

AFRICAN JOURNAL OF MEDICINE and medical sciences

VOLUME 33, NUMBER 2

JUNE 2004



Editor-in-Chief

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Assistants Editor-in-Chief

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ISSN 1116-4077

Oro-facial soft tissue injuries in Nigerian children: a five-year review

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Summary

A review of 64 soft tissue maxillofacial injuries in 50 children seen and managed at the University College Hospital, Ibadan over a five-year period was made. The age range was from 3 months to 15 years. The highest occurrence was in the 0-5 years old children (60%). The predominant type of soft tissue injuries was lacerations (75.0%). Falls (66.0%) were the most common aetiology followed by road traffic accidents (18.0%). There was a higher involvement of males than females (M: F of 2.3:1). The tongue (31.3%) was the most commonly affected site of soft injury followed by the lips (29.7%) and cheeks (10.9%). Slightly less than half (46%) of the patients presented within 24 hours of injury. Direct suturing was done in 24% of the children while debridement and conservative management was carried out in 76%.

Keywords: *Soft tissue, oro-facial injury, children.*

Résumé

Cette revue de soixante quatre blessures des tissus maxillofaciale chez cinquante patients a été diagnostiquée et menée au centre hospitalier Universitaire d'Ibadan pendant 5 ans. L'âge variait entre 5 mois à 15 ans. La fréquence la plus élevée était des enfants de 0-5 ans (60%). Le type prédominant des blessures des tissus était les lacérations (75%). Les pertes (66%) étaient l'étiologie la plus commune suivies des accidents routiers (18%). Il y avait une grande fréquence chez les mâles que chez les femelles (M:F: 2.3:1). La langue était la plus affectée des tissus douce (31.3%) suivie des lèvres (29.7%) et les joues (10.9%). Presque la moitié des patients (46%) chaque 24 heures avait une blessure. La couture directe était faite chez 24% alors que la conservation était effectuée chez 76% des enfants.

Introduction

Surveys of maxillofacial injuries have been reported in a number of populations [1-7]. Whilst there is considerable information on hard tissue injuries little information exists in literature on maxillofacial soft tissue injuries, especially in children. Various prevalences of soft tissue maxillofacial injuries have been documented in children depending on the study population. Zerfowski and Bremerich [8] in Germany, Kahabuka *et al* [9] in Tanzania and Al Jundi [10] in

Jordan reported that soft tissue injuries were seen in 68%, 49% and 16.9% respectively of cases of traumatic dental injuries in children. In Nigeria where few studies have been carried out, Oginni *et al* [11] found a prevalence of 1.1%. The face is of great significance in that it is the first contact point in many human interactions. For this reason, injuries to facial tissue may have a devastating effect and far-reaching consequences in the affected individual [12]. The aim of this study was to determine the aetiological factors and establish the pattern of oro-facial soft tissue injuries in children seen at the University College Hospital, Ibadan over a five-year period as well as comparing the data with previous studies in Nigeria and other centres.

Patients and methods

Data was collected retrospectively from records of children less than 16 years of age with oro-facial soft tissue injuries, who were seen at the Department of Oral and Maxillofacial Surgery, the Accident and Emergency unit and the Paedodontic unit of the Department of Preventive Dentistry, University College Hospital, Ibadan, Nigeria between January 1997 and December 2002.

Information recorded included the age, sex, aetiology and the type of soft tissue injury. The injury site, number of days before presentation and treatment modalities were also noted. Injuries were classified into abrasions, lacerations, contusions and avulsions [13,14]. All the data obtained were analysed using frequency distributions.

Results

Age and sex distribution

Of the 50 patients seen, the highest occurrence of soft-tissue injury was in the 0-5 years old males while the lowest was in the 11-15 year old females. The mean age of all the subjects seen was 5.5 years. Overall, 70% of these children were males and 30% females giving a male:female ratio of 2.3:1 (Table 1).

