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Original Research Article

Prevalence and pattern of oral and maxillofacial trauma in Chhattisgarh- A retrospective study

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ABSTRACT

Background: Maxillofacial trauma is any physical trauma to the facial region, commonly encountered by maxillofacial surgeons, and is often associated with high morbidity and so constitute quite a significant portion of the workload of the oral and maxillofacial surgeon. Maxillofacial injuries can occur as an isolated injury or may be associated with multiple injuries in other parts of the body.

Purpose: To assess the patterns, etiology, and treatment modalities of maxillofacial trauma in a teaching hospital in central India, over a 12-year period.

Materials and Methods: Patients with maxillofacial trauma were identified using the department database and clinical records. 264 patients were identified with maxillofacial trauma in the department of oral and maxillofacial surgery between January 2006 and December 2018.

Results: The study showed that there was a male preponderance in all age groups over female. Of the 264 patients with maxillofacial injuries, 83.33% had isolated lower face (mandibular) fractures, followed by midface fractures (10.60%) and panfacial fractures (6.06%). Road traffic accidents (87.12%) were the most common form of etiology for trauma followed by assaults (10.98%). Most trauma were treated with open reduction internal fixation (89%) than closed reduction (11%).

Conclusion: The etiology and pattern of maxillofacial injuries reflect the trauma patterns within the community and can thus provide a guide to help design programs toward prevention and treatment.

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1. Introduction

Facial fractures constitute quite a significant portion of the workload of the oral and maxillofacial surgeon. Fractures of the facial skeleton alone are rarely fatal but concomitant injuries to internal organs can be a complicating factor.¹ These injuries seldom occur in isolation, and literature abounds with reports of other non-facial injuries often occurring in association with facial injuries.² Therefore, optimum care of a maxillofacial trauma patient would entail careful detection of all injuries. In an emergency

situation, however, examination of the multiply injured patient could be daunting and the risk of underdiagnosis is high.^{3,4} Many epidemiological studies on the pattern of maxillofacial injuries have been published from different areas of country, but the demographic data is difficult to evaluate due to many variables. Most statistical analysis of maxillofacial injuries have been retrospective.^{5–8} However, knowledge is limited on the patterns of maxillofacial injuries related to road accidents in developing countries. Their etiology and prevalence are influenced by social, cultural and environmental factors.

Periodic verification of the aetiology of maxillofacial injuries in a particular region/area helps to analyse

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and formulate appropriate preventive strategies. Similarly, review of management techniques and their outcome enhances improvement in practice.⁹

The purpose of this article was to analyze the prevalence of maxillofacial injuries in this part of India with their distribution pattern.

2. Materials and Methods

During 2006–2018, 264 patients with maxillofacial trauma were treated at Chhattisgarh dental college and research institute, Rajnandgaon, India. We retrospectively reviewed and analyzed the patient records using the hospital database. The characteristics of these fractures were analyzed. Information extracted from these patients' case records included age, sex, etiology, and site of fracture and the treatment modality used in the past 12 years of time span. Patients sustaining dentoalveolar fractures and malunited fractures were excluded from the study. Fractures were assessed for gender prevalence. The etiology of injuries was classified as RTAs, assaults and miscellaneous. Overall fractures were classified as mandibular (single/multiple), mid face, panfacial and zygomaticomaxillary complex fractures. Anatomically mandibular fractures were divided into six regions (symphysis, parasymphysis, body, angle, ramus and condyle). Treatment modalities were considered under two categories (open and closed).

3. Results

A retrospective hospital-based study of maxillofacial injury patients was carried out at the department of oral and maxillofacial surgery of Chhattisgarh dental college and research institute, Rajnandgaon, central India, from 2006 to 2018.

The study population comprised of 264 patients, out of which 240(90.9%) were males and 24(9.09%) were females giving a male to female ratio as 10:1. Age range of patients were 16 to 50 years.

The results showed highly significant relation between maxillofacial trauma and road traffic accidents (87.12%). Assaults were the second leading cause of fractures (10.8%). Other causes such as falls, and sport injuries included 1.89% cases.

