

A Study Of Mandible Fracture Cases A - Prospective Observational Study

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Abstract: Background: Mandible fractures constitute the substantial proportion of cases of maxillofacial trauma. This study is to evaluate and compare cases of mandibular fracture based on its etiology, age, gender, anatomical distribution and treatment modalities. Material And Methods: The study was carried out on 72 cases of mandible fracture patients who were admitted in Otorhinolaryngology department of Sir.T.Hospital and Government Medical College, Bhavnagar from August 2019 to August 2020. Result: Age: <10years – 12.8%, 11 to 20years – 24.8%, 21 to 30years -29%, 31 to 40years – 22%, 41 to 50years – 6.4%, >50years- 5%. Gender: Male-81.3%, Female-18.7%. Etiology: Road traffic accidents- 62%, fall down- 22%, assault- 12.8%, sports- 3%. Site Of Fracture: Body of mandible -30%, angle-25%, condyle- 20%, parasymphysis-14%, symphysis-6%, ramus-3%, coronoid-2%. Treatment: Plating- 24%, wiring- 11.9%, Plating+wiring- 60%, conservative – 4.1%. Conclusion: Age: The age group between 21 to 30 years of age were most commonly affected. Gender: Males are more commonly affected than females. Cause: Road Traffic Accidents being the most common cause of mandible fracture. Site: Body of mandible being the most common site to be fractured followed by angle and condyle of mandible. Mode Of Treatment: Plating And Wiring was the most common surgical method required for the fracture treatment. [Barot V Natl J Integr Res Med, 2021; 12(3): 54-58]

Key Words: mandible fracture, male, road traffic accident, plating and wiring

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Introduction: Modern life is very fast which includes high speed travel and a violent, intolerant society making everyone susceptible to facial trauma. Mandible is the second most common facial bone to get injured after nasal bone reason being its prominence in face.

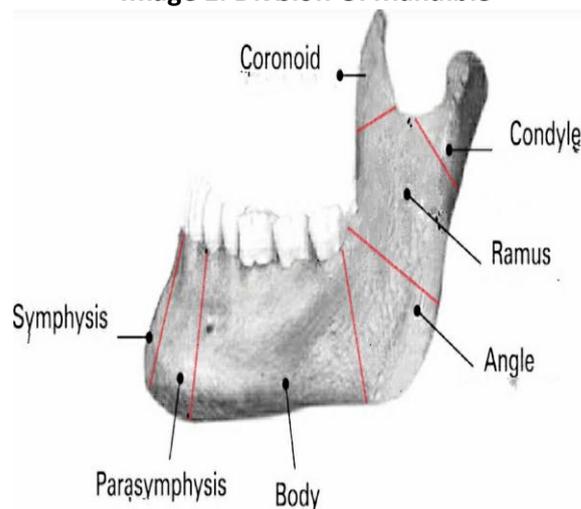
Besides Road traffic accident and violence, direct and indirect trauma causing mandibular fracture may also occur due to sports activities, falls and firearms. Occasionally, mandibular fractures may be secondary to certain disease entities like cystic lesions, neoplasm and metabolic diseases.

The facial area is one of the most commonly fractured site of body^{1,2,3}. Mandible fracture account for about 36% to 59% of all maxillofacial fractures^{4,5,6} as there has been a significant increase in number of cases in the recent years. Mandibular fracture occurs twice as often as midfacial fractures⁷.

Although mandibular fracture may not be life threatening, immediate treatment is required as fracture has direct impact on functional aspect and appearance of maxillofacial region associated with psychological disturbance for patients. The presence of teeth in the mandible is the most

important anatomical factor, which makes its fracture different from fracture elsewhere in the body⁸. Mandible is divided into symphysis, para symphysis, body, angle, ramus, condyle and coronoid process and site of mandible fracture is classified based on these sites.

Image 1: Division Of Mandible



Aim And Objective: The aim of this article is to analyse the age, gender, etiology, anatomic distribution and different treatment modality among the patients who were admitted with mandible fracture in department of

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otorhinolaryngology, Sir.T. Hospital, Bhavnagar, Gujarat during the period of August 2019 to August 2020.

