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Sports related maxillofacial fractures in 77 Nigerian patients

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Summary

A ten-year review of seventy-seven maxillofacial fractures due to sports seen and treated at the Maxillofacial Unit, Ring Road State Hospital, Ibadan and University College Hospital, Ibadan is presented. Majority of the patients were in the 21-30 years age group. The male to female ratio was 4.1:1. Males were more involved than females. The mandible (54.5%) was more involved in sports injuries than the middle third region of the face. The most common sport implicated in maxillofacial fracture was soccer followed by boxing. A greater percentage of the patients (57.1%) had closed reduction and fixation. Though sports related maxillofacial fractures tend to be less grave than those due to road traffic accidents, they could be lessened by the use of mouth and face guards.

Keywords: Sports, maxillofacial, fractures, Nigerians

Résumé

Une revue de dix ans, de soixante dix sept fractures maxillofaciales due au sport, consultées et traitées dans le Département maxillofacial, Ring Road State Hospital, Ibadan, et le centre Hospitalier Universitaire (CHU), Ibadan est ici présentée. La majorité des malades étaient entre 21-30 ans d'âge. La proportion homme, femme était de 4, 1:1. Les hommes étaient plus concernés que les femmes. La mandibule (54, 5%) était plus impliquée dans les accidents de sports que le centre du tiers de la région faciale. Le sport commun le plus concerné dans les fractures maxillo-faciales était le football suivi de la boxe. Un taux de pourcentage élevé (57,1%) de malades avait une réduction fermée et fixation. Bien que les fractures maxillofaciales liées aux sports tendent à être moins graves que ceux causés par les accidents de circulation elles peuvent être réduites par l'usage des protèges-bouche et face.

Introduction

Although many studies have been done on the aetiology and the results of treatment of maxillofacial injuries [1,2,3,4] there is paucity of literature on the aetiology of maxillofacial sports injuries. The objective of this study is to assess maxillofacial fractures due to sports presenting at the casualty department of the University College Hospital, Ibadan and the Maxillofacial Unit, Ring Road State Hospital, Ibadan.

Patients and methods

Patients that presented and were treated for maxillofacial fractures due to sports activities between January, 1989 and

December, 1998 at the Maxillofacial Unit, Ring Road State Hospital, Ibadan and Department of Oral and Maxillofacial Surgery, University College Hospital, Ibadan were included. The data gathered incorporated 1422 cases from the two hospitals; 1203 cases of maxillofacial fractures from the University College Hospital, Ibadan, and 219 cases from the Ring Road State Hospital, Ibadan. Out of these number, 59 cases of sports - related maxillofacial fractures were seen at the University College Hospital, while 18 cases were seen at the Ring Road State Hospital, Ibadan, amounting to 77 cases of sports - related facial fractures in the two hospitals.

Information considered for analysis were age, sex, type of sports, causes of sports injuries, site of fractures, time of presentation and the methods of treatment.

Causes of sports injuries were divided into three according to Seguin *et al.* [5].

These are:

1. impact against another player
2. impact against the ground and
3. impact against field equipment and/or game equipment

Results

Prevalence

A total number of 1422 cases of maxillofacial fractures were seen over the 10 year period. Seventy-seven (5.4%) were due to sports injuries.

Age and sex distribution

Of the 77 cases seen, the age range of patients was between 6-52 years. The highest incidence was in the 21-30 year age group (40 cases, 51.9%) while the lowest incidence was in the age range of 41-50 and >51 (Table 1). There were 62 males and 15 females (M: F = 4.1:1).

Table 1: Age distribution of 77 patients with sports related maxillofacial fractures in Ibadan.

Age range (Years)	No. of patient	Percentage
0-10	3	3.9
11-20	29	37.7
21-30	40	51.9
31-40	3	3.9
41-50	1	1.3
>51	1	1.3
Total	77	100

Type of sports

The patients were involved in 10 different sports. Soccer was the commonest type of sports involved in maxillofacial fractures accounting for 34 (44.1%). The least type was golf (1.3%). The other causes are as indicated in (Table 2).