The site distribution of the fractures showed that 83.3% occurred in the mandible, 10.60% occurred in midface and 6.06% presented with panfacial trauma including zygomatic complex fractures. Out of 220 Fractures of mandible, 74% fractures were found in parasymphysis region, 18% in condyle region, 15% in symphysis, 11% in angle, 5% in body and 1% in ramus region. Out of 264 patients, 28 had midface fractures and 16 patients had panfacial trauma. Out of 44 such patients, 37 patients sustained zygomaticomaxillary complex(ZMC) fractures. Majority of patients underwent open reduction and internal fixation

(89%) and only 11% were treated with closed reduction.

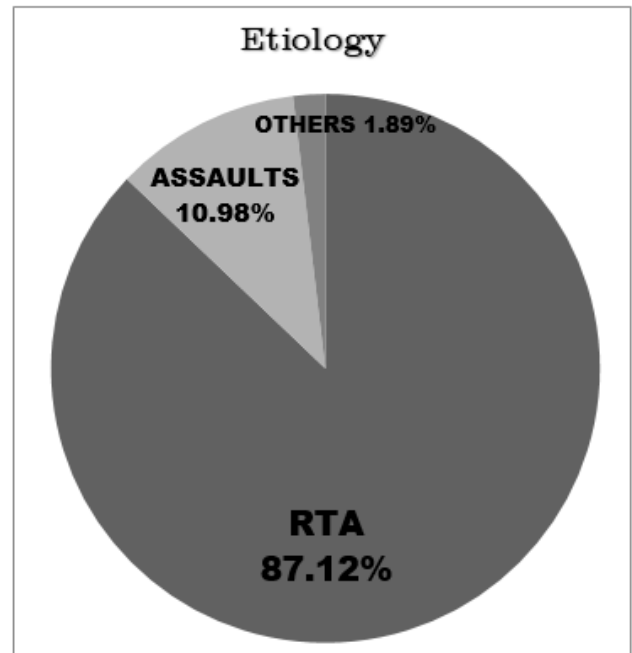


Fig. 1: Showing the etiological factors

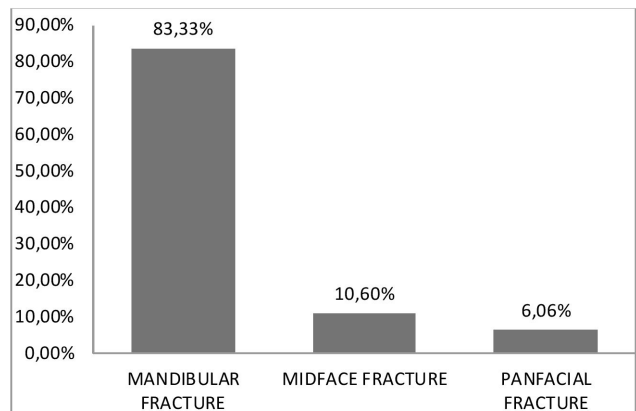


Fig. 2: Showing type of fractures

4. Discussion

Maxillofacial Fractures (MFF) not only cause serious injuries to the victim but also impose a serious burden on the society due to significant morbidity, mortality, facial disfigurement, loss of function, and financial expenses associated with the injuries.¹⁰ Epidemiological studies of maxillofacial injuries are numerous in the trauma, surgical, dental, and medical literature globally. Such data varies in different parts of the world, different countries, and even different regions of the same country due to the

