



ORIGINAL ARTICLE

A retrospective study of mandibular fractures in tertiary care hospitals of Karachi.

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ABSTRACT... Objective: To check the prevalence and causes of mandibular Fracture in the teaching hospital of Karachi Pakistan. **Study Design:** Crosssectional, Observational, Retrospective. **Setting:** Department of Oral & Maxillofacial Surgery, Karachi Medical and Dental College Abbasi Shaheed Hospital Karachi and Department of Oral and Maxillofacial Surgery Baqai Dental College University, Karachi. **Period:** 1st December 2018 to 30th November 2019. **Methods:** This study was based on randomly selected cases of one year of work at the Department of Oral and Maxillofacial Surgery Abbasi Shaheed Hospital Karachi and Department of Oral and Maxillofacial Surgery Baqai Dental College Baqai Medical University Karachi. **Results:** Road traffic accident like Bike accidents were top in position with 69 %, falls were next in position with 12 %, assault were recorded 10%, sports injuries were 7% and fire arm injuries 2%. Mandibular fractures were found to occur at a rate of 22.1% in the parasymphysis, 12.8% in the body, 11.42% at the angle of the jaw, 12.1% in the condyle, 12.14% in the dento alveolar area, 6.4% in the symphysis, and 2.85 % in the ramus. **Conclusion:** To properly reduce and fix the fractures, a variety of treatment methods were employed. It has been determined that most patients were masculine and between the ages of 20 and 50. The most frequent locations for mandibular fractures were the parasymphysis and body, and the most common cause of trauma in the study participants was auto accidents.

Key words: Angle of Jaw, Body, Condyle, Fracture, Karachi, Mandible.

INTRODUCTION

The mandible is bent into a horseshoe form, and like all tubular bones, it derives its power from the dense cortical plates that encase varying amounts of cancellous marrow spaces.^{1,2} There are a number of variables that can affect injuries that result in mandibular fractures, including the severity and anatomical sites of the impacting force, whether the mouth was open or closed at the time of the injury, the presence or lack of teeth, and the cross sectional area of the mandible.

The site and relative frequency of fractures of the mandible depend on the number of fractures sustained and the dentition of the jaws.²

The number of fractures experienced and the dentition of the jaws both affect where and how frequently the mandible fractures.² Maxillofacial trauma is quite common, demanding detection of fractures, treating soft tissue injuries, and

occasionally requiring immediate action.³ Mandibular fractures occur frequently as a result of maxillofacial trauma.^{3,4} They often have a cultural, social, environmental, and economic aetiology that varies from nation to nation.

Mandibular fractures are more frequently caused by road traffic accidents (RTA) in underdeveloped countries, whereas assault or interpersonal violence is more likely to produce mandibular fractures in developed countries.^{5,6}

According to some research, men who are in their third decade of life suffer more injuries.^{7,8} The majority of studies showed that the parasymphysis and angle were the most frequent sites for mandibular fractures.^{9,10,11,12} The location and relative frequency of mandibular fractures are based on the number of fractures sustained and the dentition of the jaws.¹³

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Treatment options when the fracture segments have been adequately reduced include trans-ossseous wire, mini-plates, reconstruction plates, or intermaxillary fixation.¹⁴

This study aims to evaluate prevalent etiological factors, the type of mandible fracture, and the treatment options offered at the Abbasi Shaheed Hospital in Karachi and the Department of Oral and Maxillofacial Surgery at Baqai Medical University in Karachi.

METHODS

This study was based on randomly selected a year of work at the Department of Oral and Maxillofacial Surgery at Baqai Medical University Karachi and the Abbasi Shaheed Hospital Karachi, both of which provide tertiary care for the 35 million people that live in the metropolis. On 140 patients who visited hospitals for care, this study is based. 95% percent cases were reported and selected from Abbasi Shaheed hospital Karachi due to public sector hospital and Numerous cases were recorded in this year, however 140 cases were voluntarily and randomly chosen. This study approved bu Ethical Review Board Baqai Dental College No BDC/ERB/2023.

Inclusion Criteria

Clinically evident signs and symptoms of mandibular fractures, and Maxillary fracture and radiological evidence of mandibular and maxilla fracture any age group.

Exclusion Criteria

Medically compromised patients, previously maltreated or untreated, associated or other facial skeletal fractures or other deformities.

Data Analysis Procedure

The Department of Oral and Maxillofacial Surgery at Abbasi Shaheed Hospital Karachi and Baqai Medical University's oral and maxillofacial surgery department provided data on 140 individuals who underwent Oral and Maxillofacial surgery for this study, 95% of cases reported to abbasi Shaheed Hospital in Karachi due to Public Sector Major Hospital in Karachi. The frequency and percentage were used to calculate the qualitative

components. Following the mandible (71%) dentoalveolar.¹⁴ which had the second-highest rate of fractures, the zygomatico-maxillary complex (10.71%) and maxilla (7.1%) were the most frequently broken bones. With a majority of men (83.6%) in the third decade of life, this was the most prevalent age bracket. Motor vehicle accidents were the most common etiological cause of mandibular fractures, accounting for 69% of cases. Falls, assault, and sports injuries were the next most common etiological causes, each accounting for 12% of cases. The most common location for mandibular fractures was the parasymphysis (22,1%), which was followed by the body (12.8%), dentoalveolar (12.14%), condyle (12.1%), angle (11.42%), symphysis (6,4%), ramus (2.85%), and coronoid (2.14%).