Causes of sports injuries

These were impact against another player (66, 85.7%), impact against sports ground (7, 9.1%) and impact against field and/or game equipment (4, 5.2%). (Fig. 1)

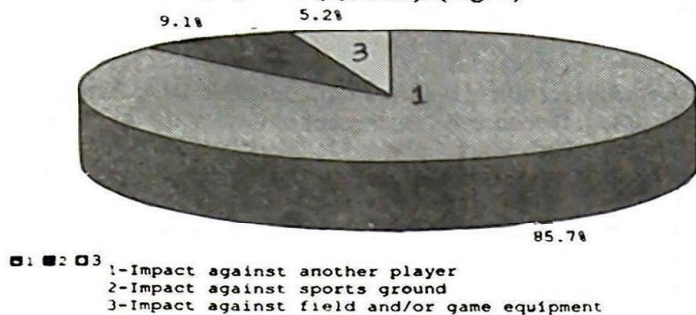


Fig 1: Causes of sports injuries

Site of fractures

Most patients sustained mandibular fractures (42 cases, 54.5%) followed by alveolar fractures (17 cases, 22.1%). Six patients sustained multiple fractures and twelve patients

Table 2: Type of sports involved in maxillofacial fractures in Ibadan

Type of Sports	No. of Patients	%
Soccer	34	44.1
Boxing	12	15.6
Bicycle racing	8	10.4
Wrestling	7	9.1
Hockey	5	6.5
Lawn tennis	3	3.9
Karate	3	3.9
Basket ball	2	2.6
Hand ball	2	2.6
Golf	1	1.3
Total	77	100

sustained only middle third fractures. When the 53 fractures of the mandible were analysed, the most common fractured site was the angle (21 cases, 39.6%), followed by the body (16 cases, 30.2%), the parasymphysis (11 cases, 20.7%); the condyle (4 cases, 7.5%) and the ascending ramus (1 case, 2.0%). There was no fracture of the coronoid process. (Fig. 2).

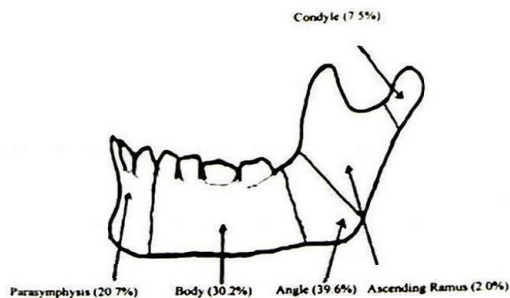


Fig. 2: Sites of the mandible involved in sports related maxillofacial injuries

For the middle third fractures, out of twelve middle third fractures, fractures of the zygomatic/zygomatic complex (8 cases 66.6%) were the commonest.

Time of presentation

Twenty-one (27.3%) of the 77 patients were seen within the first 24 hours, 31 (40.2%) came for treatment from 24 to 48 hours, 13 (16.9%) presented for treatment between 3 and 7 days, 4 (5.2%) were seen between 7 and 14 days while 8 (10.4%) patients were seen after two weeks (Table 3).

Table 3: Time interval between injury and presentation for treatment

Duration	No. of patients	%
The first 24 hours	21	27.3
24 – 48 hours	31	40.2
3 – 7 days	13	16.9
7 – 14 days	4	5.2
> 2 weeks	8	10.4
	77	100

Treatment

Conservative management was performed in 27 (35.1%) of the 77 cases, closed reduction and fixation in 44 (57.1%) cases, while open reduction and fixation was utilized in 6 (7.8%) cases. (Fig.3).

