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An Epidemiology Study of Mandibular Fractures

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Abstract

Background: Mandibular fracture is the second most common facial injury after nasal bone fractures. This study aims to evaluate the etiology, pattern, gender, and anatomical distribution of mandibular fractures.

Methods: This was a cross sectional study of patients presenting with mandible fractures, attending the Department of dental.

Results: The causes of mandibular fracture were varied, however, the main causative factor was two wheeler accidents (72.00%). Falls were the second most frequent cause of fracture (16.00), followed by injuries from car accidents (12.00%). The most common site was body of the mandible (30.00%), followed by condylar process (26.00%), angle (22.00%), parasymphysis (12.00%), symphysis (6.00%) and ramus (4.00%).

Conclusion- Thus, we conclude that RTA is the leading cause of mandibular fractures and males are more affected.

Keywords: Mandibular, Fractures, Epidemiology

Introduction

Mandibular fractures comprise most of the traumatic injuries, which are treated by an oral and maxillofacial surgeon. The facial area is one of the most commonly fractured site of the body, of which mandible is the most frequent.[1-2] Injuries of the maxillofacial area can be psychologically disturbing for patients with a functional impact.

The large variability in reported prevalence is due to a variety of contributing factors, such as the sex, age, environment and socio-economic status of the patient, as well as the mechanism of injury. For each patient, the combination of these factors determines the pattern of a mandibular fracture. A clear understanding of the demographic patterns of mandibular fractures will assist surgeons to plan and manage these injuries. Such epidemiological information can also be used to guide the future funding of public health programs geared toward prevention[3].

Etiology of mandible fracture have an extremely variable incidence depending on social, geographic and economic characteristics . The causes have been variably reported from road traffic accidents to sports activities, assault. Road traffic accidents are reported to be the leading causes of mandibular fractures in India.[4]

This article aims to analyze the age and gender distribution, etiology, and anatomic distribution of mandibular fractures among patients who visited to dental department.

Materials and methods

This was a cross sectional study of patients presenting with mandible fractures, attending the Department of dental. Most of the patients were referred from a nearby trauma center which were referred for dental evaluation. Patients who had refused to participate in the research or who had inadequately completed the form were excluded.

Information was collected from the clinical and surgical notes of each of the patients in a standardized and systematic pattern. The demographic variables such as age, gender, and residence were assessed. Clinical information included diagnosis, etiology, and anatomical distribution of mandibular fractures was assessed.

Results

The results obtained were analyzed using frequency distribution. 50 patients aged between 10 to 71 years were mandibular fracture during the study period.

Table 1. Age wise distribution of patients

Mean age	47.38 Yrs
SD	11.42 Yrs
Age range	10-71 Yrs

Mean age of patients was 47.38±11.42 yrs and range was 10-71 Yrs.

Table 2. Sex wise distribution of patients

Sex	No of patients	Percentage
Male	36	72.00
Female	14	28.00
Total	50	100.00

72.00% patients were male and 28.00% patients were female.

Table 3. Mechanism of injury

Mechanism of injury	No. of patients	Percentage
Two wheeler accidents	36	72.00
Fall	8	16.00
Four wheeler accidents	6	12.00
Total	50	100.00

The causes of mandibular fracture were varied, however, the main causative factor was two wheeler accidents (72.00%). Falls were the second most frequent cause of fracture (16.00), followed by injuries from car accidents (12.00%).

Table.4.Distribution of patients according no. of fracture

No of fracture	No. of patients	Percentage
Only one fracture	41	82.00
Two fracture	6	12.00
Multiple fracture	3	6.00
Total	50	100.00

Out of the total number 50 mandibular fracture, 41 patients had only one fracture, while 6 patients had two fractures and 3 patients had multiple fractures.

Table.5.Distribution of patients according anatomical site

Anatomical site	No. of patients	Percentage
Body	15	30.00
Condyler	13	26.00
Angel	11	22.00
Parasymphysis	6	12.00
Symphysis	3	6.00
Ramus	2	4.00
Total	50	100.00

The most common site was body of the mandible (30.00%), followed by condylar process (26.00%), angle (22.00%), parasymphysis (12.00%), symphysis (6.00%) and ramus (4.00%).

Discussion

The prevalence of mandibular fracture was higher in males of all age groups, with an overall male-tofemale ratio of approximately 2.57:1.

Most studies have also shown a lower incidence of maxillo-facial fractures in women [5,6] with the highest prevalence of fractures occurring in the third decade.

Higher incidence of use of two wheelers, lack of safety measures in the form of helmets and improper road conditions, could be the possible factor in this age group. It has also been consistently shown that the frequency of

mandibular fracture among males is far greater than that for females.

There is a significant difference in the etiology of maxillofacial trauma in developing and developed nations. The common cause of maxillofacial trauma in developing countries is road traffic accidents, while assault is the most common cause in developed countries. Our findings also support the same, as 84.00% of our patients; road traffic accidents were the cause of injury.

The mandible is the only mobile bone of the face and it participates in basic function such as mastication, phonation, swallowing and maintenance of dental occlusion. Despite the fact that it is the heaviest and strongest facial bone, the mandible is prone to fractures for some specific reason: 1) it is an open arch; 2) it is located in the lower portion of the face; 3) it is the mechanism of hyperextension and hyperflection of the head in traffic accidents; 4) it gets atrophy as a result of aging.[7]

The anatomic distribution and incidence of mandibular fracture are widely variable. Many authors reported symphysis[8] as the most frequently affected site whereas, others reported this to be mandibular body,[9]angle [10] and condyle.[11] in our study most common site was body of the mandible (30.00%), followed by condylar process (26.00%), angle (22.00%), parasymphysis (12.00%), symphysis (6.00%) and ramus (4.00%).

Conclusion

Thus, we conclude that RTA is the leading cause of mandibular fractures and males are more affected.

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