

## A STUDY ON MANDIBULAR FRACTURES

Pooja Yadav, Balaji Sekher\* and Sushil G. Jha

Department of Otorhinolaryngology, Government Medical College Bhavnagar.

\*Corresponding Author: Balaji Sekher

Department of Otorhinolaryngology, Government Medical College Bhavnagar.

Article Received on 26/10/2017

Article Revised on 16/11/2017

Article Accepted on 07/12/2017

## ABSTRACT

**Background:** The first ever inscription on mandibular fractures dates back to 1650 BC. Modern life is very fast which includes high speed travel and a violent, intolerant society making everyone susceptible to facial trauma. The facial area is one of the most frequently injured parts of the body and hence vulnerable to fracture. The presence of teeth in the mandible is the most important anatomical factor, which makes its fracture different from fractures elsewhere in the body. **Aims and Objectives:** The aim of the study is to evaluate & compare the study on 30 cases of mandibular fracture with the existing literature on its etiology, pattern, gender and anatomical distribution. **Materials and Method:** The study was carried out on 30 cases of mandibular fracture cases who visited Otorhinolaryngology department of Sir. T. Hospital Government medical college, Bhavnagar. **Results:** In the study it was observed that **Males** are more commonly affected than females. **Road Traffic Accident** being the most common cause for the fracture mandible. **Body** of mandible was the most common site to be injured followed by angle and condyle. **Ramus** was the least common site of fracture. **Conclusion:** Thus we conclude that as the males are most commonly involved in the outdoor activities than the female so **Males** are more susceptible to mandible fracture with R.T.A. being the most common etiology for the fracture and **Body** of mandible is the most frequent site affected.

**KEYWORDS:** Road Traffic Accident.

## INTRODUCTION

The fracture is defined as "breach in the continuity of bone"<sup>[1]</sup> The first ever inscription on mandibular fractures dates back to 1650 BC.<sup>[2]</sup> The facial area is one of the most frequently injured parts of the body<sup>[3,4,5]</sup> and, and hence vulnerable to fracture. The presence of teeth in the mandible is the most important anatomical factor, which makes its fracture different from fractures elsewhere in the body.<sup>[6]</sup> Modern life is very fast which includes high speed travel and a violent, intolerant society making everyone susceptible to facial trauma. The energy required to fracture it being of the order of 44.6–74.4 kg/m, which is about the same as the zygoma and about half that for the frontal bone.<sup>[7,8,9,10]</sup> It is four times as much force is required to fracture maxilla.<sup>[11]</sup>

This study attempts to evaluate the patterns of mandibular fracture based on patient's age, sex, and mechanism of injury and to define current, predictable patterns of fracture based on patient's demographics and mechanism of injury.

## AIMS AND OBJECTIVES

The aim of this study is to evaluate & compare the series of 30 cases of mandible fracture in terms of age, sex and

mechanism of injury, site of fracture and various modalities of treatment and treatment outcome.

## MATERIALS AND METHODS

This study was performed on 30 cases mandibular fracture managed at the Dept. of ENT, Govt. medical College Bhavnagar. Data (clinical records, patients' files) were reviewed and analyzed in terms of age, gender, etiology, anatomical site of fracture and treatment methods.

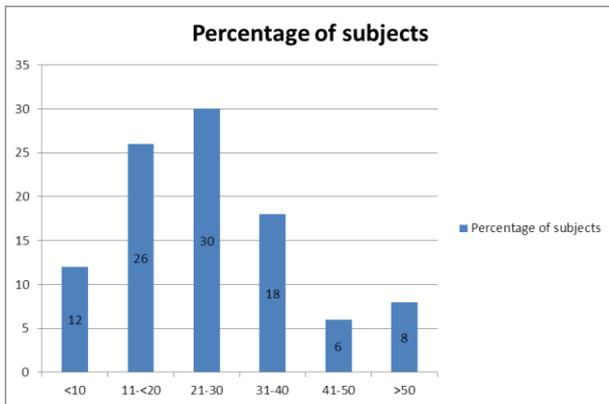
**Surgical Technique of mandible fracture by wiring and Plating**

Whenever there is a displaced fracture of mandible causing malocclusion of teeth irrespective of the site of fracture, then the following surgical technique is followed to achieve the best possible occlusion for the patient. Both plating and wiring are done. First wiring is done followed by plating and lastly wires are tightened.

