

Original Article

Prevalence of mandibular fracture in patient visiting a tertiary dental care hospital

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ABSTRACT:

Background: The mandible is one of the most commonly fractured facial bones as a result of maxillofacial trauma. The present study was conducted to record prevalence of mandibular fractures. **Materials & Methods:** The present study was conducted in the department of Oral & Maxillofacial surgery. It comprised of 386 patients of mandibular fractures of both genders. The confirmation of fracture was done by clinical examination and subsequent radiological examination. Wherever necessary, CT scan was done. The site of fracture, reason of fracture was recorded. **Results:** Maximum fractures were seen in age group 20-30 years (102) followed by 30-40 years (96), 40-50 years (68), 10-20 years (54), >60 years (12) and 0-10 years (6). Common reason for fracture was road side accident in 162, domestic violence in 58, assault in 56, fall in 78 and others in 32. The difference was significant ($P < 0.05$). Common site was ramus in 105, angle in 84, body in 75, symphysis in 70, condyle in 36, sigmoid notch in 12 and coronoid process in 4 cases. The difference was significant ($P < 0.05$). **Conclusion:** Mandibular fractures are on rise. Common reason was road side accident and common site involved was ramus of mandible.

Key words: fracture, Mandibular, ramus

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INTRODUCTION

The mandible is one of the most commonly fractured facial bones as a result of maxillofacial trauma. Mandible is the second most commonly fractured bone after nasal bone, though it is the largest and strongest facial bone. Mandibular fractures can involve only one site or can often involve multiple anatomic sites simultaneously.¹

According to several studies, they account for 15.5% to 59% of all facial fractures. The etiology and pattern of mandibular fracture vary considerably among different study populations.² There is reported variability in the pattern of mandibular fractures resulting from different causes of injury, such as road traffic accidents (RTAs), assaults, and falls. Increased frequencies of RTA and domestic violence have emerged as the etiological factors

in mandibular fractures in developing countries like India. Interpersonal violence is the most common cause for mandibular fractures.³ There is an increase in the proportion of adolescent and young adults sustaining these injuries. Recent overall shift in the mechanism of injury and age distribution of patients sustaining these injuries are well-documented.⁴

Fractures sustained in vehicular accidents are usually far different from those sustained in personal altercation. Since the magnitude of force can be much greater, victims of automobile and motorcycle accidents tends to have multiple mandibular fractures, whereas the patient hit by a fist may sustain single, non-displaced fracture.⁵ The present study was conducted to record prevalence of mandibular fractures.

MATERIALS & METHODS

The present study was conducted in the department of Oral & Maxillofacial surgery. It comprised of 386 patients of mandibular fractures of both genders. All were informed regarding the study. Ethical approval was obtained from institute prior to the study.

General information such as name, age, gender etc. was recorded. The confirmation of fracture was done by clinical examination and subsequent radiological examination. Wherever necessary, CT scan was done. The site of fracture, reason of fracture was recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

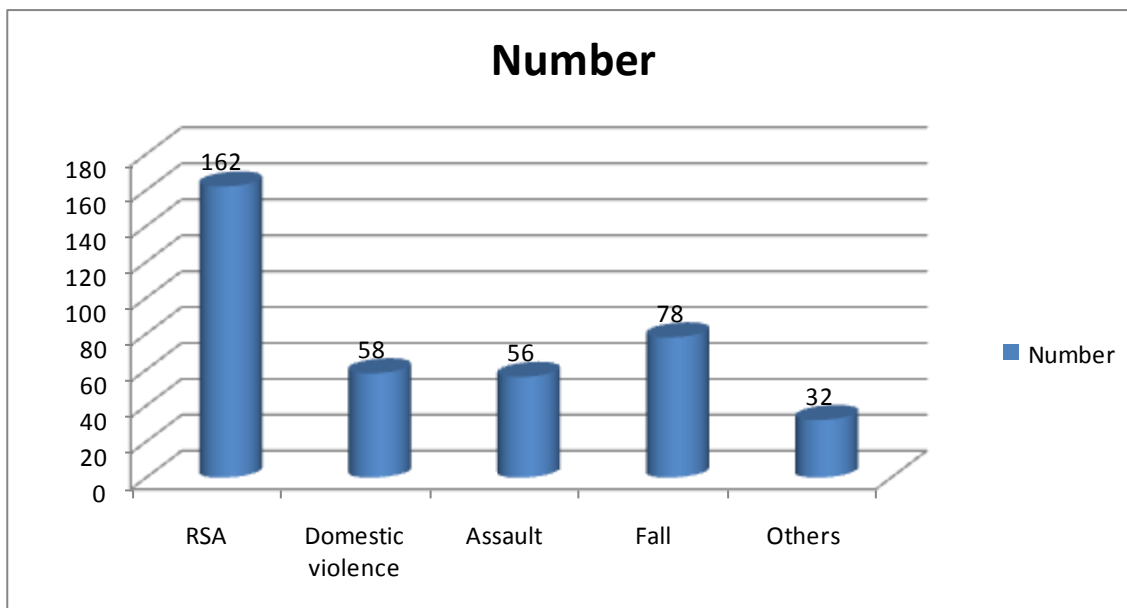
RESULTS

Table I Age wise distribution of patients

Age group (Years)	Number of patients
0-10	6
10-20	54
20-30	102
30-40	96
40-50	68
50-60	46
>60	12

Table I shows that maximum fractures were seen in age group 20-30 years (102) followed by 30-40 years (96), 40-50 years (68), 10-20 years (54), >60 years (12) and 0-10 years (6).

