Research Paper

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Prevalence of Mandibular Fractures in Yavatmal District (M.s.)

Medical Science

KEYWORDS : Mandibular fracture; Age; Sex; Location; Treatment

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ABSTRACT

The mandible is the only facial bone that has mobility and the remaining portion is part of the fixed facial axis, the fracture is never left unnoticed because it is very painful, pain that worsens with mastication and phonation movements, and even respiratory movements.

This was an prevalence and epidemiological study that included all cases of mandibular fractures that were clinically and radiographically diagnosed and treated at our institution from November 2011–January 2013 presenting to district Yavatmal,Maharashtra. The data collected included age, sex, etiology of fracture, anatomic site of fracture and the types of treatment provided from 107 patient. There has been a high male-to-female ratio maxillofacial injury victims, Studies around the world have shown that RTAs, falls, sporting injuries, industrial accidents and assault are the most frequently reported causes of maxillofacial injuries. Mostly found in third decade of age and condyle site is more affected followed by body and parasymphysis. Fracture severity displaced more than undisplaced preferred choice of treatment is open reduction rigid fixation followed by closed reduction and physiotherapy.

INTRODUCTION:

The mandible is a unique bone having a complex role in aesthetics of the face and functional occlusion.Because of the prominent position of the lower jaw,mandibular fractures are the most common fractures of the facial skeleton. It has been reported that fractures of the mandible account for 36% to 59% of all maxillofacial fractures. Despite the fact that it is the largest and strongest facial bone, it is the tenth most often injured bone in the body and second to nasal bone fractures and it is fractured two or three times more often than other facial bones[1]. The mandible is the only facial bone that has mobility and the remaining portion is part of the fixed facial axis, the fracture is never left unnoticed because it is very painful, pain that worsens with mastication and phonation movements, and even respiratory movements; sometimes there are facial asymmetry complaints. Traditionally, there has been a high male-to-female ratio maxillofacial injury victims. RTAs, falls, sporting injuries, industrial accidents and assault are the most frequently reported causes of maxillofacial injuries. Studies around the world have shown that assaults are the predominant cause of maxillofacial fractures in developed countries, while motor vehicle accidents (MVA) are the most common cause in developing countries[11].

PATIENTS AND METHODS:

The aim of this study was designed to establish the current demographic and treatment patterns of mandibular fractures at the at Department of Dentistry ,S.V.N.Government Medical College,Yavatmal.

This was an prevalence and epidemiological study that included all cases of mandibular fractures that were clinically and radiographically diagnosed and treated at our institution from November 2011–January 2013 presenting to district Yavatmal,Maharashtra. The data collected included age, sex, etiology of fracture, anatomic site of fracture and the types of treatment provided.

Patients of all age group and with either sex were included. Patients who had refused to participate in the research or who were severely medically compromised were excluded from the study.

Patient information was collected by means of a medical data form specifically designed for the present study.

107 patients included in the present study were divided into groups according to age (1-10 years; 11-20 years; 21-30 years; 31-40 years; 41-50 years; and 51-60 years) and according to sex into male and female. Mechanism of injury was recorded and classified as road traffic accident (RTA), fall, interpersonal violence, assault, and other causes. Anatomically, the mandibular fractures were classified into 6 regions: symphysis, parasymphysis, body, angle, coronoid and condylar.

After taking proper case history of each patient, clinical examination & Preoperative investigation including hematological and radiological examination were performed.Informed consent were obtained from each patient. After making final diagnosis, an appropriate management was under suitable anaesthesia. Patients were treated either with closed reduction followed by intermaxillary/monomandibular fixation, by doing open reduction with rigid internal fixation & physiotherapy alone or in combination under suitable anaesthesia. The obtained results were then reviewed and analysed according to their category.

RESULTS:

This study was carried out in the to evaluate the current demographic and treatment patterns of mandibular fractures at the out-patient department of our institution.

107 patients fulfilling the selection criteria, and who were clinically and on radiographic study were proven to have a fracture of the mandible were selected for the study.

Informed consent was obtained. Patient information was collected by means of a medical data form specifically designed for the present study. The data collected included age, sex, etiology of fracture, anatomic site of fracture and the types of treatment provided. The values were tabulated and subjected to statistical analysis.

A total of 107 patients were diagnosed with mandibular fractures in study period. Out of those, 84 were males and 23 were females with a male: female ratio of approximately 4:1.

We found a peak occurrence of mandibular fractures in young adults, aged 21-30 years was 37 (male 32 and female 5).This was followed by 11 to 20 years was 28 (male 27 and female 1), 31-40years was 23 (male 8 and female 15), 1-10years was 10(male 9 and female 1) and 41-50 years age group was 5 (male 4 and female 1).Patients belonging to 51- 60 years were the least involved group was 4 (male 3 and female 1).