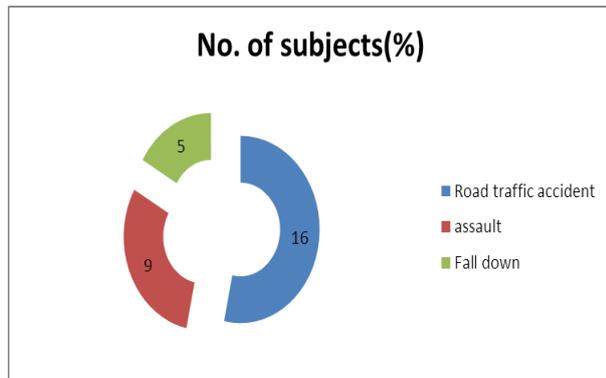
**Technique:** Interdental wiring & Plating**Necessary instruments:** 26g Wire, 4-hole micro plates, 2-hole micro plates, Drill bit, Hand motor, Screw driver, Wire cutter

**OBSERVATION**

**Agewise distribution of study subjects:** The incidence of mandibular fracture was more in age group >20, this may be explained as the children below the age of 8years are under the parental care and therefore less likelihood of sustaining severe injury. and as the age advances the child gets involved in more physical activities. The peak incidence was found in the age group between 26-30years suggesting that the young youth of our country are more vulnerable for the fracture due to the above mention reasons.



**ETIOLOGY**



The most common etiology of mandible fracture was traffic accident 53.3% (n=16), followed by fall down 30%(n=9) and assault injury 16.6%(n=5).

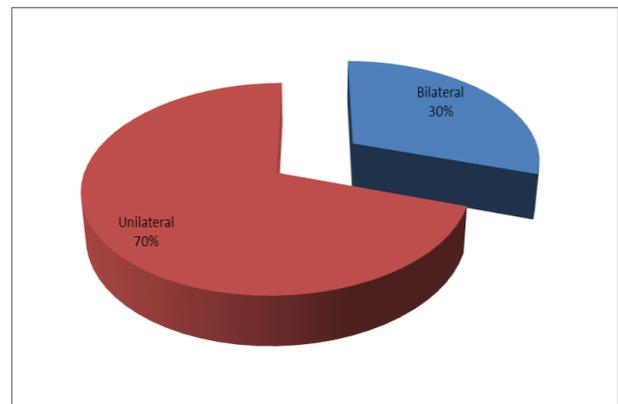
**SITE**

Body	13
Angle	6
Condyle	4
Symphysis	3
Ramus	1
Communated	3

In regards to the study conducted above we found that the **Body of mandible is 43.3%(n=13)the most frequent site of fracture** followed by **Angle** and then **Symphysis Menti**.

While talking about the gender frequency we observed that males 83.3%(n=25) are more affected than the females 16.6 %(n=5) which may be because the males are more involved in outdoor activites.

The fracture was **70% unilateral** and **30% bilateral** and we could even conclude that amongst the bilateral fracture the **body was more commonly associated with angle fracture on same side and condylar fracture on opposite side**.



**SURGERY**

Most patient required plating with wiring, some patients needed planting alone and wiring alone only 2 patients managed conservatively.