Graph I Reason of fracture



Graph I shows that common reason for fracture was road side accident in 162, domestic violence in 58, assault in 56, fall in 78 and others in 32. The difference was significant (P < 0.05).

Table II Site of fracture

Site	Number	P value
Body	75	0.021
Angle	84	
Ramus	105	
Symphysis	70	
Coronoid	4	
Condyle	36	
Sigmoid notch	12	

Table II shows that common site was ramus in 105, angle in 84, body in 75, symphysis in 70, condyle in 36, sigmoid notch in 12 and coronoid process in 4 cases. The difference was significant (P < 0.05).

DISCUSSION

Mandibular fractures are among the most common facial injuries encountered by facial trauma surgeons, with twice the occurrence rate of midfacial fractures. Various analyses had been reported in the literature to have in-depth insights about etiological factors as well as the site of fractures. The present study was conducted to record prevalence of mandibular fractures.^{6,7}

In present study, maximum fractures were seen in age group 20-30 years (102) followed by 30-40 years (96), 40-50 years (68), 10-20 years (54), >60 years (12) and 0-10 years (6). Studies found that the mechanism of injury correlates significantly with the anatomic location of fracture and knowledge of these associations should guide the treating physicians in their diagnostic setup for all head and neck trauma patients. Victims of violent crimes such as assault and gunshot wounds are more likely to suffer body and angle fractures than expected parasymphiseal fractures.⁸ Automobile accident victims will more commonly have symphyseal/parasymphiseal fractures and fewer body fractures than trauma from a fist or other blunt object to lateral portions of the jaw, predisposing these patients to fractures such as angle and body. Patients involved in accidents with postero-superiorly directed energy such as falls and being struck by vehicles where chin receives the primary force of impact should be suspected of having condylar and sub-condylar injuries.⁹

Subhashraj et al¹⁰ in their study found a total of 13,142 patients with mandibular fractures from participating trauma centers. Eighty percent of patients were male. Fracture distribution by age was roughly bell-shaped, with fractures occurring most frequently at 18 to 54 years of age. Mechanism of injury differed by gender, with men most often sustaining mandibular fracture from assault (49.1%), followed by motor vehicle accidents (MVAs; 25.4%) and falls (12.8%). Women most commonly sustained mandibular fracture from MVAs (53.7%), followed by assault (14.5%) and falls (23.7%). Falls were a significantly more common mechanism in patients who were at least 65 years old.

The common reason for fracture was road side accident in 162, domestic violence in 58, assault in 56, fall in 78 and others in 32. The common site was ramus in 105, angle in 84, body in 75, symphysis in 70, condyle in 36, sigmoid notch in 12 and coronoid process in 4 cases. Thorn et al¹¹ in their study found that there were a total of 420 patients with 707 mandibular fractures. The two most common causes of injury were road traffic accidents (28%) and various types of sports injuries (21%). A total of 13% of the patients were under the influence of alcohol or drugs at admission. Fractures were predominantly situated in the condyle/subcondyle (43%) and in the symphysis/parasymphysis region (35%). Occurrences of fractures in the angle and in the body were low, at 12% and 7% respectively.

Giri et al¹² in their study found that maximum incidence of fractures was observed among the individuals in 3rd decade (35.4%) followed by 2nd and 4th decades, which exhibited 32 and 30 cases (22.2% and 20.8%), respectively. Male to female ratio was biased (4:1) portraying a male predominance. Road traffic accidents (RTAs) were observed to be the predominant etiological factor responsible accounting for 79.2% of the total injuries followed by assaults (11.8%) and falls (9%). Parasymphysis exhibited the highest incidence (32.63%) amongst the anatomic sites, followed by body (18.75%), angle (16.66%), condyle (15.27%), symphysis (12.50%), ramus (2.77%) and coronoid (1.38%).

Brasiliero et al¹³ found that a total of 1024 patients presenting 1399 maxillofacial fractures were analyzed. Patients' ages ranged from 0 to 88 years (mean age, 28 +/- 16.4 years). The ratio of men to women was 4:1. Most fractures were caused by traffic accidents (45%), followed by assaults (22.6%), falls (17.9%), sports accidents (7.8%), and work accidents (4.5%). The prevalent anatomic regions of facial fractures (in percentages) were the mandible (44.2%), the zygomatic complex (32.5%), and the nasal bones (16.2%). Associated systemic lesions were found in 41.9% of patients, with prevalence for injuries to the upper (24.1%) and lower limbs (15.4%). Patient management was considered to be conservative in 490 patients (47.9%), and surgical therapy was performed in 493 patients (48.1%), of whom 399 (80.9%) were treated with open reduction and rigid internal fixation. Complications occurred in 76 patients (7.4%), mainly due to infection and malocclusion. Other studies have found mandibular fractures as most commonly involved bone in road traffic injury.^{14,15}

CONCLUSION

Mandibular fractures are on rise. Common reason was road side accident and common site involved was ramus of mandible.

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