

## PATTERN OF MANDIBULAR FRACTURES AT MAYO HOSPITAL, LAHORE

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### ABSTRACT

*The purpose of this study was to determine age, sex, aetiology and site of fracture related to mandibular fractures. This study was conducted at the Department of Oral and Maxillofacial surgery, King Edward Medical College/ Mayo Hospital Lahore from 1st Sep 2004 to 31st July 2005.*

*The study was carried out on 120 patients with mandibular fractures. Data concerning the patients' demographics, aetiology and pattern were obtained and analyzed.*

*Approximately 50% of the patients sustained fractures from road traffic accidents and 45% of the fractures occurred in the 21-30 years age range. There was a male preponderance with a male to female ratio of 14:1. Parasymphyseal fractures were the most common followed by those of the body of the mandible.*

*In the light of this study we should bring amendments in the traffic rules and legislation about seat belt usage, motorbike wheeling and kite flying to reduce frequency of facial trauma.*

### INTRODUCTION

Mandible is a horseshoe-shaped bone occupying a very prominent and vulnerable position on the face,<sup>1</sup> since the projected chin is a favored target of adversaries; lower jaw fractures are twice as common as midface fractures, and second only to nasal bone fractures in frequency.<sup>2</sup> Mandible is the 10th most fractured bone in the whole body. They may occur alone or in combination with other facial bone fractures.<sup>3,4</sup> It plays a major role in the mastication, speech and deglutition. Its fractures result in severe loss of function and disfigurement.

The mandible is a strong bone; about 44.6 to 74.4 kg/m energy is required to fracture it.<sup>5</sup> It is more

sensitive to lateral impacts specially the body and ramus.

The pattern of mandibular fractures varies with geographic location, physical activity, social, cultural and environmental factors.

Causes<sup>7-11</sup> of mandibular fracture are: Road traffic accidents, Interpersonal violence, accidental falls, sports injuries, Industrial trauma, Pathological fracture etc.

In third world countries road traffic accident<sup>12</sup> is the common cause of mandibular fractures due to lack of implementation of the traffic laws, while in developing countries alcohol related<sup>13</sup> interpersonal violence is the leading cause

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Any age and sex group may sustain trauma to the lower jaw but children below the age of 12 are less susceptible to fracture because their bones are more resilient.<sup>14</sup> Epidemiological studies of maxillofacial trauma have classically shown that young adult males are the prominent victims.

Adekeye has reported that 74% of mandibular fractures are due to roaccidents<sup>15</sup>accidents<sup>16</sup>. However Oslon et al have held road traffic accidents responsible for only 48% of the cases<sup>16</sup>. Similarly, Abbas I has reported 56 % cases due to RTA<sup>7</sup>.

Fractures of the body, condyle and angle show a relatively similar incidence while ramus and coronoid fractures are rare<sup>17</sup>.

Ellis et al have reported that 33% of mandibular fractures occur at the body followed by condylar process (29%) and angle (23%)<sup>18</sup>. Gilven has given the following figures: Body (34%), angle (25%) and symphysis (20%)<sup>19</sup>. Abbas I reported parasymphysis (29.40%), condylar (20%), angle (18.30%)<sup>7</sup>.

The purpose of this study was to evaluate the frequency of mandibular fractures, their age and sex-related aetiology and their main type.

## MATERIALS AND METHODS

This clinical study had been carried out on 120 patients of any sex group having age 12 to 60 years, presenting with the features of mandibular fractures at the department of oral and maxillofacial surgery, King Edward Medical College / Mayo Hospital Lahore from Pt Sep 2004 to 31st July 2005.

A standard history and examination chart was completed for each patient Orthopantomogram (OPG) was the standard radiograph and if required supplemented by postero-anterior (PA) view of the face or any other radiograph of the face. A definitive diagnosis of mandibular fracture was established with the aid of clinical and radiographic findings. The patients' record was collected on a preformed Proforma.

## RESULTS

### Sex Distribution of the patients

A total of sixty patients were treated for mandibular fractures out of which 112 (93.3%) were male and

the remaining 08 (6.7%) were females with male to female ratio of 14:1.

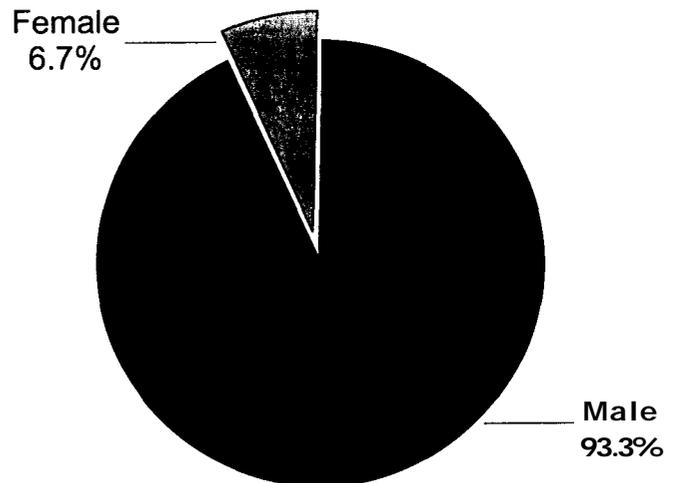


Fig 1. Sex Distribution of patients

### Age distribution of the patients

The mean age of the patients in the study was 27.2 years. The most common age group was 21-30 years followed by 12-20 years. The elderly age group 51-60 years showed the least involvement with mandibular fractures. See Fig: 2