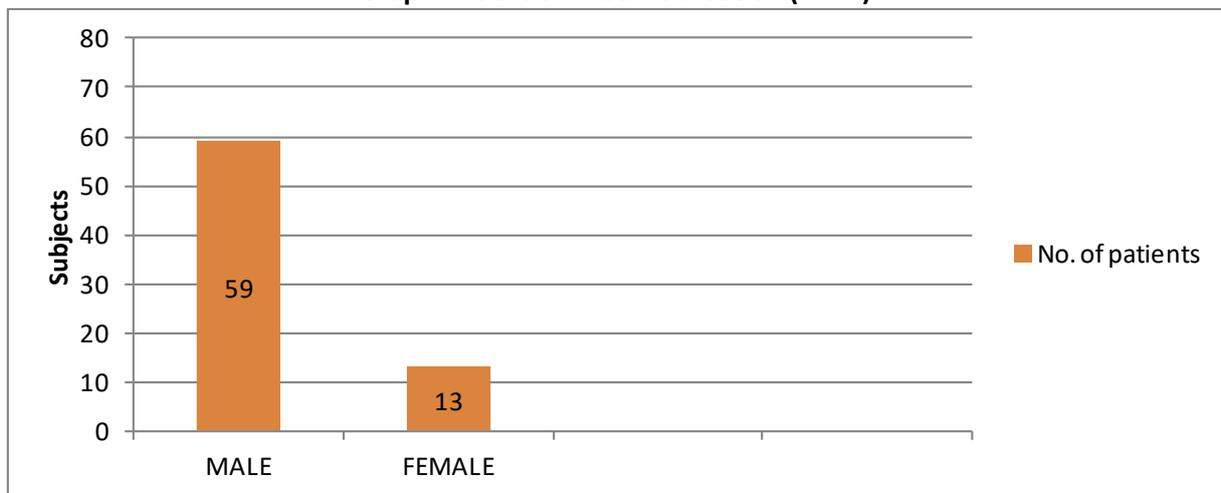
Material & Methods: An observational study was carried out on 72 cases of mandible fracture patients who were admitted in Department of ENT, Sir. T. Hospital and Government Medical College, Bhavnagar, Gujarat over a period of one year from August 2019 to August 2020. The study included patient of all age and gender. In all patients apart from general examination and local ENT examination, radiological investigations like X-RAY mandible (anterioposterior and lateral view), orthopantomogram, CT facial bone with 3D reconstruction was done.

In every case after immediate emergency management as per ATLS (Advanced Trauma Life Support), definitive management of mandible fracture reduction depending upon the fracture site of mandible was done. The data was analysed in relation to age, sex, etiology, site of fracture line and treatment modality of different mandibular fracture among patients.

Results: Results are as follows:

Gender Wise Distribution: (n=72): The study was carried out in a total of 72 patients who were admitted in Sir.T.Hospital, Bhavnagar from August 2019 to August 2020 with mandible fracture. Among them we observed that males 81.3% (n=59) were more affected than female 18.7%(n=13).

