SPECTRUM OF MANDIBULAR FRACTURES AT A TERTIARY CARE DENTAL HOSPITAL IN LAHORE

Iram Abbas, Kamran Ali*, Yaqoob Baig Mirza*

Department of Oral & Maxillofacial Surgery, Ayub Medical College Abbottabad, *de Montmorency College of Dentistry, Lahore.

Background: Mandible being the only mobile bone of the facial skeleton plays a major role in mastication, speech and deglutition. Among the maxillofacial trauma, mandible is the high risk exponent. Its fractures result in severe loss of function and disfigurement. The increased vehicular accidents, conditions of our roads and other assaults have focused attention in recent years to prevent injuries. **Method:** A descriptive case series of 126 patients with mandibular fractures attending a tertiary referral centre over a six-month period is presented. Data concerning the patients' demographics, aetiology and pattern were obtained and analysed. **Results:** Approximately 56% of the patients sustained fractures from road traffic accidents and 34% of the fractures occurred in the 21–30 year age range. There was a male preponderance with a male to female ratio of 9:1. Parasymphyseal fractures were the most common followed by those of the condylar and subcondylar regions. **Conclusions:** We need to encourage further research work in this field to provide better record keeping and quality of services to the injured people. Amendments in the traffic rules and legislation about seat-belt usage and traditional kite flying to reduce frequency of fractures are required.

Key Words: Mandibular Fractures, Facial Skeleton Fractures, Seat Belts

INTRODUCTION

Mandibular fractures are one of the most common fractures of facial skeleton[1]. They may occur alone or in combination with other facial injuries. The pattern of mandibular fractures has been reported in literature from several countries and these statistics vary from country to country and it is clear that some of the variations can be attributed to social, cultural, and environmental factors. Very few published studies are available on the pattern of mandibular fractures in Pakistan. The main causes of mandibular fractures include:

- Road traffic accidents
- Interpersonal violence
- Accidental falls
- Sport injuries
- Industrial trauma

Adekeye has reported that 74% of mandibular fractures are due to road traffic accidents[2]. However Oslon *et al* have held road traffic accidents responsible for only 48% of the cases[3]. These differences may be explained by the environmental and social characteristics under study.

Although the variables associated with mandibular fractures are enormous, nevertheless as a generalisation, fractures occurring in the body, condyle and angle show a relatively similar incidence while ramus and coronoid fractures are rare[4].

Ellis *et al* have reported that 33% of mandibular fractures occur at the body followed by condylar process (29%) and angle (23%)[5]. Gilven has given the following figures: Body (34%), angle (25%) and symphysis (20%)[6].

The purpose of this study was to evaluate the frequency of mandibular fractures, their age- and sex-related aetiology, main types and to give possible recommendations for the need to do further research studies and to improve patient record keeping with the view to reduce occurrence of mandibular fractures.

MATERIAL AND METHODS

This descriptive study on the patterns of mandibular fractures was conducted at the Department of Oral and Maxillofacial Surgery, de Montmorency College of Dentistry/ Punjab Dental Hospital Lahore. This study was undertaken from July to December 1998 and 126 patients of all age groups and belonging to either sex presenting with mandibular fracture(s) were included. A proforma was designed and filled for individual cases.

A thorough history was taken and meticulous clinical examination was performed on all patients presenting with trauma to the lower jaw. All subjects suspected of having sustained mandibular fracture(s) were advised a standard orthopantomogram (OPG) and a postero-anterior view of the mandible. A definitive diagnosis of mandibular fracture was established with the aid of clinical and radiographic findings and recorded accordingly for each case.

RESULTS

The age distribution of patients with mandibular fractures observed in our study is shown in Table-1.

Table-1: Age Distribution of Patients (n=126)

Age Range (Years)	No. of Patients	Percentage
0-10	20	15.9
11-20	33	26.2
21-30	34	27.0
31-40	25	19.8
41-50	8	6.4
51-60	5	4.0
61-70	1	0.8

The age ranged between 14 months to 67 years. The most common age group was 21–30 years followed by the 11–20 years population. The elderly age group 61–80 years showed least involvement with mandibular fractures.

Regarding sex distribution, most patients, i.e., 90.5% in our study were males with a male to female ratio of 9:1. (Figure-1).