Maximum 66 patient of road traffic accidents were found in 11-40 age from that 7 in 41-60 age groups, followed by fall in 1-30 age groups, 9 patient of interpersonal violence were found in 11-20 and 31-40 age group whereas assault were found only 2 in 11-20 group.,4 in 31-40 group and 1 in 51-60 age group.

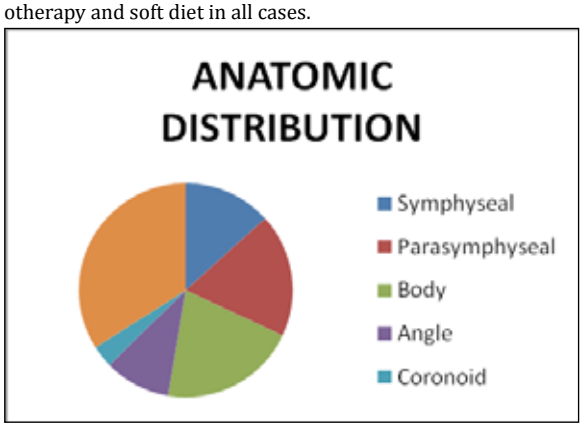
The data for causes of fractures distributed by gender showed

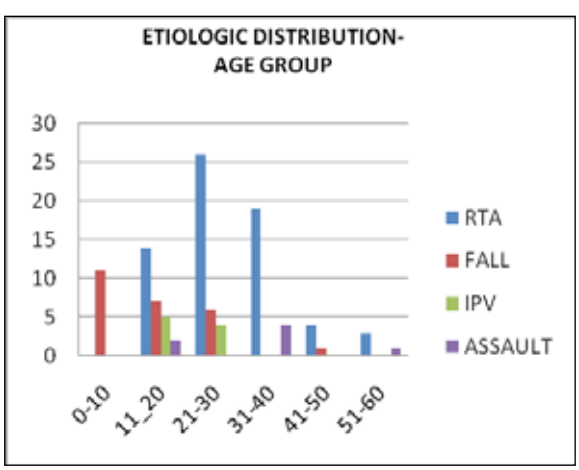
that, road traffic accident was the most frequent etiological factor irrespective of gender (50 males and 16 females). Whereas the second most frequent cause of fracture for males was fall (male 23 and female 2) and the assault (male 2 and female 5) interpersonal violence (male 9 only). But was the fourth cause of fracture which was found only in males.

There were a total of 150 fracture sites in 107 patients. The condyle was most frequently involved site with (n=51) of the total mandibular fractures. This was followed by body (n=31) and parasymphysis (n=28). Symphysis fractures accounted for (n=20), angle for (n=15) and the remaining was involving the coronoid process (n=5) of the mandible.

As far as severity of fracture is concerned 74 cases were in displaced state whereas 33 cases were in undisplaced state.

Several different approaches were used for the reduction, fixation and immobilization of mandibular fractures. In approximately half (n=57) of the mandibular fracture patients, an open reduction & rigid internal fixation using bone plate & screws were done. For the 50 patients , treatment involved closed reduction of the fracture using arch bars or ivy loops and intermaxillary fixationand followed treatment involved only physiotherapy and soft diet in all cases.





Discussion:

Despite the fact that mandible is the heaviest and strongest facial bone, the mandible is prone to fractures for some specific reasons: 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 [1,9].

The predominance of male gender is due to the fact that this group make up the most active group in society[12], is more prone to traffic accidents since they drive motor vehicles carelessly and is most likely to be involved in interpersonal violence and is normally associated with use of alcoholic beverage[9]. The higher frequency of mandibular fractures among males compared to females may also be attributed to the fact that the females, most often, are confined to housework and they drive vehicles less frequently and carefully, and are less exposed to accidents, fights, industrial works and sports and more participate in trading or farming[4].

There has been a decrease in the use of wire osteosynthesis and intermaxillary fixation and an increase in preference for open reduction and internal fixation with bone plates and screws. This has helped reduce malocclusion, non-union, improved mouth opening, speech and oral hygiene, decreased weight loss and increased the ability for patients to return to work earlier[1].

Table-1
Etiological distribution of mandibular fractures according to age groups

AGE GROUP	RTA	FALL	IPV	ASSAULT	TOTAL	%
1-10	0	11	0	0	11	10.3
11-20	14	7	5	2	28	26.2
21-30	26	6	4	0	36	33.6
31-40	19	0	0	4	23	21.5
41-50	4	1	0	0	5	4.7
51-60	3	0	0	1	4	3.7
TOTAL	66	25	9	7	107	100

(X^2 Cal =61.32, *df = 15, P* < 0.05, ***Significant**)*

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