Plating with wiring	56.6%(n=17)
Plating alone	20%(n=6)
Wiring alone	16.6%(n=5)
Conservative	6.8%(n=2)

**DISCUSSION**

This study is to discuss the most common cause, site and age distribution of mandible fractures. As per the standard textbooks, the most common site for mandible fracture is condyle of mandible,<sup>[12]</sup> but in our study the most common site is body of mandible. Here we would like to mention that unilateral condylar fracture of mandible is often asymptomatic, left unnoticed by the patient and often missed by the clinical examination by the surgeon. While considering the most common cause for the mandible fracture in their study was assault injury but in our conducted study we found Road Traffic Accident to be the leading cause of the fracture followed by assault and fall down.

The peak incidence is occurring between 26 and 30 years and least being in the age above 50 years. This is in conformity with *Adi et al.*,<sup>[13]</sup> *Bataineh*,<sup>[14]</sup> *Dongas and Hall*.<sup>[15]</sup> Most frequent cause of fracture mandible in this study was Road traffic accident, which is in accordance with *Luce et al.*,<sup>[16]</sup> *Bataineh*.<sup>[17]</sup>

**CONCLUSION**

Thus we conclude that as the males are most commonly involved in the outdoor activities than the female so **Males** are more susceptible to mandible fracture with R.T.A. being the most common etiology for the fracture and **Body** of mandible be the most frequently affected site of fracture.

**BIBLIOGRAPHY**

1. G. O. Kruger, Textbook of Oral and Maxillofacial Surgery, Jaypee Brothers, 6th edition, 1990.
2. Ogundare BO, Bonnick A, Bayley N. Pattern of mandibular fractures in an urban major trauma center. *J Oral Maxillofac Surg*, 2003; 61: 7138.
3. Abiose BO. Maxillofacial skeleton injuries in the western states of Nigeria. *Br J Oral Maxillofac Surg*, 1986; 24(1): 319.
4. Adi M, Ogden GR, Chisholm DM. An analysis of mandibular fractures in Dundee, Scotland 1977 to 1985. *Br J Oral Maxillofac Surg*, 1990; 28(3): 1949.
5. Allan BP, Daly CG. Fractures of mandible: a 35year retrospective study. *Int J Oral Maxillofac Surg*, 1990; 19(5): 26871.
6. Boole JR, Holtel M, Amoroso P, Yore M. 5196 mandible fractures among 4381 active duty army soldiers, 1980 to 1998. *Laryngoscope*, 2001; 111(10): 16916.
7. J. J. Swearingen, Tolerance of the Human Face to Crash Impact, Office of Aviation Medicine, Federal Aviation Agency, Stillwater, Okla, USA, 1965.
8. V. R. Hodgson, "Tolerance of the facial bones to impact," *American Journal of Anatomy*, 1967; 120: 113–122.
9. A. M. Nahum, "The biomechanics of maxillofacial trauma," *Clinics in Plastic Surgery*, 1975; 2(1): 59–64.
10. E. A. Luce, T. D. Tubb, and A. M. Moore, "Review of 1,000 major facial fractures and associated injuries," *Plastic and Reconstructive Surgery*, 1979; 63(1): 26–30.
11. D. F. Huelke, "Location of mandibular fractures related to teeth and edentulous regions," *Journal of Oral Surgery, Anesthesia, and Hospital Dental Service*, 1964; (22): 396–405.
12. SRB manual of surgery, third edition, chapter 2, faciomaxillary trauma, 311.
13. Adi M, Ogden GR, Chisholm DM. An analysis of mandibular fractures in Dundee, Scotland (1977 to 1985) *Br J Oral Maxillofac Surg*, 1990; 28: 194–9.
14. Bataineh AB. Etiology and incidence of maxillofacial fractures in the north of Jordan. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*, 1998; 86: 31–5.
15. Dongas P, Hall GM. Mandibular fracture patterns in Tasmania, Australia. *Aust Dent J*, 2002; 47: 131–7.
16. Luce EA, Tubb TD, Moore AM. Review of 1,000 major facial fractures and associated injuries. *Plast Reconstr Surg*, 1979; 63: 26–30. [PubMed].
17. Bataineh AB. Etiology and incidence of maxillofacial fractures in the north of Jordan. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*, 1998; 86: 31–5.