

Frequency of Parasymphysis Fracture in Mandibular Fractures Due to Road Traffic Accidents

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ABSTRACT

Objective: To determine the frequency of parasymphysis fracture in mandibular fractures due to road traffic accidents.**Study Type:** Cross-sectional study**Duration and Place of Study:** Department of OMF Surgery Ayub Teaching Hospital, Abbottabad from 1st December 2019 to 30th May 2020**Methodology:** One hundred and forty eight patients were shifted to the Radiology Department for X-rays of mandible. Fractures of mandible especially fracture of parasymphysis were seen.**Results:** The mean age was 47.46±21.25 years. Fractured parasymphysis was found in 75 (82%) male patients and female patients were 14% (8/57).**Conclusions:** The gender was found to be significantly associated with the outcome i.e. parasymphysis fracture in mandibular fractures due to road traffic accidents. The age, number of fractures and type of fractures were not found to be significantly associated with the outcome i.e. parasymphysis fracture in mandibular fractures due to road traffic accidents.**Keywords:** Parasymphysis fracture, Mandibular fractures, Facial injury

INTRODUCTION

Mandibular fractures are the most common site of fractures which encounters mostly in road side accidents ranging from 15 to 60%. Its prominent and unique position makes it a more vulnerable structure and also increases the fracture chances of mandible.¹ Various factors that lead to the fracture of this site include sport injuries, interpersonal violence, domestic accidents, industrial accidents, gun shots, while road traffic accidents account for 25% of all these fractures.² Mandible is prominent bone on face and it is many times vulnerable to all facial injuries. It is considered as the second most common site of facial injury. Mandibular angle region is affected in inter-personal violence and assault whereas, condyle, parasymphysis and symphysis is badly affected in road accidents.^{3,4}

Majority of the fractures occur at more than one site and studies show symphysis and parasymphysis is badly affected and common site of mandibular fracture. Overall frequency of other fractures especially condylar range between 65-75%.⁵ These fractures are frequently observed in male patients and it accounts for more than 70%.⁶ It can be treated by various methods and a variety of treatment are available now. Miniplate fixation is most widely accepted and used technique for mandibular fixation. Other treatment methods are screws, plates, resorbable plates and AO plating system can be used and easily applied in all kind of mandibular fracture.⁷ Treatment and fixation of mandibular fracture is still challenging both for surgeon and anesthetist. Other methods are also in practice and show encouraging results.⁸

Certain medical conditions including renal failure, thyrotoxicosis, cardiac disease, hypertension, liver disease, immune compromised patients and malignancies are few conditions which can cause hurdle in management. For patients, who cannot be treated with general anesthesia, can be given local anesthesia according to the need of the surgery. These patients should be given proper care, management and commonly chosen anesthesia for these patients is local anesthesia.⁹

Management of mandibular fracture is the stabilization and reduction of fracture site. Careful evaluation is required and also clinical history of the patient for the proper management of the fracture and wound healing.¹⁰ In immunocompromised patients, who are already suffering from comorbidities including liver anomalies, cardiac diseases and other chronic problems, commonly chosen anesthesia protocol is local anesthesia. Miniplate method is effective among various other techniques. Miniplate is proved to be an effective method for mandibular fracture treatment and management.¹¹

MATERIALS AND METHODS

This cross-sectional study was conducted at in/out patient Department of OMF Surgery Ayub teaching hospital, Hospital Abbottabad from 1st December 2019 to 30th May 2020 and 148 patients were enrolled. All patients of both genders, 10-80 years of age, having history of mandibular fractures due to road traffic accidents whether on treatment or not, were included. All patients with prior history of bone cancer, chronic medical conditions like multiple myeloma, chronic renal failure, bones metastasis, diagnosed on the basis of clinical history, current presentation of patients were excluded. After an initial necessary treatment, consent was taken either from the patient (if he/she was conscious) or from their relatives. Patients were shifted to the radiology department for X-Rays of mandible. Fractures of mandible especially fracture of parasymphysis were seen by the consultant radiologist and report prepared. All findings whether fracture was single or multiple were noted. The data was entered and analyzed through SPSS-23.

RESULTS

There were 91 (61.5%) males and 57 (38.5%) females with mean age 47.46±21.25 years and number of fractures, type of fracture and presence of fractured parasymphysis were also showed in Table 1.

Table 1: Demographic information of the patients (n=148)

Variable	No.	%
Gender		
Male	91	61.5
Female	57	38.5
Age (years)		
10 – 35	25	16.8
36 – 55	94	63.6
56 – 80	29	19.6
Number of Fractures		
1	87	58.8
2	61	41.2
Type of Fractures		
Right	79	53.4
Left	63	42.6
Both	6	4.1
Fractured Parasymphysis		
Yes	83	56.1
No	65	43.9

DISCUSSION

In the present study, the mean age was 47.46±21.25 years and males were 91 (61.5%) while females were 57 (38.5%). Only 1 fracture was present in 87 (58.8%) patients and 2 fractures were present in 61(41.2%) patients. Type of fracture i.e. right-side fractures were 79 (53.4%), left-side fractures were 63 (42.6%) and bilateral fractures were 6 (4.1%). Fractured parasymphysis was present in 83/148 (56.1%) patients while it was absent in 65/148 (43.9%) patients. Various studies have proven that parasymphysis is the most common site of mandibular fracture.^{12,13} Other authors also revealed that, parasymphysis is the common site followed by condyle, body and angle of mandible.¹⁴ Other studies also showed that, condyle is also commonly affected after parasymphysis.^{15,16}

Coburn et al¹⁷ reported that up to 70% of the affected persons were males and it was more common in age group of 10-12 years in India. Eighty-two percent of the patients were males and only fourteen percent were females. Study conducted by Bither et al¹⁸ assessed the mandibular fracture site and it was revealed that, symphysis is the most affected region. Common causes appeared to be the road accident and assault. This study showed parasymphysis as the common cause of mandibular fracture followed by condyle and symphysis.¹⁸

Atanasov and Wong²⁰ reported that motorcycle accidents (79.5%) were the major cause of mandible fractures, with the parasymphysis as the most common site. Malik et al²¹ also found that parasymphysis as the most common site of fracture in the mandible. Causes of RTA is explained by unsuitable road conditions without expansion of motor works; violation of speed limit; old vehicles without safety features.²²

In other study, the most common site of mandibular fracture was the parasymphysis (27.4%) followed by the angle. The correlation between the cause and the anatomic site of the mandible fracture had been discussed in the literature. Abbas et al²³ where parasymphysis was the common site of fracture accounting for 29.40%. Similar results are given by Moreno et al²⁴ where parasymphysis predominated other sites of mandible.

CONCLUSION

The gender was found to be significantly associated with the outcome i.e. parasymphysis fracture in mandibular fractures due to road traffic accidents. Age, number of fracture and type of fracture were not found to be significantly associated with the outcome i.e. parasymphysis fracture in mandibular fractures due to road traffic accidents.

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