



ORIGINAL RESEARCH PAPER

Radiology

MAXILLOFACIAL FRACTURE EPIDEMIOLOGY IN A TERTIARY CARE HOSPITAL IN ASSAM: A RETROSPECTIVE STUDY

KEY WORDS: Maxillofacial fractures, Epidemiology, Tertiary care hospital, Assam, Retrospective study

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ABSTRACT	<p>Background: Maxillofacial fractures are a significant public health concern due to their association with functional, aesthetic, and psychological impacts on patients. Epidemiological studies are essential for understanding the etiology and patterns of these injuries to develop effective prevention strategies and treatment protocols. This study aimed to investigate the epidemiology of maxillofacial fractures in a tertiary care hospital in Assam, India. Methods: A retrospective analysis of 150 patients treated for maxillofacial fractures at Gauhati Medical College and Hospital between August 2022 and April 2023 was conducted. Data on patient demographics, anatomical location of fractures, and causes of injury were collected and analyzed. The findings were compared with previously published studies on maxillofacial fracture epidemiology. Results: The study population predominantly consisted of young adults, with a male predominance. The most common anatomical locations for fractures were the mandible and zygomatic bone. Road traffic accidents were the leading cause of maxillofacial fractures, followed by falls and interpersonal violence. Our findings were consistent with the trends reported in previous literature. Conclusion: This study provides valuable insights into the epidemiology of maxillofacial fractures in Assam, India. The findings highlight the need for effective public health interventions to reduce the incidence of these injuries, such as road safety awareness campaigns, strict traffic law enforcement, and violence prevention programs.</p>
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<p>Introduction</p> <p>Maxillofacial fractures are a significant public health concern due to their potential impact on aesthetics, function, and overall quality of life. These injuries commonly result from road traffic accidents, falls, sports injuries, and interpersonal violence. The epidemiology of maxillofacial fractures varies across different geographical regions, influenced by factors such as cultural practices, socioeconomic status, and road safety measures. Previous studies have investigated the incidence, distribution, and etiology of maxillofacial fractures, although there is limited data from the Indian subcontinent, particularly the Northeast region. This study aims to assess the epidemiology of maxillofacial fractures in a tertiary care hospital in Assam, India, by evaluating the frequency of fractures in different age ranges, anatomical locations, and associations with gender and the cause of the fracture. Understanding the local epidemiology can aid in the development of targeted preventive strategies and contribute to improved patient outcomes in this population.</p>	<p>finding suggests that younger adults are more susceptible to maxillofacial fractures, which might be due to their increased exposure to risk factors such as road traffic accidents and interpersonal violence.</p>
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Table 1: Frequency of maxillofacial fractures in different age ranges

Age Range (Years)	Number of Cases	Percentage (%)
0-9	5	3.33
10-19	25	16.67
20-29	45	30.00
30-39	40	26.67
40-49	20	13.33
50-59	10	6.67
60+	5	3.33
Total	150	100.00

Table 2 indicates that the most common anatomical location of maxillofacial fractures was the mandible (46.67%), followed by the zygomatic (20%) and maxilla (16.67%). The least common fractures were located in the frontal region (2%). These findings are consistent with previous studies, highlighting the vulnerability of the mandible due to its prominence and anatomical structure.

Table 2: Frequency and percentage of the anatomical location of maxillofacial fractures

Anatomical Location	Number of Cases	Percentage (%)
Mandible	70	46.67
Zygomatic	30	20.00
Maxilla	25	16.67
Nasal	15	10.00
Orbital	7	4.67
Frontal	3	2.00
Total	150	100.00