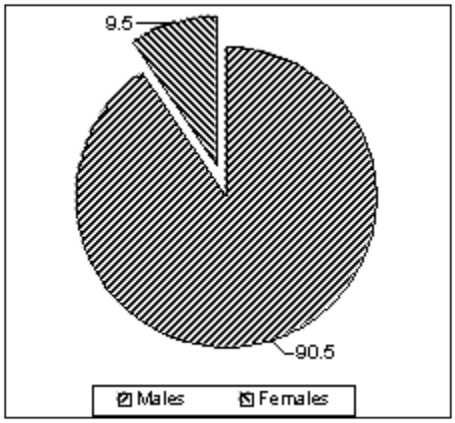

Figure 1: Percent distribution of patients by gender (n=126)

Road traffic accidents were found common cause of fractures accounting to be the most (90%) common cause of mandibular fractures accounting for 56.3% of the total. Etiological factors are shown in Table-2.

Table-2: Aetiology of Injuries (n=126)

Aetiology	No. of Cases	Percentage
RTA	71	56.3
Fall	30	24
Gun Shot	6	4.8
Sports	5	4
Assault	3	2.4
Industrial	1	0.8
Hit by a Bull	1	0.8
Iatrogenic	1	0.8

Table-3: Site Distribution

Site	No. of Patients	Percentage
Parasymphysis	37	29.40
Condylar and Subcondylar	25	19.90
Angle	23	18.30
Symphysis	15	11.90
Dentoalveolar	9	7.14
Ramus	8	6.40
Body	7	5.60
Coronoid	2	1.60
Combination	28	22.22

The site distribution of mandibular fractures is shown in Table-3. In our study the mandibular fractures were most commonly seen in the parasymphysis region followed by condylar and subcondylar areas.

Only 19 patients out of the total reported to maxillofacial unit within 1 day after injury (Table-4).

Table-4: Time elapsed from injury to reporting

Reporting Period after Injury	No. of Initial Presentation	Percentage	No. of Patients Operated	Percentage
1 day	19	15.07	3	2.8
2 day	24	19.04	5	3.96
3 day	23	18.25	8	6.34
4–7 days	48	38.09	30	23.80
Within 2 weeks	8	6.34	57	45.23
3 weeks or more	4	3.17	23	18.25

DISCUSSION

Over the last decade there has been interest worldwide to document and report maxillofacial trauma[7,9]. We compared the trends in mandibular fractures in Pakistani population with those reported from other parts of the world.

Road traffic accidents have been reported as the leading cause of mandibular fractures in many third world countries[10,11]. However in the developed countries assault and interpersonal violence have been reported as the major etiological factors[12]. The differences relate to lack of seat-belt regulations in the third world countries. On the other hand alcohol abuse appears to be a major factor responsible for interpersonal violence in developed

countries[13]. Countries where the use of seat belt regulations has been made compulsory showed a decreased trend of mandibular fractures associated with road traffic accidents compared to the past[14].

The high frequency of mandibular fractures associated with road traffic accidents in our population highlights the need to enforce seat belt regulations and wearing of safety helmets. The health bodies of our country need to put forward their recommendations before the concerned governments and ensure their speedy implementation.

Mandibular fractures related to contact sports appear to be the second most common facial bone fractures after the nasal bones and are more common in the Western World[15]. Emshoff *et al* have reported sports as the major cause of mandibular fractures accounting for 31.5% of the cases followed by road traffic accidents (27.2%)[16]. In our study falls related to kite flying were responsible for a number of cases especially in the paediatric population. Contact sports were responsible for only 4% of the cases.

Our findings of the highest frequency of mandibular fractures in the 21–30 year age group are in agreement with that reported from other countries[4,17]. Similarly, mandibular fractures have been reported to be more common in males[18].

The late presentation of mandibular fractures seen in our study is related to lack of organized health-care facilities and poor referral and transportation problems especially in the rural areas. This obviously delays and complicates treatment increasing the sufferings of our patients. Patients with mandibular fractures should be promptly referred to the concerned speciality for timely management.

Lastly, it must be reiterated that maxillofacial surgery units in Pakistan must record all the data pertaining to maxillofacial basis. It would certainly help us plan our treatment, recommend preventive measures and encourage research in this area.

