

Original Article

Pattern of maxillofacial fractures in Uyo, Southern Nigeria

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ABSTRACT

Background: Maxillofacial injuries make up a large proportion of reported cases of trauma. The rise in the number of complex and high-energy injuries encountered among patients make it inevitable for one to be on the lookout for associated maxillofacial injuries. **Aim:** The aim of this study was to determine the pattern of maxillofacial fracture in patients who presented at the University of Uyo Teaching Hospital, Uyo, Nigeria. **Methods:** A 4-year retrospective review of maxillofacial fractures, from October 2008 to September 2012 in the University of Uyo Teaching Hospital, Uyo, Southern Nigeria is presented. **Results:** A total of 215 patients were seen in the period under review. 66.67% were males and 33.03% females, giving a male to female ratio of 2:1. The age of patients varied between 10 and 70 years. 67.9% of the patients were in the age bracket of 21-40 years, and the mean age of patients was 30 years. Road traffic accidents were responsible for the fractures in 80% of cases while 9% of fractures were due to falls. 66% of patients had mandibular fractures, with fractures of the body of the mandible accounting for 41.67% of mandibular fractures. 34% of the patients had maxillary fractures. Zygomatic fractures were the most common maxillary fractures accounting for 45% while Le Fort III fractures accounted for 2.82% of maxillary fractures. **Conclusion:** This study shows that road traffic injuries are the most common causes of facial fractures in our setting. Majority of the fractures in maxillofacial injury were found in the mandible (66%) followed by maxilla (44%).

Key words: Accidents, etiology, road, traffic

INTRODUCTION

Maxillofacial injuries constitute a serious clinical, psychological, and physical challenge to patients, and clinicians alike because of the peculiar anatomy of the face. Increase in urbanization, social life, high-speed travels, and traffic congestion on our highways all combine to make trauma including maxillofacial trauma, a public health challenge.

Demographic distributions of facial trauma in patients have been variously described.^[1] The pattern of maxillofacial fractures varies widely among countries.^[2-4] The differences in the incidence of maxillofacial fractures as recorded worldwide is due to variation in demographic factors such as age, sex, industrialization, status of the patient as well as geographical location.^[5]

Although there have been previous reports on maxillofacial fractures elsewhere in Nigeria,^[2,6] there has been hitherto no such reports in the rapidly evolving urban area of Uyo, Southern Nigeria. Data from this study are expected to provide the springboard for future research into the subject of maxillofacial injuries in Uyo and its settings, as well as strengthening the public health awareness of the burden created by maxillofacial injuries in this environment.

Access this article online	
Quick Response Code:	Website: www.ijamhrjournal.org
	DOI: 10.4103/2349-4220.172886

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METHODS

This is a retrospective analysis where the case notes of all patients who presented with maxillofacial injuries at the Accident and Emergency and Dental Surgery Department of the University of Uyo Teaching Hospital, Uyo, between October 2008 and September 2012 were retrieved. These were retrospectively analyzed for maxillofacial fractures, noting the patients' age, gender, mechanisms of injuries, and sites of fractures. All patients with maxillofacial fractures were included in the study. Those with only soft tissue injuries were excluded. Mandible was divided into condyle, angle, body, symphysis, parasymphysis, dentoalveolar and ramus. While the maxilla was divided into dentoalveolar, Le Fort, zygoma, and infraorbital region. Data generated were analyzed manually.

RESULTS

A total of 3140 patients presented with maxillofacial injuries within the period under review. 215 (6.85%) of the patients had maxillofacial fractures. 144 (66.97%) were males and 71 (33.03%) were females, giving a male to female ratio of 2:1. The age of the patients varied between 10 and 70 years. 146 (67.90%) patients were in the age bracket of 21-40 years. 32 (14.88%) patients were in the age range of 10-20 years. The elderly accounted for 8 (3.72%) of the total number of patients. The mean age of the patients was 30 years [Table 1].

Totally, 172 (80%) cases were caused by road traffic accidents while falls accounted for 19 (9%) cases. The third most common cause of maxillofacial fractures was assault, occurring in 13 (6%) of the cases. Industrial accidents were responsible for 4 (2%) fractures while sports accounted for 7 (3%) cases.

Mandibular fractures were recorded in 144 (66%) patients. The body of the mandible was the most common site of fractures, accounting for 60 (41.67%) of the mandibular fractures. The angle of the mandible was fractured in 41 (28.47%) patients. Condylar fractures were recorded in 5 (3.47%) patients. Maxillary fractures were recorded in 71 (34%) patients. The zygomatic bone was the most commonly fractured accounting for 32 (45.07%) of the maxillary fractures [Table 2]. On the overall, the most common site of maxillofacial fractures in this study was the body of the mandible (27.91%). This is followed by angle of the mandible (19.07%) and the zygoma (14.88%).

