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Prevalence and Patterns of Maxillofacial Trauma in South India- A Retrospective Study for Seven Years

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Abstract

Background: *Maxillofacial trauma is a complex fracture involving jaws and dentition. Documentation of these fractures are of paramount importance for improving patient care and development of infrastructure especially roads.* ***Materials and methods:*** *A descriptive cross-sectional study was conducted in Rajaji govt. Hospital, Madurai for six years from 2011 to 2017 to analyze the patterns and prevalence of maxillofacial trauma. Patients demographic and clinical data were retrieved and analyzed using MS Office excel 2007.* ***Results:*** *The total number of patients treated were N=707. The results show that males suffered more fractures than females. The most common etiology of trauma being RTA (MTW, motorized two wheelers) followed by assault and then falls and sports injuries. With respect to type of fractures the most common maxillofacial fracture reported in this region is mandible followed by maxilla and then zygomatic fractures.* ***Conclusion:*** *Recordings of Prevalence and patterns o maxillofacial trauma from this region clearly demonstrates that these fractures are more common in this part of south India.*

Keywords*: Maxillofacial Trauma, Mandible, Maxilla, Prevalence, Zygoma.*

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Introduction

Maxillofacial trauma is encountered routinely in emergency medicine departments and dental colleges in India. The etiology of maxillofacial trauma in India differs from region to region due to difference in topography, increased urbanization and socio-economic factors. Introduction of high-speed engines in two wheelers, alcohol addiction and disproportionate increase in two wheelers for the available roads are seen as major causative factor for increase in maxillofacial trauma in India. Documentation of prevalence and patterns from various parts of India and throughout the world is essential for dissemination of knowledge, to see the trends in trauma from various parts of the world and for the analysis of etiology and treatment patterns. A descriptive cross-sectional study was done in Govt. Rajaji hospital, Madurai Medical College to analyze the prevalence and patterns of maxillofacial fractures.

Materials and Methods

Case records of patients who were treated by ORIF under GA were retrieved and analyzed for demographic data, types of fracture and

etiology for trauma from march 2011 to march 2017.

Inclusion criterion

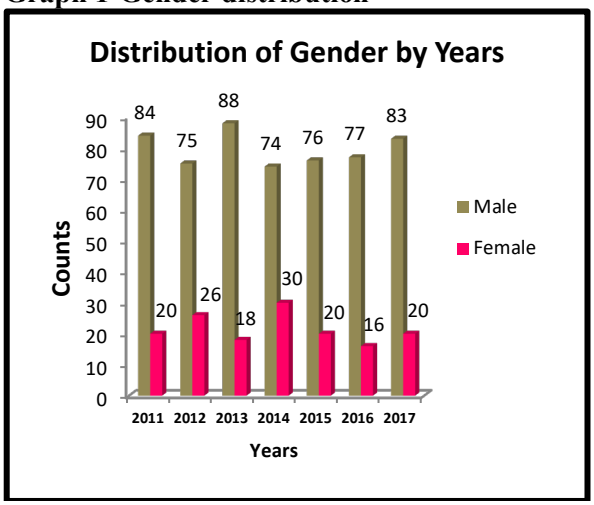
- Age group of 18 to 65 yrs.
- Fractures treated by ORIF under GA.

Exclusion criteria

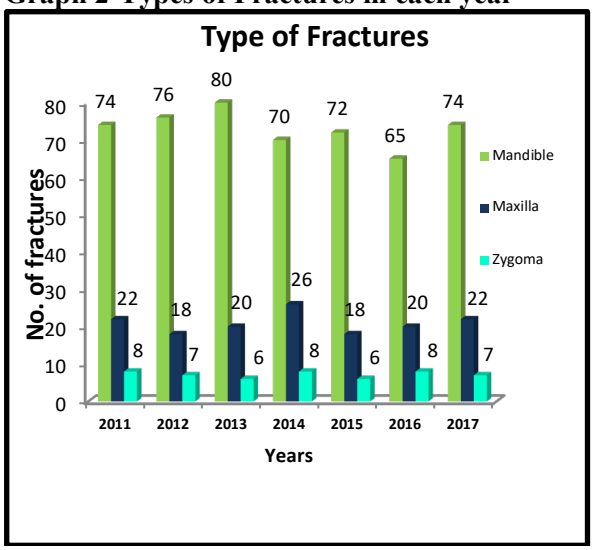
- Dentoalveolar fractures
- Soft Tissue injuries
- Paediatric fractures
- Fractures treated by closed reduction and
- Fractures treated by conservative management.

All patients fulfilling the above criteria were included in the study and no specific sampling method was used. The data retrieved were entered in Microsoft office excel 2007 and analyzed.