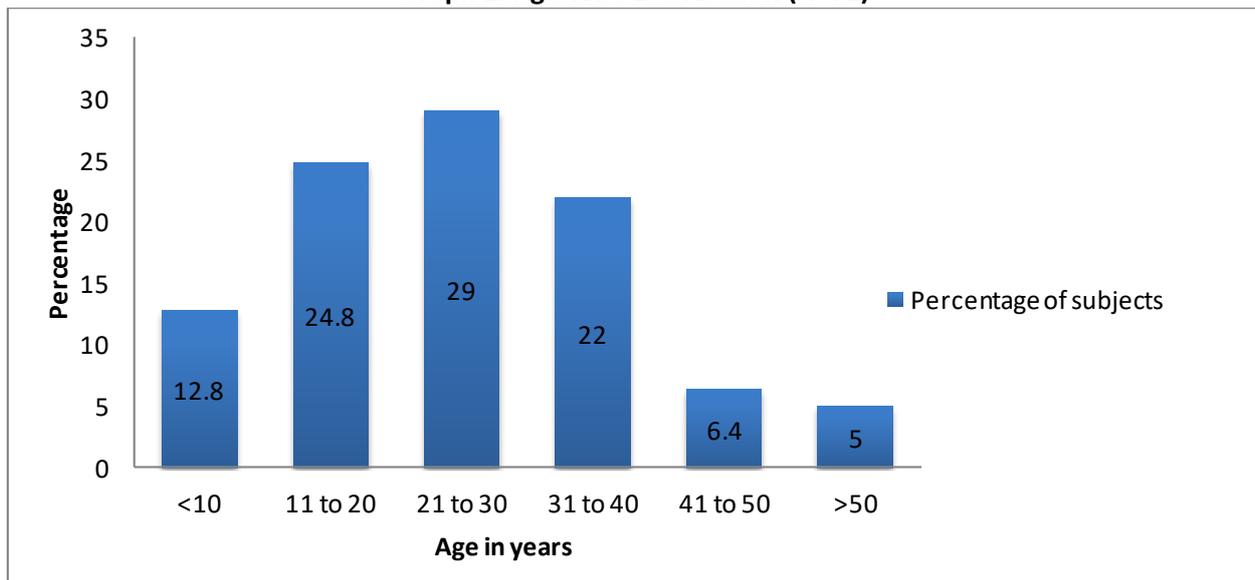
Graph 1: Gender Wise Distribution (N=72)



Age Wise Distribution: (N=72): Out of 72 patients, maximum number of subjects were in age group between 21-30 years (29%, n=21) followed by

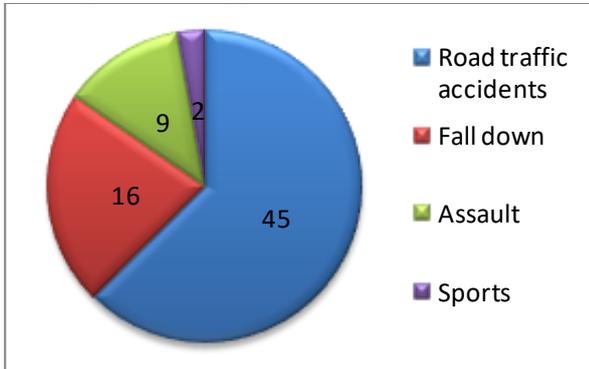
age group between 11-20 years (24.8%, n=18), 31-40 years (22%, n=16), <10 years (12.8%, n=9) , 41-50 years (6.4%, n=5) and > 50years (5%, n=3).

Graph 2: Age Wise Distribution (N=72)



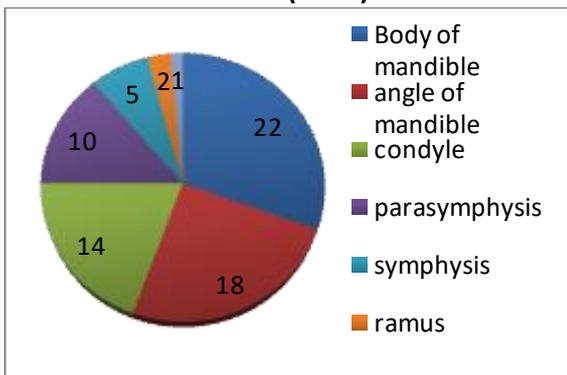
Etiology Wise Distribution: (N=72): Among the 72 patients who were admitted, most common etiology for mandibular fracture is Road traffic accidents (62%,n=45) followed by fall down (22%,n=16), assault (12.8%,n=9) and sports (3%,n=2).

Graph 3: Etiology Wise Distribution (N=72)



Distribution Depending On Fracture Site: (N=72): In regarding to the study conducted, body of mandible (30%, n=22) being the most frequent site of fracture followed by angle (25%, n=18), condyle (20%, n=14), parasymphysis (14%, n=10), symphysis (6%, n=5), ramus (3%, n=2) and coronoid (2%, n=1).

Graph 4: Distribution Depending On Fracture Site (N=72)



Distribution Depending On Treatment Modalities: (N=72): Most of the patients under study were treated by both Plating +wiring (60%, n=43), followed by only plating (24%, n=17), only wiring (11.9%, n=9) and conservative management (4.1%, n=3).