DISCUSSION

In the past 5 years, the city of Uyo, Southern Nigeria, has witnessed increased socioeconomic activities

Table 1: Age distribution

Age distribution (years)	Frequency	Percentage
10-20	32	14.88
21-30	86	40.00
31-40	60	27.91
41-50	17	7.91
51-60	10	4.65
61-70	8	3.72
Total	215	100

Mean age: 30

Table 2: Distribution of maxillofacial fractures

Site of fracture	Frequency	Percentage
Mandibular fractures		
Condyle	5	3.47
Angle	41	28.47
Body	60	41.67
Symphysis/parasymphysis	18	12.5
Dentoalveolar	12	8.33
Ramus	8	5.56
Total	144	100
Maxillary fractures		
Dentoalveolar	8	11.27
Le Fort I	9	12.68
Le Fort II	5	7.04
Le Fort III	2	2.82
Zygoma	32	45.07
Infraorbital	11	15.49
Nasal	4	5.6
Total	71	100

resulting from the rapid influx of human and vehicular traffic. This has brought with it a rise in various forms of trauma occasioned by road traffic injuries, assaults, communal violence, and various forms of criminal activities. Consequently, injury patterns are beginning to emerge, and it is interesting to note that maxillofacial injuries contribute significantly to this emerging trend.

Of the 3140 maxillofacial injuries seen, 215 (6.85%) were fractures. The preponderance of males over females in the ratio of 2:1, as seen in this study, is in agreement with the general trend of trauma.^[7-9] This trend can be explained by the fact that more males than females seem to be involved in rigorous outdoor activities in the course of activities of daily living, and these predispose them to various forms of accidents and violence. Furthermore, males are more likely than females to be involved in high-risk activities such as reckless driving, motorbike riding, contact sports, drug, and alcohol abuse.^[10]

Most of the patients in our study were young adults [Table 1], between the ages of 20 and 40 years. This

is the age range that makes up the vast majority of the workforce in our environment, and, therefore, the most physically and socially active. This finding is not different from that reported by other authors.^[11-14] It has been shown that, in general, young people suffer more from trauma than elder people.^[15]

Rapid urbanization, with the attendant increase in human population and vehicular movement, is a conspicuous feature of the Uyo city metropolis. Nonprotected motorized devices such as motorbikes and tricycles are the mainstay of public transportation in the city and its environs. The operators of these vehicles are often under the influence of alcohol. They combine recklessness with over speeding, overloading, nonmaintenance of their vehicles and general disregard for traffic laws. Furthermore, the roads are poorly maintained. These factors probably explain the predominance of road traffic injuries in the etiology of maxillofacial fractures. Other evidence exists to show that road traffic injuries are a leading cause of maxillofacial injuries in the developing countries.^[6,7,16] This is different from the situation in the developed countries, where interpersonal violence and assaults are responsible for 40-79% of maxillofacial fractures.^[17-19] In Sweden, for instance, 79% of maxillofacial fractures were due to violence, which in turn was linked to alcohol or narcotics in 56% of cases.^[17] Our study showed that the assault was responsible for 6% of maxillofacial fractures. It is, however, possible that assaults in our environment are under-reported, especially when they are linked to domestic violence. It is believed that such violence is generally unlikely to be reported when women are involved as victims.^[20]

The mandible was the most commonly fractured facial bone in our study. This finding has been corroborated by other authors.^[21-23] This may be explained by the fact that the mandible is the most prominent and the most movable of the facial bones and, therefore, more likely to be injured than the well-articulated mid-facial bones.^[24] This observation is in contrast to the study by Snehali *et al.*, in a study in India who reported that parasymphiseal fracture was the most common in the mandible.^[25] However, Dimitroulis and Eyre,^[26] reported the mid-face as the most common site of maxillofacial fractures. This difference in the pattern of the injuries may be related to the mechanisms of injury.

CONCLUSION

This study shows that road traffic injuries are the most common causes of facial fractures in our environment. Majority of the fractures found in the mandible (66%)

followed by maxilla (44%) in maxillofacial injury. There is need for future research on the safety of alternatives to road transportation, such as railways and waterways, as is the situation in the developed countries to minimize the incidence of injuries arising from excessive use of the roads.

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How to cite this article: Nwashindi A, Dim EM, Uduma FU, Akhiwu BB. Pattern of maxillofacial fractures in uyo, southern Nigeria. *Int J Adv Med Health Res* 2015;2:91-4.
Source of Support: Nil, **Conflicts of Interest:** None declared.