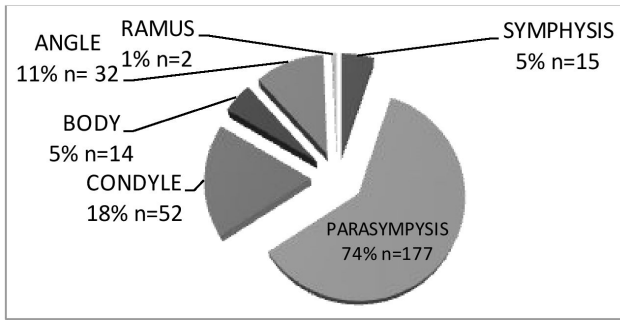


Fig. 3: Showing distribution of mandibular fracture

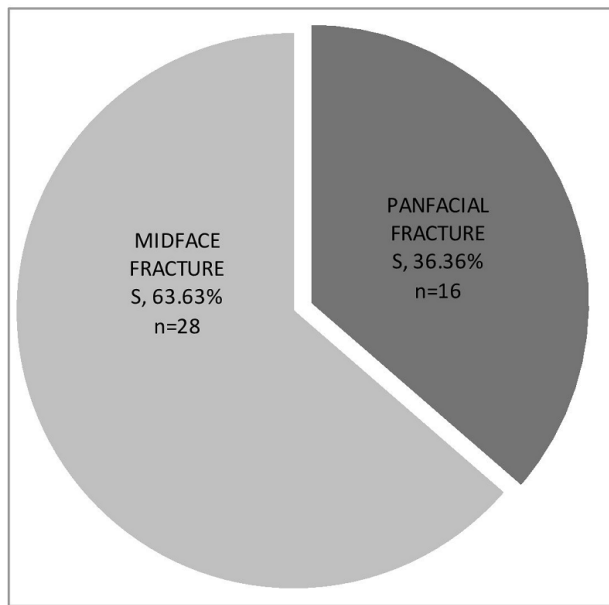


Fig. 4: Showing distribution of midface and pan facial fractures

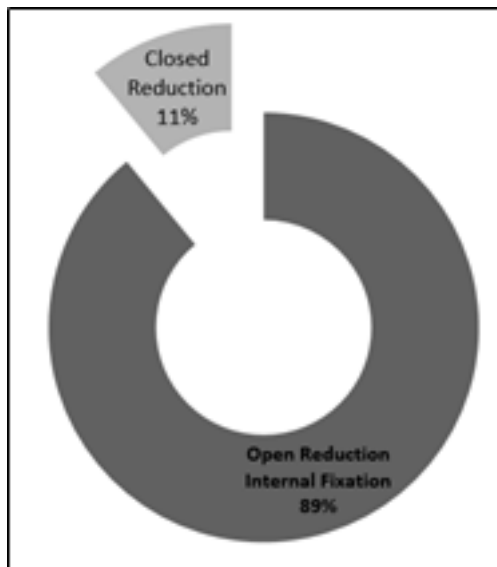


Fig. 5: Showing distribution of preferred treatment modalities

environmental, socioeconomic, and cultural and lifestyle differences. It has also varied over time.¹¹

In the present study, the maxillofacial trauma was mostly observed in the third and fourth decades of life. The highest occurrence of trauma was seen between 2nd and 3rd decades of life. The male-to-female ratio in this study was found to be 10:1, which is higher compared to other studies.^{12,13} However, the prominence of males is the consistent finding similar to other studies.^{14,15} A predilection for mandibular fractures, especially the condylar and symphysis fractures was frequently observed.

In maxillofacial trauma, significant differences have been noted in children from adults as far as the facial skeleton is concerned and hence they represent a special group of patients. Based on the age, these differences include the small size of the bones, the growth potential, a quicker healing process, the small volume of the paranasal sinuses, the presence of tooth germs in the jaws during the primary and the mixed dentition, as well as difficulty in cooperation and the need for general anaesthesia in more cases than in adults. In our study, the youngest patient was 16 years old.

We did not encounter patients with any injuries to the limbs or head injuries in our analysis. This can be due to the fact that our institution is a dental hospital, and thus, patients prefer to go to the higher centres for treatment.

During the survey period, the highest incidence of maxillofacial fractures was during September and October, the monsoon season. Reduced visibility, bad maintenance of vehicles, poor roads, and bad driving all contributed to the increased number of injuries. Reluctance to use helmets, exceeding speed limits, lack of tolerance, and increasing competition among young men could explain the increased incidence of facial injuries and mandibular fractures in particular. These statistics highlight the importance of road crashes in this part of India.

The limitations of our study include (i) as this is a retrospective study, we were not able to gauge the impact of various patterns of fracture had on the patient's social life and (ii) only inpatient records were included for analysis.

5. Source of Funding

None.

6. Conflict of Interest

None.

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