,15</sup>.

The aims and objectives of this study were to investigate the cause, pattern and management of mandibular fractures in our Hyderabad city.

## MATERIAL & METHODOLOGY

This descriptive study was carried out at the Oral and

## Patient's Presentation with Mandibular Fractures

Maxillofacial Surgery Department Liaquat University Hyderabad, which is a tertiary care hospital.

A total of 88 patients attended OPD or received from Emergency department during 1<sup>st</sup> Sep. 2010 to 30<sup>th</sup> Aug. 2011, were studied for the causes, site and management of Mandibular fractures.

A comprehensive history was taken, the patients and X.rays (at least two radiographs 1- Orthopantomograph (OPG), 2- PA View of Mandible) were assessed on relation to using the clinical information by the team of researchers.

A written informed consent was obtained from the patient or attendant, than questionnaire was filled for each patient for factors like, age of patient, gender, and cause of injury etc. Properly filled forms were used to record and compile the study data. All the patients were treated under general anesthesia (this is the departmental protocol) by standard methods of reduction and fixation. Reduction was done by: Standard closed or open method.

Fixation was done by: IMF with eyelets or Erich arch bar, Patients existing denture, acrylic splint, Miniplates and intraosseous wiring.

### Inclusion Criteria:

Patients of both gender, age from 10 - 70 years included without any systemic disorder were included.

### Exclusion Criteria:

- (1) Medically compromised patients.
- (2) Previously maltreated cases.
- (3) Patients associated with other facial skeletal fractures.

### Data Analysis Procedure:

Data was analyzed in statistical program for social sciences (SPSS) version 16.0. The simple frequencies and percentage was computed for qualitative variables, like gender, etiology, pattern and management modalities and presented as n(%).

## RESULT

This descriptive study included 88 patients, (69%) 61 males and (31%) 27 females with aged 10 to 70 years treated for mandibular fractures in the study period (2010–2011); the overall ratio of male: female was 7:3. As Shown in **Table I**.

A total of 122 mandibular fractures were recorded, and the prevalence of various age groups is shown in table I.

Different causes of mandibular fractures were reported; the road traffic accidents was the leading cause (42%), while assault represented (21%) followed by fall (15%), Firearm injuries (FAI) (09%), Sports

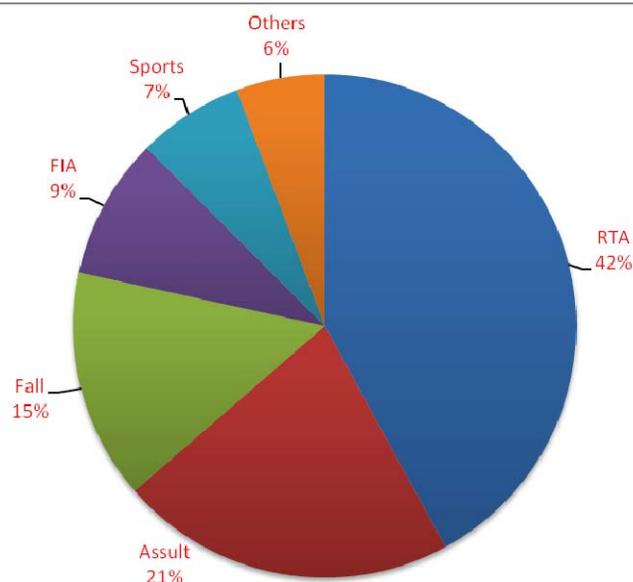
(07%) and other causes (06%). As Shown in **Chart I**. Regarding the site distribution of mandibular fractures, (15%) occurred in the condyle, (1%) in the ramus, (23%) in the angle, (21%) in the body, (16%) parasymphysis, (15%) symphysis and (9%) dento-alveolar. As Shown in **Chart II**.

Different treatment modalities were used for the proper reduction and fixation of the fracture sites. Standard close / open reduction method was done which is suitable for each case, stabilization and fixation was done with one of the following methods IMF with Eyelets / Erich Arch Bar, Acrylic splint with circummandibular fixation, Transosseous wiring with IMF, Miniplates Alone and Miniplates with IMF respectively As Shown in **Table II**.

