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A STUDY OF MANDIBULAR FRACTURES AT KANYAKUMARI GOVERNMENT MEDICAL COLLEGE HOSPITAL, SOUTH TAMILNADU

Plastic Surgery

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ABSTRACT

AIM & OBJECTIVES: The aim of the study is to analyze the incidence, etiology, type of injuries, treatment modalities and outcome of mandibular fractures in our institution.

METHODS: The study was conducted for three years from January 2016 - December 2018 . Data regarding incidence, etiology, site of fracture , treatment modalities & outcome of the cases were analysed.

RESULTS: Total of 579 cases were taken up for study . Young adult males were commonly affected. Road traffic accident was the common etiological factor with body of mandible being the commonest site . Most of them needed surgical intervention .

CONCLUSION: Mandible fractures were common among facio -maxillary injuries with ,Road traffic accident being most common etiology . The young males predominate the injury pattern which necessitates awareness among people regarding road safety and the importance of having a facio-maxillary unit in tertiary care hospital.

KEYWORDS

Accidents, fracture, injuries, mandible

INTRODUCTION

Trauma is a major cause of morbidity and mortality in both developed and developing countries. Facio-maxillary injuries occur in a significant proportion of trauma patients and account for 7.4-8.7% of cases in emergency care department[1]. These injuries are often associated with severe morbidity due to their proximity to vital organs such as brain and cervical vertebrae causing loss of function and death. More than 50% of patients with these injuries have poly trauma that requires coordinated management between emergency physicians ,anaesthetists, and surgical specialists in oral and maxillofacial surgery, neuro surgery, otolaryngology, plastic surgery, ophthalmology, and orthopedic surgery [2]. Trauma to the maxillofacial region mandates special attention as important sensory systems are contained (e.g. vision, auditory, somatic sensation, gustatory, olfaction and vestibular) within face and also vital structures in the head and neck region are intimately associated (airway, blood vessels, nerves and gastrointestinal tracts). Lastly, the psychological impact of disfigurement can be devastating. Among the facio-maxillary injuries mandibular fractures account for significant proportion. Objectives of this study was to evaluate the mandibular fractures in facio-maxillary injuries in our locality and to analyze the etiology, ,fracture site, management and outcome of the cases.

MATERIALS & METHODS

This study was conducted with a study group of cases with mandibular fractures managed in the Plastic & Reconstructive Surgery Department of the Kanyakumari Government Medical College, Nagercoil for a period of three years from Jan 2016 to Dec 2018. The study groups were selected based on inclusion & exclusion criteria.

INCLUSION CRITERIA

i. Patient with bony injuries of mandible

EXCLUSION CRITERIA

i. Patient requiring soft tissue reconstruction
ii. Polytrauma with GCS < 7/15.
iii. Le fort fractures

Ethical approval to conduct the study was obtained from the Institutional Ethical Review Committee before the commencement of the study. All the patients in the study group were well informed & taken written consent from them for the surgeries performed.

Data collected include patient age, gender, mode of injury, pattern & anatomical location of fractures, treatment modalities and outcome of the treatment. Demographic data of the patients were collected directly from patients and anatomical location and severity of the injuries were assessed by thorough clinical examination and investigation. Treatment modalities were planned based on clinical examination & investigation.

RESULTS

A total number of 2589 patients with facio-maxillary injuries were admitted & managed in the Department of Plastic & Reconstructive Surgery during the study period. Out of this 579 patients with mandibular fracture were taken up for study, of this 532 (88.43%) were males and 47(8.11%) were females showing a male predominance. Mandibular fractures were more common in the age group of 20-40years.

Table :1 Age & gender distribution

Age(yrs)	Males (532)	Females (47)
<20	12	-
21-30	154	20
31-40	125	14
41-50	121	7
51-60	81	5
>60	39	1

The most common etiology of mandibular fractures in our study was found to be road traffic accidents. Physical assaults were the next most common cause.

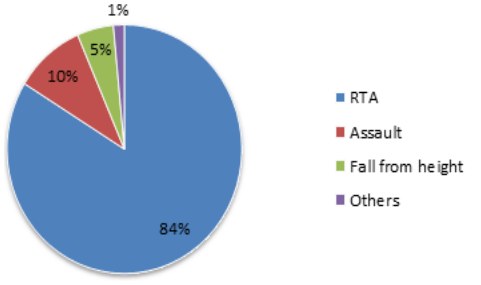

Fig 1: Etiology of facio-maxillary injuries.

Fracture site in mandible was distributed anatomically as - body 28%, condyle 23%, angle 18%, parasymphisis 16%, ramus 9%, alveolus 3%, coronoid 2%, symphisis 1% in our study.

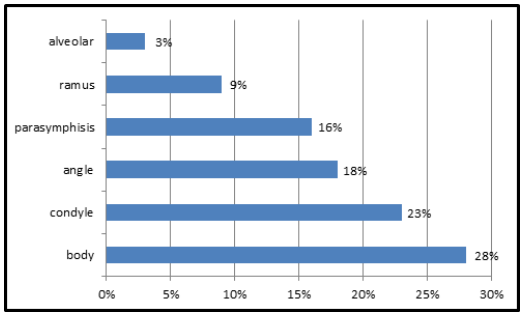

Fig: 1 Anatomical distribution of madibular injuries

Out of 579 patients, 408(70.5%) patients had undergone surgical intervention and 162(28%) patients were managed with eyelet wiring, intermaxillary fixation and Erlich arch bar fixation.

Post operative complications were seen in 7.1 % of patients like malocclusion, trismus, paresthesia, implant exposure, marginal mandibular nerve weakness and scar hypertrophy. Secondary infection was very rare due to adequate wound debridement followed by good post operative care.