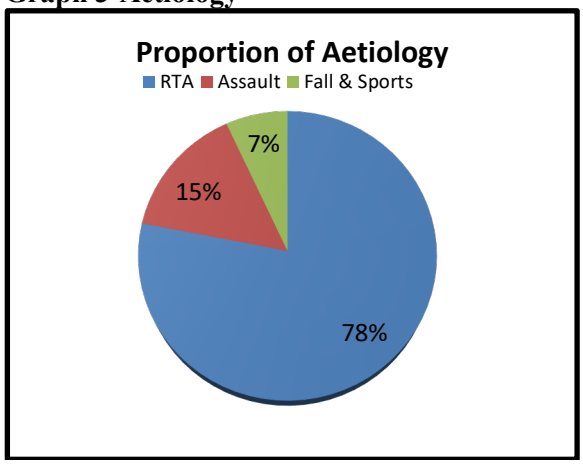
Graph 1-Gender distribution



Graph 2-Types of Fractures in each year



Graph 3-Aetiology



Graph 4-Type of fractures

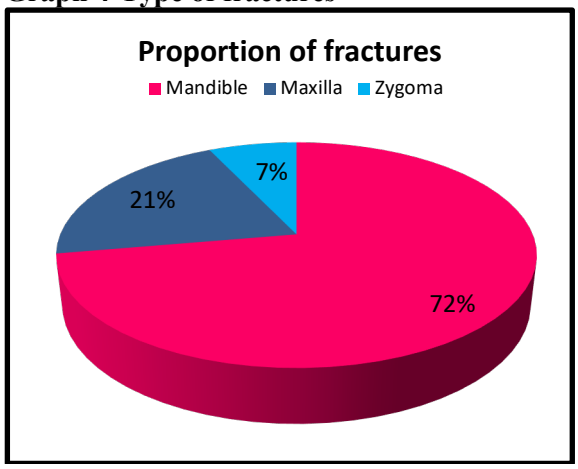


Table-1: Distribution of cases year wise

Year	No of Cases
2011	104
2012	101
2013	106
2014	104
2015	96
2016	93
2017	103
Total	707

Results

The total number of patients treated were N=707.The results had shown that the proportion of males N=558 (79%) suffered maxillofacial fractures more than females N=148 (21%) the peak age of incidence being 20 to 40 yrs. The most common aetiology was found to be RTA N=551(78%) followed by assault N=106(15%) and then followed by fall from height and sports injury N=49(7%). The

type fracture that was most common was mandible N=511(72%), maxilla N=146(21%) and then zygoma including the arch N=50(7%). The distribution of mandibular fractures based on Dingman and Natvig classification were symphysis N=67913%), parasymphysis N=127(25%) Body N=77(15%), Angle N=92(18%), Ramus N=25(5%), Condyle N=112(22%), Coronoid N=11(2%) and Alveolar Fractures 0%.The distribution of Maxillary fractures based on Lefort classification were Lefort **I** N=47(32%), Lefort **II** N=67(46%) and Lefort **III** N=32(22 %).

Discussion

The region from frontal bone to the mandible is maxillofacial region. Face being the most exposed part with paper thin bones to protect the cranium are prone for trauma. RTA leads to mortality and morbidity worldwide especially in younger population. Trauma is the leading cause of death in people less than 40 years [1].20 to 60% of any RTA involves fractures in maxillofacial region and out of which 62% is due motorised two wheelers[2]. Rajaji hospital, Madurai medical college is the tertiary care hospital and referral center for complex maxillofacial trauma. Madurai is the district headquarters and a heritage city in Tamil Nadu, south India.

Our study shows male (79%) preponderance for the fracture than females (21%) and this is in concurrence with studies from other parts of the world [3-5]. This may be due to increased social, sporting activity and extensive travelling for commuting to work place from urban areas. The male preponderance is also due to increased alcohol addiction in males and driving MTW under the influence of alcohol. Studies by Singh et al; [6] Agnihothri et al; [7] and Prabhu et al; [8] clearly established the fact that driving under the influence of alcohol increased the incidence of maxillofacial fractures. The injuries were also due to the application of sudden brake by the innocent driver to safeguard the drunken pedestrian. The most common aetiology found in our study was RTA (78%) especially two wheelers (MTW). This may be self-fall from the bike due to inability to control the speed [due to bad bumpy roads with pot holes, by hitting on animals in the road(stray dogs and cattle)], collision with other two wheelers and four wheelers). The second common most reason is interpersonal assault (15%) in males and domestic violence in females. Studies across the world had proved that 34% to 73% of maxillofacial trauma in females is due to domestic violence[9].