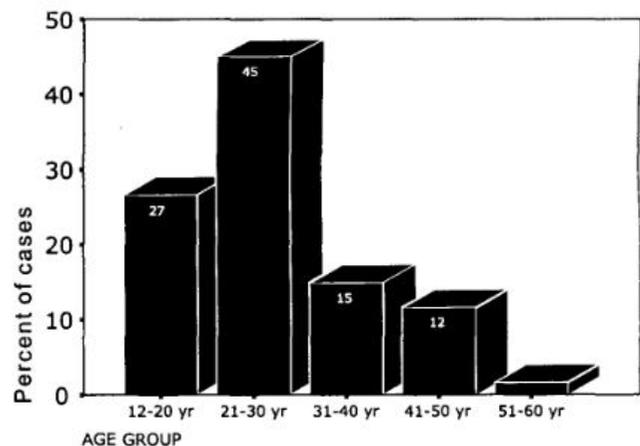


Fig 2. Age Distribution of patients

### Aetiology of the fractures

Most of the patients came under the category of road traffic accidents (50%) and least in that of pathological and iatrogenic (1.7%).

The results are shown in Figure No S.

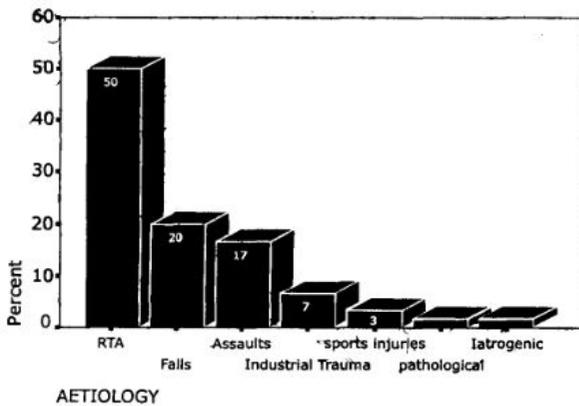


Fig 3. Aetiology of injury

### Site of the injury

In our study the mandibular fractures were most commonly seen in the parasymphysis region (48.3%) followed by the body fractures accounting for 26.7% and angle 18.3% of the total.

The details are given in Figure No. 4.

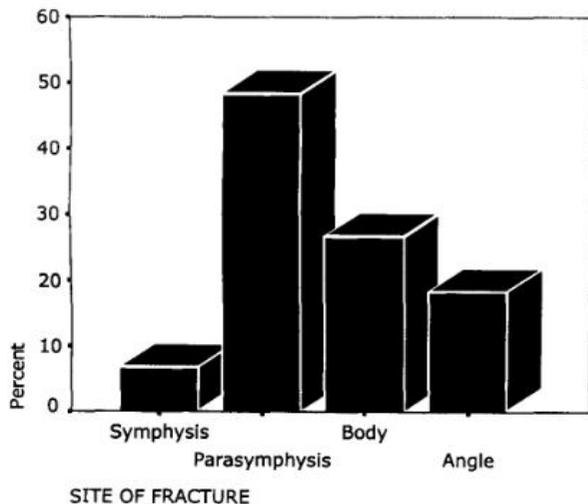


Fig 4. Site of Fracture

### DISCUSSION

The aetiology of the fractures received at a hospital is dependant on its location. Mayo hospital is located in the city centre of Lahore, which is a hugely populated area of this province. In this study 50% of the fractures

were the result of Road traffic accidents, 20% because of falls, 16.7% due to assaults and 6.7% due to industrial trauma. Our findings of road traffic accident as leading cause of mandibular fracture followed by falls due to kite flying is well supported by the study of Abbas I.' Moreno JC have also reported RTA as the major aetiological factor, accounting for 43.1% of the cases.<sup>20</sup>

Road traffic accidents have been reported as the leading cause of mandibular fractures in the third world countries.<sup>9, 12</sup> However in the developed countries assaults and interpersonal violence have been reported as the major aetiological factors.<sup>3</sup> The difference relate to lack of traffic rules and regulations like seat-belt regulations in the third world countries)<sup>10, 11</sup>

Emshoff have reported sports as the major cause mandibular fractures followed by road traffic accidents.<sup>22</sup> In our study falls related to kite flying were responsible for 20% of the cases especially in the pediatric population.

Most of the patients were males accounting for 93.3% and females 6.7% of the total, with male to female ratio of 14:1. The youngest patient was a 13 year male while the oldest patient was a 55 year old female. The mean age of the patients in the study was 27.2 years. The age ranged between 12-60. The most common age group was 21-30 yrs followed by 12-60 yrs age group. Similar age & sex distribution were reported by Abbas I and Ali K in 1998<sup>2</sup> in Pakistan and from other countries by Mosby (1996) & Dugan MA (1995-6).<sup>23, 24</sup> Similarly mandibular fractures have been reported to be more common in males.<sup>25</sup>

In this study a total of 120 fractures were seen in 120 patients. All of the patients were having unilateral pattern of injury. The most common mandibular site found to be fractured was the parasymphysis accounting for 48.3% of the total. According to Moreno JC (2000) and Renton TF (1996) parasymphysis is the most common fractured site of the mandible.<sup>20, 21</sup> Similarly, Abbas I has reported thmandible.20'21al fractures to be the most common accounting for 29.40 % of the total.'

### CONCLUSION AND RECOMMENDATIONS

The results show that majority of the patients were young adult males. The most common aetiological factor was road traffic accidents followed by falls. The

most common mandibular site fractured was parasymphysis.

In the light of this study the following **recommendations** can be given

- To reduce the incidence of road traffic accidents the traffic rules and regulations should be improved and there should be amendments in legislation about the use of seat- belts. Motorbike wheeling by the today's youngsters should be banned. Kite flying should be banned as well.
- Record keeping should be improved and further research work is required to improve the present status of treatment.

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