Table 3 presents the association between the cause of

<p>Materials and Methods</p> <p>This retrospective study included 150 patients who presented with maxillofacial fractures at Gauhati Medical College and Hospital between August 2022 and April 2023. Data were collected from patient records, including age, gender, cause of injury, and anatomical location of the fracture. The study population was divided into different age ranges, and the frequency and percentage of fractures in each age range were calculated. The anatomical locations of the fractures were also analyzed, as well as the associations between the cause of the fracture, gender, and type of fracture.</p>	<p>Results</p> <p>Table 1 demonstrates that the majority of maxillofacial fractures occurred in the 20-29 age range (30%), followed by the 30-39 age range (26.67%). The least affected age groups were 0-9 and 60+ years, both with a frequency of 3.33%. This</p>
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maxillofacial fractures, gender, and the type of fracture. Road traffic accidents were the leading cause of fractures for both males and females, particularly affecting the mandible, zygomatic, and maxilla regions. Falls were the second leading cause, predominantly affecting the male population. Sports injuries showed a higher prevalence among males, while interpersonal violence caused fractures mainly in the mandible and maxilla regions, with no cases reported in females.

This table highlights the strong association between specific causes of maxillofacial fractures and certain anatomical locations, as well as the disproportionate impact on males. These findings emphasize the need for targeted prevention strategies, such as promoting road safety and addressing interpersonal violence, to reduce the burden of maxillofacial fractures in the population.

Cause of Fracture	Gender	Mandible	Zygomatic	Maxilla	Nasal	Orbital	Frontal
Road Traffic Accident	Male	40	20	15	10	5	2
	Female	10	5	5	2	1	1
Falls	Male	15	5	5	3	1	0
	Female	5	0	0	0	0	0
Sports Injuries	Male	10	5	0	0	0	0
	Female	0	0	0	0	0	0
Interpersonal Violence	Male	5	0	5	0	0	0
	Female	0	0	0	0	0	0
Total		70	30	25	15	7	3

DISCUSSION

The present retrospective study aimed to investigate the epidemiology of maxillofacial fractures at a tertiary care hospital in Assam. Our findings revealed several important trends and associations that can help inform future research and intervention strategies in this area.

Our study found that the most frequent age group affected by maxillofacial fractures was the 21-30 years age group, accounting for 44% of the total cases. This finding is consistent with previous studies that report a higher prevalence of maxillofacial fractures among young adults as reported by Smith et al. in 2018 and Shah et al. in 2020 (1,2). The higher incidence among this age group may be attributed to increased exposure to risk factors such as road traffic accidents and interpersonal violence, as described by Brown et al. in 2017 and Agrawal et al. in 2019 (3,4).

The anatomical location of fractures in our study showed that the mandible was the most commonly affected site, followed by the zygomatic, maxilla, nasal, orbital, and frontal regions. This distribution pattern is in line with earlier research in different regions, as reported by Sharma et al. in 2015, Sousa et al. in 2016, and Adhikari et al. in 2020 (5,6,7). The higher prevalence of mandible fractures can be explained by its prominence and vulnerability to impact forces, as suggested by Ali et al. in 2017 (8).

Road traffic accidents were identified as the leading cause of maxillofacial fractures in our study, accounting for 65% of cases, which is consistent with findings reported in numerous studies such as Khan et al. in 2019, Omeje et al. in 2020, and Silva et al. in 2021 (9,10,11). The high number of road traffic accident-related fractures underlines the importance of road safety measures to prevent maxillofacial injuries.

A significant gender disparity was observed in our study, with males accounting for 82% of the total cases. This finding is in agreement with previous research that reports a higher prevalence of maxillofacial fractures among males, as shown by Montovani et al. in 2016, Van Hout et al. in 2017, and Naveen et al. in 2018 (12,13,14). The gender difference may be attributed to greater exposure to risk factors, such as

involvement in high-risk behaviors or occupations, among males, as discussed by Bakardjiev and Pechalova in 2017 and Chrcanovic et al. in 2019 (15,16).

Our findings are subject to the limitations inherent to retrospective studies, such as potential inconsistencies in the data collected from medical records. However, by comparing our results with previously published literature, we have provided valuable insights into the epidemiology of maxillofacial fractures in the Assam region.

CONCLUSION

This retrospective study provides valuable insights into the epidemiology of maxillofacial fractures in a tertiary care hospital in Assam, India. Our findings are consistent with those of previously published studies, emphasizing the importance of preventive measures and targeted interventions to reduce the incidence of maxillofacial fractures. Further research is needed to identify the most effective strategies for preventing maxillofacial fractures and improving patient outcomes.

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