As far as proportion of maxillofacial fractures are concerned the study revealed that fracture mandible(72%) as the most common fracture(The distribution of mandibular fractures based on Dingman and Natvig classification were symphysis 13%, parasymphysis 25%, Body 15%, Angle 18%, Ramus 5%, Condyle 22%, Coronoid 2% and Alveolar Fractures 0%).The second most common being maxilla(21%)(The distribution of Maxillary fractures based on Lefort classification were Lefort I 32%, Lefort II 46% and Lefort III 22% and the third most common was the zygoma(7%)[both ZMC and the arch].This in contrary with the studies from various parts of the world which depicts zygoma [10,11] as the most common fracture type. Increase in fracture mandible may be attributed for not wearing the helmet by the trauma victims and due to fall from bike while unable to control the speed. Maxillary fractures are mainly due to head on collision either with a two-wheeler or a four-wheeler. Zygomatic fractures were due to fall from two-wheeler or interpersonal assaults. The maxillofacial trauma disability causes both cosmetic and functional deformity. It is the most bothersome entity from the patient's perspective as these fractures are prevalent in the younger age group. Maxillofacial fractures require sophisticated equipments like panoramic radiographs to CT for the proper diagnosis failing which it leads to sub optimal treatment of the severe underlying injury. Further, the fracture can be properly managed only by the specialists, oral and maxillofacial surgeons. The cost of the hardware (titanium miniplates and screws) and operation theatre expenditure is expensive[12-15] as these surgeries are done by and large under GA only. It increases the burden on health care system in the developing country like India. Further the study of patterns of these maxillofacial fractures and their prevalence in the particular region of the world indirectly helps for the quantification of the global burden of the disease (GBF) and years lived with disability (YLD)[16,17].

Conclusion

The descriptive cross-sectional study from Madurai medical college clearly revealed the prevalence of maxillofacial fractures with male preponderance for maxillofacial trauma, RTA as the most common aetiology and mandible as the commonest fracture treated in this centre. These types of studies are valuable from different regions of the country and worldwide for improving the resources for treatment of these life-threatening injuries, prevention strategies, improvement of roads and enforcement of strict traffic rules.

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References

1. Gassner R, Tuli T, Hächl O, Rudisch A, Ulmer H. Cranio-maxillofacialtrauma: a 10 year review of 9,543 cases with 21,067 injuries. J Craniomaxillofac Surg 2003;31:51-61.
2. Subhashraj K, Nandakumar N, Ravindran C. Review of maxillofacial injuries in Chennai, India: a study of 2748 cases. Br J Oral Maxillofac Surg 2007;45:637-39
3. Septa D, Newaskar VP, Agrawal D, Tibra S. Etiology, incidence and patterns of mid-face fractures and associated ocular injuries J Maxillofac Oral Surg 2014;13:115-19.
4. Mohan D. The road ahead: traffic injuries and fatalities in India. New Delhi: Transportation Research and Injury Prevention Programme, Indian Institute of Technology Delhi; 2004:1-30
5. Jagnoor J. Road traffic injury prevention: a public health challenge. Indian J Community Med 2006;31:129-31
6. Singh R, Singh HK, Gupta SC, Kumar Y. Pattern, severity and circumstances of injuries sustained in road traffic accidents: a tertiary care hospital-based study. Indian J Community Med 2014;39:30-34
7. Agnihotri A, Galfat D, Agnihotri D. Incidence and pattern of maxillofacial trauma due to road traffic accidents: a prospective study. J Maxillofac Oral Surg 2014;13:184-88.
8. Prabhu P, Srinivas R, Vishwanathan K, Raavi A. Factors influencing alcohol and tobacco addiction among patients attending a deaddiction Centre, South India. J Int Soc Prev Community Dent 2014;4:103-07
9. Arosarena OA, Fritsch TA, Hsueh Y, Aynehchi B, Haug R. Maxillofacial injuries and violence against women. Arch Facial Plast Surg 2009;11:48-52
10. Bataineh AB. Etiology and incidence of maxillofacial fractures in the north of Jordan. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1998;86:31-35
11. Ferreira P, Marques M, Pinho C, Rodrigues J, Reis J, Amarante J. Midfacial fractures in children and adolescents: a review of 492 cases. Br J Oral Maxillofac Surg 2004;42:501-05
12. Motamedi MHK, Dadgar E, Ebrahimi A, et al;. Pattern of maxillofacial fractures: a 5-year analysis of 8,818 patients. J Trauma Acute Care Surg 2014;77:630–34
13. Ogundare BO, Bonnick A, Bayley N. Pattern of mandibular fractures in an urban major trauma center. Journal of Oral and Maxillofacial Surgery 2003;61:713–18
14. Shapiro AJ, Michael Johnson R, Miller SF, et al. Facial fractures in a level I trauma centre: the importance of protective devices and alcohol abuse. Injury 2001;32:353–66
15. Vande Griend ZP, Hashemi A, Shkoukani M. Changing trends in adult facial trauma epidemiology. J Craniofac Surg 2015;26:108–12
16. Stanaway JD, Afshin A, Gakidou E, et al;. Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990–2017: a systematic analysis for the global burden of disease study 2017. The Lancet 2018;392:1923–94
17. Shetty V, Glynn S, Brown KE. Psychosocial sequelae and correlates of orofacial injury. Dent Clin North Am 2003;47:141–57.