**TABLE I: SHOWING THE AGE AND GENDER DISTRIBUTION (n=88)**

Age Group	Males (n=61)	Females (n=27)	Total	Percentage
1-10 years	06	02	08	09.00%
11-20 years	08	05	13	14.77%
21-30 years	25	09	34	38.63%
31-40 years	02	04	06	06.81%
41-50 years	11	04	15	17.00%
51-60 years	04	02	06	06.81%
61-70 years	05	01	06	06.81%

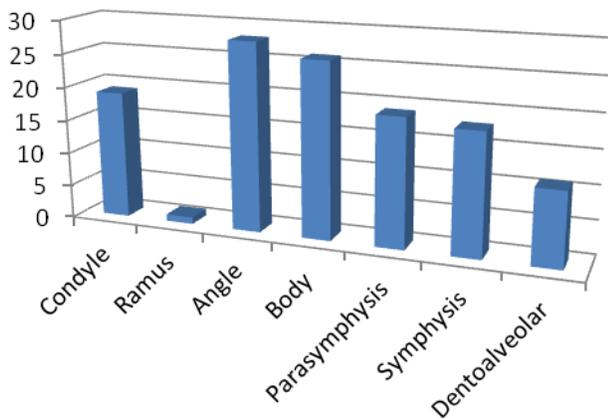
**CHART I: SHOWING THE CAUSES FOR MANDIBULAR FRACTURES (n=88)**



**TABLE II: SHOWING THE MANAGEMENT MODILITIES FOR MANDIBULAR FRACTURES (n=88)**

Management Modilities	No. of Patients	%
IMF with Eyelets / Erich Arch Bar	25	28%
Acrylic splint with circummandibular fixation	06	07%
Transosseous wiring with IMF	10	11%
Miniplates Alone	35	40%
Miniplates with IMF	12	14%
<b>Total</b>	<b>88</b>	<b>100%</b>

**CHART II: SHOWING THE SITE DISTRIBUTION FOR MANDIBULAR FRACTURES (n=88)**



**DISCUSSION**

This was hospital-based study conducted on the commonly encounter fracture of the facial frame.

Mandible plays an essential role in mastication, communication and deglutition and more frequently fractured as compared to other facial bones, this could be explained by its anatomical peculiarity of outline and site<sup>16, 17</sup>.

Undue force of about (44.6 to 74.4 kg/ m) is required for the mandible to be fractured, which suggests this injury to be a significant indicator of concomitant trauma<sup>17, 28</sup>.

In this study, the majority of victims were young adults between the 21-30 years of age.

In the present study, males were in majority as compared to females with the ratio of 7:3; these results are consistent with the previously published Data<sup>17, 19</sup>.

This high male ratio indicating the facts that in Pakistani culture males work outdoor and engage in risk-taking activities therefore, more exposed to accidents

and other types of injuries<sup>5, 17</sup>.

Previous studies done on the etiological factors of mandibular fractures shown the little bit variation, this may be due to area in which the study was done and the socioeconomic, ethnic and social status of the community peoples.

Khan M<sup>17</sup>, Olson et al<sup>20</sup>, Fridrich et al<sup>21</sup> demonstrated that vehicular accident was the major etiological factor while Thorn et al<sup>22</sup> reported that (90%) in Greenland were due to interpersonal violence and Ellis et al<sup>24</sup> reported that 43% were caused by vehicular accidents, (34%) by assaults, (7%) were work related, (7%) fall, (4%) sport injuries, and the remainder had other causes, Vaillant and Benoist<sup>23</sup> described 14 cases of fire arm injuries to the mandible.

The results of our study were similar with RTA<sup>17, 20</sup>, Assult<sup>22</sup>, FAI<sup>23</sup>, fall and sports injuries<sup>24</sup>.

In this study the most common site of mandibular fracture was the angle (23%) followed by body (21%), parasymphysis accounting for (16%), Condyle and symphysis region was (15%) and these results were similar with Khan A<sup>4</sup> and Moreno JC et al<sup>25</sup>, while others reported a higher percentages of body and condylar fractures resulting from RTA.

Current advancements in the field of oral surgery, general anesthesia and armamentarium have made ORIF with plating system, a basic tool for the management of mandibular fractures<sup>4</sup>.

Better out come, early return to function, patient's compliance and mangement of complex mandibular fractures are the putative advantages of ORIF<sup>4</sup>.

In the present study open reduction with miniplates fixation were the main treatment modilty used for mangement of mandibular fractures.

**CONCLUSION**

Road traffic accident found as a major cause of mandibular fracture in this study.

Preventive measures by proper legistilation involving Government, local bodies can reduce the prevalence which management with open reduction and miniplates fixation ensure both patient compliance of early return to work.

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