



CODEN [USA]: IAJPBB

ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

Available online at: <http://www.iajps.com>

Research Article

**STUDY TO REVEAL THE MANDIBULAR FRACTURES
PATTERN AND ITS ETIOLOGY**

¹ Dr Hafiz Muhammad Adeel Sarfraz, ² Dr Waheed Gul Shaikh, ³ Dr Syeda Kaniz Umul Baneen, ⁴ Dr Mohsin Majeed

^{1,4} Nishtar Institute of Dentistry, Multan

² FCPS (Orthodontics), Assistant Professor Mohammad Bin Qasim Medical & Dental College, Karachi

³ De'Montmorency College of Dentistry, Lahore

Article Received: March 2019

Accepted: April 2019

Published: May 2019

Abstract:

Objective: The purpose of this analysis was to analyze and evaluate the mandible fracture pattern in 150 patients treated in the Department of Oral and Maxillofacial Surgery.

Study Design: A descriptive study.

Location and Duration: In the department of Oral and Maxillofacial Surgery of Nishtar Hospital, Multan for one year duration from Feb 2018 to January 2019.

Methods: These patients were evaluated radiologically and clinically to detect mandibular fractures. Gender, age and fracture data were reviewed and evaluated. The 2 to 78 years of age was the means age (mean 25 years) and in the age group 21 to 30 years. The male to female ratio was 3.99: 1.

Results: The mandible fractures main cause was the traffic accidents [RTA (n = 65, 41.96%)], (n = 42, 28%), followed by the bullet wound [FAI 25; 16.6%], fights (s = 8, 4.7%, sports (n = 6, 3.4%), accidents while doing work (n = 4, 3%) and 4 cases are because of other bomb explosions and injuries by animals. = 40, 23.3%) and body (n = 38, 22.2%), followed by parasymphathetic (n = 47, 27.4%).

Conclusion: This study may help to develop policies and strategies to treat and prevent mandible fractures.

Key Words: Traffic accidents, mandibular fractures, seat belts, etiology.

Corresponding author:

Dr. Hafiz Muhammad Adeel Sarfraz,
Nishtar Institute of Dentistry, Multan

QR code



Please cite this article in press Hafiz Muhammad Adeel Sarfraz et al., *Study To Reveal The Mandibular Fractures Pattern And Its Etiology.*, Indo Am. J. P. Sci, 2019; 06(05).

INTRODUCTION:

The mandible is the only moving bone of the tooth skeleton that plays a major role in chewing, speaking and swallowing. In the facial skeleton, it is a distinct bone which is more often broken between maxillofacial injuries. Rupture causes severe function and loss of deformity. The mandible fracture may be simple or may be included with other fractures of the facial bones. The relationship between mandible and zygomatic and maxillary fractures in maxillofacial injuries is 8: 5: 2. The site of fracture depends on the mechanism of injury, the direction and size of the impact force and the anatomy of the mandible and the region. The facial bones are weak to bear impact forces. Compression resistance is higher, but tends to break when stress is present. It is also more sensitive to side effects such as body and branch. The common causes of mandibular fractures are interpersonal violence, traffic accidents, falls, bullet wounds, industrial accidents and sports injuries. These causes depend on the geographical status, cultural characteristics and socioeconomic status of the population. In third world countries, the main causes of mandibular fracture are Traffic accidents and in developed countries interpersonal violence is the main cause. Traffic accidents and the decrease of young population are the most common causal factors in adults. Age and gender were important factors affecting the appearance of mandibular fractures. The major of frequency was observed in the 21-30 age group. In the age group above 60 years of age, incidence is low and also in younger than 6 years. The latest data shows the 4: 2ratio between men and women worldwide. The most area which is fractured is the angle followed by the paraphysis and

body. Mandibular body is the most common fracture in adults, whereas condyle is predominant in small children. The aim of this analysis is to know the epidemiological characteristics of the mandible fractures, as the cause of the mandible fracture is a direct reflection of the level of public education and social state of the society. This analysis also emphasizes the precautions to be taken to prevent mandible fractures.