RESULTS

Parasymphysis fractures were high rate fractures (22.1%) Prevalence of dentoalveolar fractures were (12.18 %) which had the second-highest rate of fractures, the zygomatico-maxillary complex (10.71%) and maxilla (7.1%) were the most frequently broken bones. With a majority of men (83.6%) in the third decade of life, this was the most prevalent age bracket. Motor vehicle accidents were the most common etiological cause of mandibular fractures, accounting for 69% of cases. Falls, assault, and sports injuries were the next most common etiological causes, each accounting for 12% of cases. The most common location for mandibular fractures was the parasymphysis (22,1%), which was followed by the body (12.8%), dentoalveolar (12.14%), condyle (12.1%), angle (11.42%), symphysis (6,4%), ramus (2.85%), and coronoid (2.14%).

S.No	Fracture Site	Frequency	Percentage
1	Condyle	17	12.1%
2	Coronoid	03	2.14%
3	Ramus	4	2.85%
4	Angle	16	11.42%
5	Parasymphysis	31	22.1%
6	Body	18	12.8%
7	Symphysis	9	6.4%
8	Dento-alveolar	17	12.14%
9	Zygomatico-maxillary complex	15	10.71%
10	Maxilla	10	7.14%
	Total	140	100%

Table-I. Fracture according to site

S. No	Treatment	Frequency	Percentage
1	MMF through arch bar	42	33.34%
2	MMF through eyelets	28	20%
3	Circum-mandible wiring	09	6.42%
4	Occlusal splint	03	2.14%
5	Open reduction internal fixation through wiring	20	14.28%
6	Open reduction internal fixation through bone plating	21	15.0%
7	Danto - alveolar splint	17	12.14 %
	Total	140	100%

Table-II. Management modalities for mandibular fractures

DISCUSSION

The results of the current study generally concur with earlier research done around the globe. Male patients make up 81.6% of the entire patient population, which validates the reports of Roode⁵ [83.2%], Kamali⁶ [84.3%], Bormann¹¹ [74%], Atilgan¹² [70%], and Dongas¹⁴ [81.7%] and closely resembles Zahid et al.¹⁵ (93.6%). Mandibular fractures are also found in patients with 81.6% of male patients. Additionally, it marginally exceeds the results of the vast majority of international studies on mandibular fracture.^{15,16,17,18} The majority of the population is Muslim, and they believe that men are responsible for providing for their families and working outdoors. Most of them drive motorbikes because they are an inexpensive and quick mode of transportation, but they also have many drawbacks, such as the possibility of external injuries in the event of an accident. The majority of motorcyclists frequently break traffic laws, take breaks on busy roads, drive without a helmet, drive on one wheel, go too fast, and take too many risks, which makes them more susceptible to maxillofacial damage. This study revealed that men in their third decade of life experienced higher injuries, which is different from Zahid et al. but similar to earlier studies

carried out^{15,16,17,18}

The third decade of life is when fractures most frequently occur, according to a recent study. The more energetic and emotional this age group tends to be, the more likely it is that they may act in ways that endanger both themselves and others. The majority of mandibular fractures (78%) were caused by motorcycle accidents, according to this study. Similar findings were also reported by Zahid et al.¹⁵, Ahmad et al.¹⁶, Bormann⁷, Kadkhodaie¹⁷, Adekeye¹⁸, and Gupta K.^{18,19} The most common site for fractures in this study was the parasymphysis, which accounted for 22.1% of fractures. In line with Zahid et al.'s findings, the parasymphysis accounts for 27.6% of fractures, although Ahmad et al.'s conclusion that the condyle is the most frequent site of fracture is different. Road traffic accidents are the most common cause of trauma in the current study (69%)—more or less in accordance with studies by Ahmad et al. and Zahid et al.—but there are some noticeable distinctions in the injuries brought on by weapons. In this study, it is 2%, which is half of the information from Ahmad et al. and Zahid et al. reports.

It might be related to the city of Karachi's improvement in peace and order, as well as the similarly considerable increase in sports injuries—7%, which is more than twice as high as Zahid et al. and Ahmad et al.

CONCLUSION

When multiple aetiologies are taken into account, the current study shows that the Parasymphysis, dentoalveolar body, angle of the jaw, and Parasymphysis are the most common fracture. These fractures were more multiple than single and commonly occur in young adult males and the most common cause of fracture is due to motor bike accident

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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




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AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
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2	Syed Mahmood Haider	Supervisor of Project.	
3	Kashif Ikram	Critical review, Proof reading.	
4	Zahid Ali	Data collection, Data analysis.	
5	Syed Muhammad Abdullah Salman	Critical review, Data analysis.	
6	Raza Ali	Critical review, Data collection.	