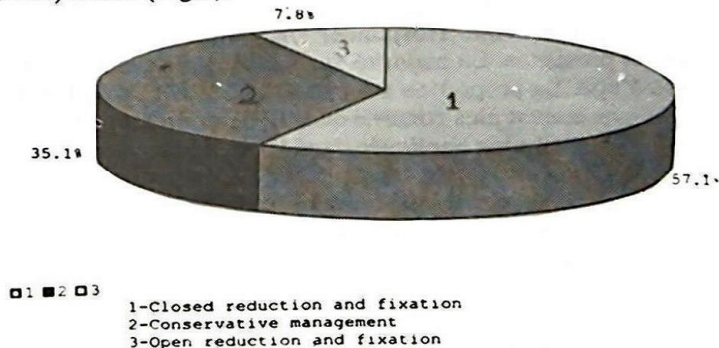


Fig 3: Types of treatment used for sports related maxillofacial fractures

Discussion

This is an obvious increase in the incidence of maxillofacial fractures due to sports all over the world [6]; nevertheless, detailed analysis of sports-related maxillofacial fractures are scanty. In developed countries, the incidence of maxillofacial fractures in sportsmen has been reported to be between 2.5% and 28.5% [6,7].

In this study, the incidence of maxillofacial fractures due to sports was found to be 5.4%. This is greater than incidences between 0.9% and 3.1% earlier reported in Nigeria [1,2,3]. Incidence depends on the participation of people in sports activities and the magnitude of sports facilities. In Nigeria, as a result of huge financial resources expended and the attractive rewards attached to sporting activities by the government, corporate establishments and individuals, sports has become an attractive vocation for active Nigerians. The quest for excellence demonstrated by increased and keen involvement of the young and the old

resulted in the corresponding increase in incidence of maxillofacial fractures.

Maxillofacial fractures were seen in ten different sports in this study as against nineteen [6] and twenty-one [8] in studies in developed countries. This shows a greater interest in sport development in these countries.

Most of the patients seen in this study were in the second and third decades of life. This is in agreement with previous studies [6,7,8], which stated that the dominant outdoor activities of these age groups are responsible. The possibility of active involvement of all other age groups in the future should not be ruled out in view of motivation being given to sportsmen and women. The sex incidence of M:F ratio 4.1:1 of males due to increased activity conforms with the results of studies done in Japan [6] and the United Kingdom [9].

In this study, maxillofacial fractures were most commonly associated with soccer and boxing, followed by bicycle racing and wrestling. This is in contrast with other studies, which showed that rugby was most involved in [6,7]. Soccer still remains the most popular sports in Nigeria because of active participation of government and private sector in its funding. Sports such as rugby and baseball are unpopular in Nigeria.

It is not surprising that impact against player was the most common cause of sports-related fracture in this study accounting for 85.7% of fractures. This is in agreement with a previous study from Japan [6]. This arose during contact sports such as soccer and boxing, which were the two commonest sports in this study.

This study confirmed the fact that the mandible and alveolar regions were the most common sites in sports related maxillofacial fractures. This involvement of the mandible is due to its relative protuberance and susceptibility to impact. The small number of six patients found to have multiple fractures showed that serious fractures are rare in sport injuries when compared to facial fractures due to RTA and assaults. Lefort fractures were very uncommon.

Only 27.3% of patients in this study presented within the first 24 hours of sports injury. This is in contrast to presentation in developed countries where 50% of patients were seen in the first 24 hours after maxillofacial injury [10]. Factors such as lack of maxillofacial personnel and failure of other specialists to recognise facial fractures could be important.

Thirty-five percent of patients in this study required conservative management. This is similar to fifty percent of patients recorded in a study done in the United Kingdom [8]. This shows that sports-related maxillofacial fractures tend to be less grave than those caused by road traffic accidents and

assaults. The discovery that the prevalence of sports-related maxillofacial fractures is rising in the study shows that rules and regulations guiding the sports and facilities should be improved. Orofacial injuries could be lessened with the use of mouth and face guards.

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