MATERIALS AND METHODS:

This descriptive study was performed in department of Oral and Maxillofacial Surgery of Nishtar Hospital, Multan, Lahore for one year duration from Feb 2018 to January 2019.

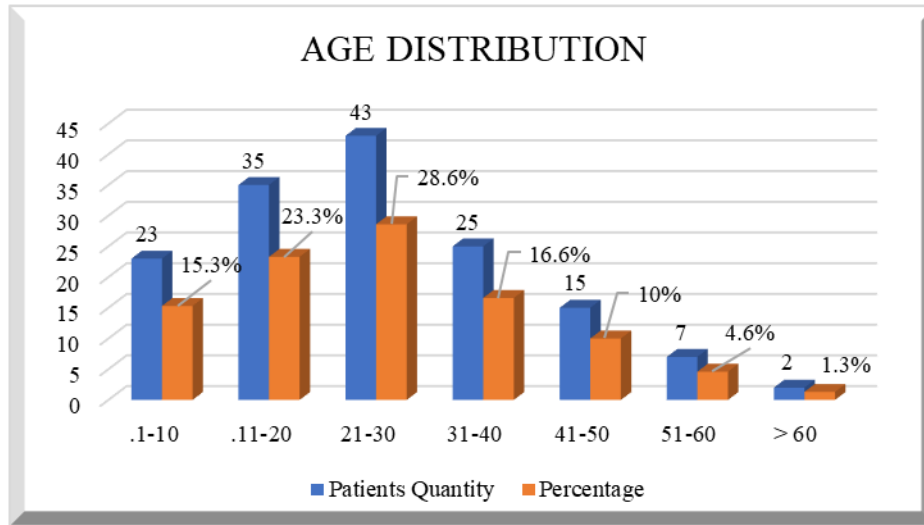
A detailed history of 150 patients was performed with the consent of the patients and a complete clinical examination was performed. The standard radiography was completed with the orthopantomogram (OPG) and, if necessary, the posteroanterior (AP) image of the face or face. A definitive diagnosis of mandibular fractures was made on the basis of clinical examination, imaging studies and clinical history. Study data were obtained in preformed forms and analyzed and evaluated by applying descriptive statistics.

RESULTS:

25.02 ± 16.25 years was the mean age of the patients. In majority of cases, the age range was 22-31(n = 44, 29.06%). Only 14.93% of the patients were younger than 10 years and 1.3% were above 60 years (Table 1).

Table No 01: Age Distribution of Mandibular Fractures

| Age Groups (years) | Patients Quantity | Percentage |
|--------------------|-------------------|------------|
| 1-10 | 23 | 15.3% |
| 11-20 | 35 | 23.3% |
| 21-30 | 43 | 28.6% |
| 31-40 | 25 | 16.6% |
| 41-50 | 15 | 10% |
| 51-60 | 07 | 4.60% |
| > 60 | 02 | 1.30% |
| Total | 150 | 100% |



The proportion of males and females (n = 121, 81%) (n = 29, 19%) according to gender distribution was 3.99: 1 (Figure 1).