CONCLUSION AND RECOMMENDATIONS

There is a high frequency of mandibular fractures in our setting most commonly related to road traffic accidents, followed by accidental falls. In addition, mandibular fractures tend to affect the relatively young age groups of 11 to 40 years, pointing to the role of social factors such as lack of knowledge, improper attitudes and practices as the underlying causative agents predisposing to mandibular fractures. Following are few recommendations:

A. To reduce the occurrence:

· There should be amendment in legislation about seat belt usage.

· Improvement in traffic rules.

· Control on kite flying (to reduce falls).

B. We need to have more organised pattern of record-keeping for better quality of clinical management of maxillo-facial trauma.

REFERENCES

1. Tanaka N, Tomitsuka K, Shionoya K, Andou H, Kimijima Y, Tashiro T, *et al*. Aetiology of maxillofacial fracture. Br J Oral Maxillofacial Surg 1994; 32. 19-22.

2. Adekeye EO. The pattern of fractures of the facial skeleton in Kaduna, Nigeria. A Survey of 1447 Cases. Oral Surg Oral Med Oral Pathol 1980;49:491.

3. Oslon, RA, Fonseca RJ, Zeitler DR, Osbbom DB. Fractures of the mandible. A review of 580 Cases. J Oral Maxillofacial Surg 1982;40:23.

4. Moshy J, Mosha HJ, Lema PA. Prevalence of maxillomandibular fractures in Mainland Tanzania. East African Medical Journal 1996;73(3):172-5.

5. Ellis E, Moos KF, El-Attar A. Ten years of mandibular fractures: An analysis of 2,137 cases. Oral Surg Oral Med Oral Pathol 1985;59:120-3.

6. Güven OA Comparative study on maxillofacial fractures in central and Eastern Anatolia. J Cranio Max-Fac Surg 1988;16:126-9.

7. Green D, Raven R, Carvalho G, Maas CS. Epidemiology of facial injury in blunt assault. Determinants of incidence and outcome in 802 patients. Archives Of Otolaryngology, Head And Neck Surgery 1997;123(9):923-8.

8. Storm C, Hultin M, Kjellman O, Nordenram A, Ramstrorn G. Jaw fractures in the country of Stockholm. A comparative study with interval of ten years. Swedish Dental Joumal 1995;19(1-2):29-32.

9. Freidl S, Bremerich A, Gellrich NC. Mandibular fractures an epidemiological study of a 10-years cohort. Acta Stomatologica Belgica 1996;93(1):5-11.

10. Bataineh AB. Aetiology and incidence of maxillofacial fractures in the north of Jordan. Oral Surg Oral Med Oral Pathol Oral Rad & Endo 1998;86(1):31-5.

11. Lawoyin DO, Lawoyin JO, Lowoyin TO. Fractures of the facial skeleton in Tabuk North West Armed Forces Hospital. A five year review. African J Med & Med Sci 1996;25(4)385-7.

12. Edwards TJ, David DJ, Simpson DA, Abbott AA. Patterns of mandibular fractures in Adelaide, South Australia. Aus & New Z J of Surg 1994;64(5):307-11.

13. Torgewrsen S, Tomes K. Maxillofacial fractures in a Norwegian district. Int J Oral & Max Facial Surg 1992;21(6):335-8.

14. Oikarinan K, Ignatius E, Kauppi H, Silvennoinen U. Mandibular fractures in Northern Finland in the 1980's. A ten year study. Br J Oral & Max Fac Surg 1993;31(1):23-7.

15. Carroll SM, Jawad MA, West M, O' Connor TP. One hundred and ten sports related facial fractures. Br J Sports Med 1995;29(3):194-5.

16. Emshoff R, Schoning H, Rothler G, Waldhart E. Trends in the incidence and cause of sports-related mandibular fractures: A retrospective analysis. J Oral & Max Fac Surg 1997;55(6):585-92.

17. Dugan MA, De Gracia MA, Villanueva SD, Uy HG. 138 cases of mandibular fractures in four government hospitals from July 1995 to July 1996. J Philippine Dental Assoc 1998;49(4):56-70.

18. Wilson S, Smith GA, Preisch J, Casamassimo PS. Epidemiology of dental trauma treated in an urban paediatric emergency department. Paediatric Emergency Care 1997;13(1):l2-5.

Address for correspondence:

Dr. Iram Abbas, Assistant Professor, Department of Oral Surgery, Dental Section, Ayub Medical College, Abbottabad-22040, Pakistan.

Email: IramMushtaq@ayubmed.edu.pk