Table 1: Distribution Depending On Treatment Modalities: (N=72)

Plating + Wiring	60% (n=43)
Only Plating	24% (n=17)
Only Wiring	11.9% (n=9)
Conservative	4.1% (n=3)

Discussion: The sheer pace of modern life with high speed travel as well as with increasing violent and intolerant society has made facial trauma a form of social disease from which no one is immune. Mandible is the only mobile bone of facial skeleton and is divided into specific anatomic areas (symphysis, parasymphysis, body, angle, coronoid and condyle) and a fracture of the mandible is often described by the location of the fracture in one or several of these areas.

There are two therapeutic approaches for these fractures: conservative and surgical. The main goal is to restore the architecture to preinjury state. Plain radiographs are inadequate for the assessment of mandibular fractures, so CT scan is essential for management. If fractures of mandible left untreated or not properly managed, some complications may arise, including facial asymmetry, malocclusion, disturbance of mandibular movement and occlusal condition and ankylosis.

The study was undertaken with the view to analyse the age, sex, etiology, fracture site and different treatment modalities of mandible fracture.

In this study, the incidence was highest in age group between 21 to 30 years (29%) followed by 11 to 20 years of age (24.8%), least being greater than 50 years of age (5%). This is in conformity with Adi et al², Bataineh¹¹, Dongas and Hall¹², Ahmed et al.¹³, Brasileiro and Passeri¹⁴, but contradictory to Shapiro et al¹⁵. who reported 34.1 years as mean age range, Ogundare et al¹⁶.

This is because in adulthood between 21 to 30 years of age, people are more involved in fast and rash driving, interpersonal violence, alcohol abuse, contact sports, and so forth.

Male are predominating with 81.3% while female constitute a meager percentage of 18.7%, that is in a ratio of 4.5:1. This is in conformity with Adi et al², Bataineh¹¹, Dongas and Hall¹², Ahmed et al¹³, Shapiro et al¹⁵, Ogundare et al¹⁶, Sakretal¹⁷, and Brasileiro and Passeri¹⁴ with a slight variation from this study. This is probably due to higher level of exterior physical activity among men compared to women.

The most common etiologic factor in this study is road traffic accident (62%) which is in accordance with Luce et al⁹. Bataineh¹¹, Shah et al¹⁸, Ahmed

et al¹³, and Brasileiro and Passeri¹⁴. Adi et al¹⁰, Dongas and Hall¹², and Olasoji et al¹⁹. reported assault as the main cause. In this study, fall from height is the second common etiologic factor accounting for 22% of the cases. Road traffic accident is still the major cause probably due to reckless and highspeed driving, reluctance to use helmets and seat belts, with inadequate enforcement of traffic safety rules.

Among the 72 cases recorded in this study, the most common site of fracture was Body of mandible which is in conformity with Ellis et al.⁵, Adi et al². Bataineh¹¹, and Shah et al¹⁸. who reported body as the commonest while Dongas and Hall¹², Ogundare et al¹⁶. and Sakr et al¹⁷. reported angle; Motamedi²⁰, Ahmed et al¹³. and Brasileiro and Passeri¹⁴ stated condyle as the most commonest site of fracture. As per the standard textbooks, the most common site for mandible fracture is condyle of mandible¹⁰.

Surgical management included either Plating or Wiring or both. In our study both Plating and wiring was done in 60% cases, only plating 24.9% cases, only wiring in 11.9% cases and conservatively in 4.1% cases. Only plating was done in favourable fracture as favourable fracture have muscle group acting with surgeon to realign the fracture.

Conclusion: This study evaluated and analysed clinical and statistical data of patients who were admitted with mandible fracture in Department of ENT, Sir.T.Hospital, Bhavnagar, Gujarat between August 2019 to August 2020. The following results were summarized in the study. Age: The age group between 21 to 30 years of age were most commonly affected. Gender: Males were more commonly affected than females. Cause: Road Traffic Accidents being the most common cause of mandible fracture. Site: Body of mandible being the most common site to be fractured followed by angle and condyle of mandible. Mode Of Treatment: Plating And Wiring was the most common surgical method required for the fracture treatment.

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