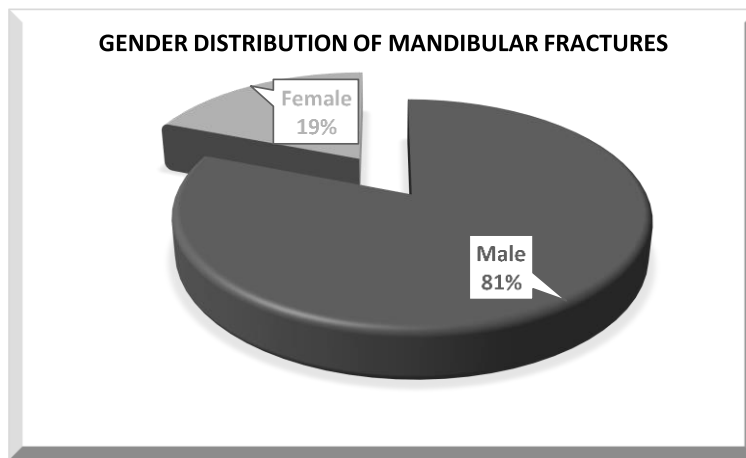
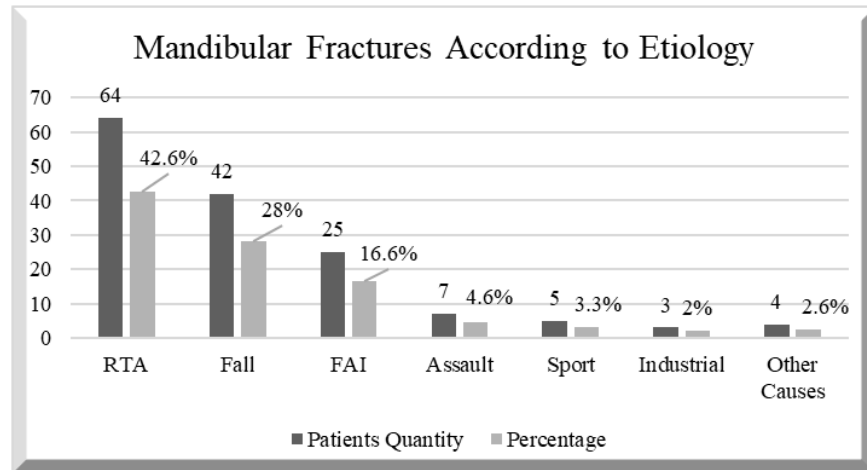


Figure 1

The mandibular fractures most common etiology was road traffic accidents (n = 65, 41.96%) and accidental fall (n = 43, 29%) while the industrial accidents were minimum (n = 4; 3%) (Table 2).

Table No 02: Distribution of Mandibular Fractures According to Etiology

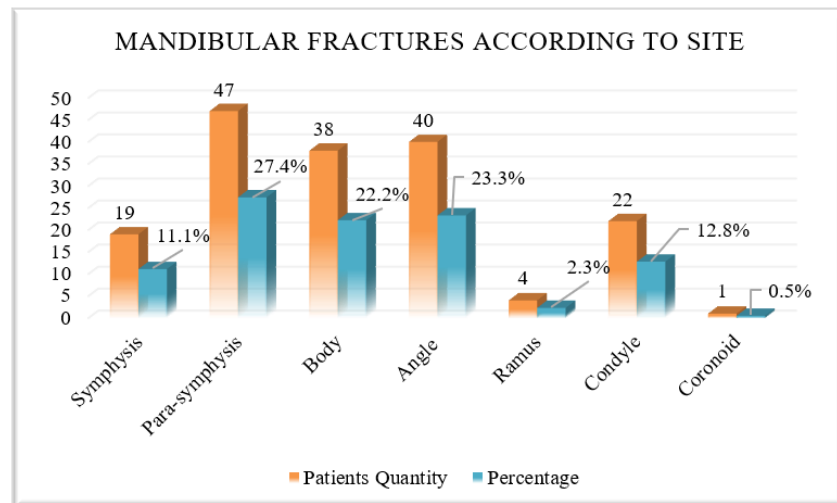
| <i>Etiology</i> | <i>Patients Quantity</i> | <i>Percentage</i> |
|---------------------|--------------------------|-------------------|
| <i>RTA</i> | 64 | 42.6% |
| <i>Fall</i> | 42 | 28% |
| <i>FAI</i> | 25 | 16.6% |
| <i>Assault</i> | 07 | 4.60% |
| <i>Sport</i> | 05 | 3.30% |
| <i>Industrial</i> | 03 | 2% |
| <i>Other Causes</i> | 04 | 2.60% |
| <i>Total</i> | 150 | 100% |



172 total fractures among 151 patients in different regions. The paraphysis was most common location of mandibular fractures (n = 48, 28.04%), followed by angle (n = 41, 22.93%) and body (n = 39, 21.92%). Table 3).