Fig:3 Fracture mandible with malocclusion

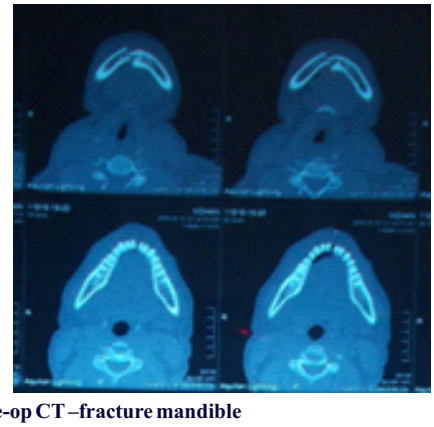

Fig:4 Pre-op CT –fracture mandible

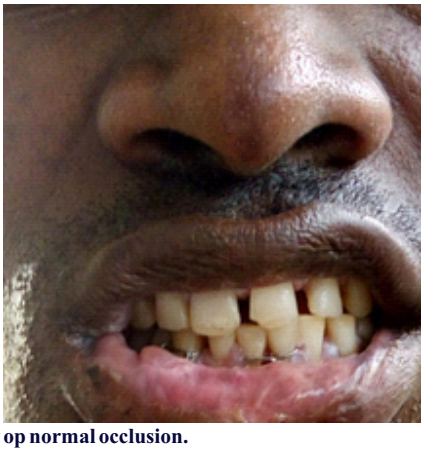

Fig:5 Post op normal occlusion.

Fig 6 Post op X-ray

DISCUSSION:

Among the facio-maxillary injuries , mandibular fractures take the brunt of injury. Published datas shows road traffic accidents are the major cause of facio-maxillary injuries[3-5]. According to WHO it has been estimated that more than 3000 people are killed every day on the road; at least 30,000 others are injured or disabled, so over 1.2 million people are killed and as many as 50 million injured each year [6]. The other causes of facio-maxillary injuries are fall from height , assault and occupational injuries. The etiology of maxillofacial injuries varies from one country to another and even within the same country depending on the prevailing socioeconomic, cultural and environmental factors[7-9]. Bone & soft tissue injuries of facio-maxillary injuries are challenge for Plastic Surgeons because of dual responsibility of repairing the aesthetic defect (anatomic correction) and restoration of function. Therefore a complete assessment, diagnosis and timely intervention are mandatory for the better outcome of the facio-maxillary injuries.

Earlier studies from Europe and America revealed that road traffic accidents were the most frequent cause of facial injuries[5,10]. However, more recent studies have shown that assault is now the most common cause of facio-maxillary injuries in developed countries[11,12] ,whereas traffic accidents remain the most frequent cause in many developing countries[13-15] .

Facio-maxillary injuries involves both soft tissue and bony injuries of face and vary from, soft tissue lacerations to complex fractures of maxillofacial skeleton. Of these , the mandibular fractures are more common. The pattern of these injuries depends on the mechanism of injury, magnitude and direction of impact force and anatomical site. The management of facio-maxillary injuries remains a challenge and demands both skill and expertise.

Of 2589 patients with facio-maxillary injuries, a sample of 579 cases with mandibular fracture were analysed. Of these , 522(90.15%) were males and 47(8.11%) were females. This male predominance correlates with earlier studies done by Gupta et al[16] & Gali et al[17] .The age group commonly affected was that of 20-40 years and was correlating with previous studies[16-19].

Road traffic accident is the most common etiology for facio-maxillary injuries in developing countries. In our study also road traffic accidents(83.76%) were the most common etiology which correlated with studies done by Sawhney et.al[20] (50%) and Gali et.al[17] (73.6%).

Among facio-maxillary injuries admitted , injuries of mandible were frequent, so our concern of study was pertaining to manibular injuries. The high incidence of isolated mandibular fracture from various studies may be attributed to prominence of lower jaw and also its exposed anatomical position on the face[17,18,20,21].

The management of mandibular fractures depends upon the anatomical site and derangement in occlusion. Treatment modalities include closed reduction with intermaxillary fixation or open reduction and internal fixation. Patient with unicortical fractures were treated conservatively without any surgical intervention. Dento-alveolar fractures were managed with arch bar fixation or inter dental wiring. Fractures involving the condyles were managed by intermaxillary fixation. Patient with malocclusion & contour deformities were taken

up for open reduction and internal fixation. In our study 70.5% of fractures needed open reduction & internal fixation .This agrees with studies done by Gali.et al[17], Dutta et al[19] & Miijiti et.al[22]. Mandible is a strong bone but has several areas of weakness that are prone to fracture[23,24]. In our study, commonest fracture site in mandible was body (28%), this was contradictory to previous studies[17,18,20,25], their findings were also vary with each other. A study done by Gupta et al[16] had similar findings as ours.

Complications following surgical management in our study was 7.1%, similar studies showed 6.4% & 25.26% of complication rate[17,26].

CONCLUSION

Facio-maxillary injuries especially mandibular injuries attributes significant proportion of trauma patients presenting to the emergency care. Proper clinical assessment, diagnosis and timely intervention within golden hours can help to restore cosmesis and function. Body of the mandible was the commonly fractured site in the present study and the site at which fracture occurs depends on magnitude of injury & direction of impact force. Majority of fracture mandible were managed by surgical interevention and the major etiological factor was road traffic accidents in young male adults who need to be educated regarding road safety. Implementation of strict rules and regulation by Goverment regarding prohibition of driving under the influence of alcohol, speed limit, regular use of seat belts and helmet , periodic maintenance of roads and health education can bring down the incidence of facio-maxillary injuries. Increasing incidence of facio-maxillary trauma highly necessitate a dedicated maxillo-facial units in every tertiary care hospital.

CONFLICT OF INTEREST: NIL

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