Table No 03: Distribution of Mandibular Fractures According to Site

| SITE | PATIENTS QUANTITY | PERCENTAGE |
|-----------------------|-------------------|------------|
| SYMPHYSIS | 19 | 11.10% |
| PARA-SYMPHYSIS | 47 | 27.4% |
| BODY | 38 | 22.2% |
| ANGLE | 40 | 23.3% |
| RAMUS | 04 | 2.30% |
| CONDYLE | 22 | 12.8% |
| CORONOID | 01 | 0.50% |
| TOTAL | 171 | 100% |



DISCUSSION:

The results of the epidemiological study on the mandibular fractures incidence showed a tendency for the dominant group to vary according to the socioeconomic status, geographical region, cultural characteristics and age of the study. Contrary to the reports of the SM Karyouti study. A possible explanation of the 21-year frequency of fractures in the 30-year age group is the second and third years of people's life in those years, making it the most active and traumatic for many years. These age groups show a lot of sports activity, fighting, violence and fast transportation. Older people in developing countries are dependent on young people economically to live. The low frequencies of young and old groups depend on the low activity of these age groups. After the seat belt legislation in these countries, there is a significant reduction in mandibular fractures caused by RTA. In our country, high rates of mandibular fractures connected to RTA require seat belts, speed, overload, children under age and inadequate road and vehicle conditions. The amount of firearms recorded in this study depends on tribal debates and lifestyles on the northwestern border of Pakistan, where weapons are part of cultural life. The rate of jaw fracture in men and women (4.1: 1) is mostly seen in men in this region. This finding is consistent with the results of previous studies in the world. The relatively high number of women comes from the fact that men are more active in foreign activities and women are limited to closed activities. The report on traffic accidents, according to previous epidemiological studies, followed the decline as the main cause of mandibular fractures in developing countries. However, they are the etiological factors of aggressive and interpersonal violence in developed countries. This trend of change in the etiology of Western countries varies depending on the abuse of alcohol and illegal drug use in these societies.

CONCLUSION:

The conclusion of this analysis shows that most of the patients are young males. The most common cause of mandibular fracture was road traffic accident with the most common paraphysis, followed by a decrease. In this analysis, the following instructions are given;

1 Safety regulations, such as speed limits, traffic regulations and seat belts must be strictly observed to reduce the incidence of traffic accidents.

2 An awareness-raising campaign should be initiated to aware the public, especially about the values of restrictions on drivers, motor vehicles and preventive measures.

3 Parental Education in children will decrease the injuries incidence among the pediatric population.

REFERENCES:

1. Elarabi, Mohammed S., and Anwar B. Bataineh. "Changing pattern and etiology of maxillofacial fractures during the civil uprising in Western Libya." *Medicina oral, patologia oral y cirugiabucal* 23, no. 2 (2018): e248.
2. Samman, Mahmood, Syed Waheed Ahmed, Hassan Beshir, TurkiAlmohammadi, and Santosh R. Patil. "Incidence and pattern of mandible fractures in the Madinah region: a retrospective study." *Journal of natural science, biology, and medicine* 9, no. 1 (2018): 59.
3. Noda, Marie, Yusuke Kawashima, Satoshi Tokunaga, Kotaro Ito, Yoshinobu Hara, Naohisa Hirahara, Eri Sawada, Norihito Iizuka, and Takashi Kaneda. "Risk Assessment for Condylar Fracture Using Classification of the Mandibular Inferior Cortical Shape by Pantomography." *International Journal of Oral-Medical Sciences* 16, no. 3-4 (2018): 49-53.
4. Wang, Howard D., Srinivas M. Susarla, Robin Yang, Gerhard S. Munding, Benjamin D. Schultz, Abhishake Banda, Alexandra MacMillan, Paul N. Manson, Arthur J. Nam, and Amir H. Dorafshar. "Does Fracture Pattern Influence Functional Outcomes in the Management of Bilateral Mandibular Condylar Injuries?." *Craniomaxillofacial Trauma & Reconstruction* (2018).
5. Shah, Satya Prakash, Vishal B. Verma, Arun Kumar Talkal, Shraddha Saini, and Rupal J. Shah. "Gunning Splint Modified to Complete Dentures Prosthesis: A Conservative Management of Edentulous Mandibular Fracture." *Journal of Clinical & Diagnostic Research* 12, no. 7 (2018).
6. Mahipathy, Surya Rao Rao Venkata, Alagar Raja Durairaj, James Solomon Jesudasan, NarayanamurthySundaramurthy, Manimaran Ramachandran, and Praveen Ganesh Natarajan. "Open reduction and internal fixation of paediatric mandibular fracture: a case report and review of literature." *International Surgery Journal* 5, no. 10 (2018): 3418-3421.
7. Southerden, Peter, and Duncan M. Barnes. "Caudal mandibular fracture repair using three-dimensional printing, presurgical plate contouring and a preformed template to aid anatomical fracture reduction." *Journal of Feline Medicine and Surgery Open Reports* 4, no. 2 (2018): 2055116918798875.
8. Zavlin, Dmitry, Kevin T. Jubbal, Anthony Echo, Shayan A. Izaddoost, Jeffrey D. Friedman, and

- OlusholaOlorunnipa. "Multi-institutional Analysis of Surgical Management and Outcomes of Mandibular Fracture Repair in Adults." *Craniofacial trauma & reconstruction* 11, no. 01 (2018): 041-048.
9. Adhyapok AK, Debnath SC, Bhagawati A, Jyotimallika J. THE PATTERNS OF MANDIBULAR FRACTURE AMONG THE POPULATION IN ASSAM. INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH. 2018 Aug 8;7(1).
 10. Merlet, F.L., Grimaud, F., Pace, R., Mercier, J.M., Poisson, M., Pare, A. and Corre, P., 2018. Outcomes of functional treatment versus open reduction and internal fixation of condylar mandibular fracture with articular impact: A retrospective study of 83 adults. *Journal of stomatology, oral and maxillofacial surgery*, 119(1), pp.8-15.
 11. Tundo, Ingrid, Peter Southerden, Andrew Perry, and Richard M. Haydock. "Location and distribution of craniomaxillofacial fractures in 45 cats presented for the treatment of head trauma." *Journal of feline medicine and surgery* (2018): 1098612X18776149.
 12. Ong, Jo Ann, Dieter Gebauer, Estie Kruger, and Marc Tennant. "Referral patterns of emergency physicians regarding head and neck pathology in Western Australia." *Faculty Dental Journal* 9, no. 4 (2018): 147-150.
 13. Kauke, Martin, Ali-Farid Safi, Marco Timmer, Hans-Joachim Nickenig, Joachim Zöller, and Matthias Kreppel. "FAMI Screws for Mandibulo-Maxillary fixation in mandibular fracture treatment–Clinico-radiological evaluation." *Journal of Cranio-Maxillofacial Surgery* 46, no. 4 (2018): 566-572.
 14. Jha, Sushil G., Vikas Sinha, T. U. Samanth, and Swati Dadhich. "Management of Mandible Fracture by Plating and Wiring: An Otolaryngologist Perspective at Tertiary Care Center." *Indian Journal of Otolaryngology and Head & Neck Surgery* (2018): 1-8.
 15. Carricondo, Ana Rocío García, Francisco Javier Quesada Bravo, Fernando EspínGálvez, TesifónParrónCarreño, and Raquel Alarcón Rodríguez. "A comparative study between traditional fixation with miniplates and modified lag screws for the treatment of mandibular fractures." *Clinical oral investigations* 22, no. 3 (2018): 1503-1511.