Table 1: Age and sex distribution of soft tissue injuries

Age (years)	Male	Female	Total
0-5	23(76.7)	7(23.3)	30(60.0)
6-11	8(61.5)	5(58.5)	13(26.0)
11-15	4(57.1)	3(42.9)	7(14.0)
Total	35(70.0)	15(30.0)	50(100)

(Percentages in parentheses)

the most common cause of facial soft tissue injury for 66.0%. The children mainly involved were in the 0-5 years age group (86.7%). Nine were involved in road traffic accidents. are indicated in Table 2.

Site distribution

Table 3 indicates that the tongue was the most commonly affected site of soft tissue injury (31.3%) and followed by the lips (29.7%). The nose, palate, and retromolar areas were least affected (1.5% each).

Actiology of soft tissue injuries

	Sports	Fight	Work related	Gunshot	Not stated	Total
26(86.7)	2(6.7)	-	-	1(3.3)	1(3.3)	30(60.0)
6(46.2)	3(23.0)	2(15.4)	1(7.7)	-	1(7.7)	13(26.0)
1(14.3)	4(57.1)	-	-	1(14.3)	1(14.3)	7(14.0)
33	9	2	1	1	3	5
(66.0)	(18.0)	(4.0)	(2.0)	(2.0)	(6.0)	(100)

ages in parentheses)

RTA = Road traffic accident

55.6% of RTA was pedestrian type of injury

Soft tissue injury

injuries were recorded in the 50 patients. Figures that lacerations were the commonest injury (75%). Abrasions accounted for 19.0%. Only a few contusions and contusions were seen (3.0% each)

Treatment modalities

Twelve (24.0%) patients had wound closure by direct suturing. The remaining patients had their wounds managed conservatively, which consisted of debridement of wounds and administration of antibiotics and analgesics (Fig. 2).

Fig 1 Types of soft tissue injuries

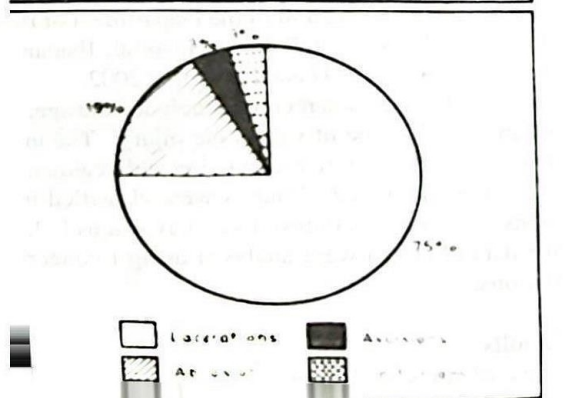


Fig 2 Treatment of soft injuries

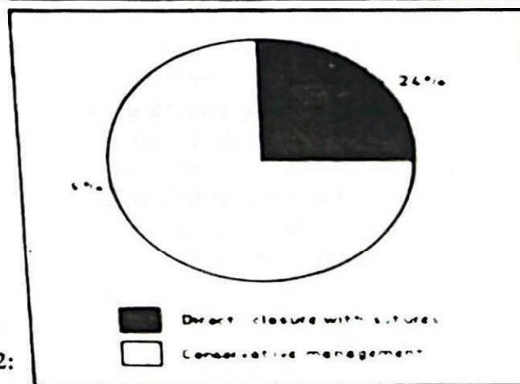


Fig. 2:

Table 4: Number of days before presentation in the hospital after injury.

Number of days before presentation	No. of patients	%
1	23	46
2	-	-
3	8	16
4	4	8
5	3	6
6	2	4
7	3	6
>7	3	6
Not stated	4	8
Total	50	100

ages in parentheses)

Number of days before presentation

Table 4 reveals that 46% of the patients presented within the first 24 hours of injury. A similar proportion (48%) reported in the hospital 3-7 days after injury while 6% presented after a week.

Discussion

Studies of maxillofacial injuries have been reported in literature which have focused on facial bone fractures [1-7,15-18]. However, not much information exists in relation to the soft tissue component of maxillofacial trauma especially in children of which this study concentrates on [8-11,19].

An incidence of 5.92% was noted in this study. This value is higher than 1.1% reported in Ile-Ife, Nigeria by Oginni *et al* [11]. This may be due to the pattern of the population involved in this study as the children here were only those primarily seen by the dentist at the accident and emergency unit and paedodontic and oral surgery clinics as opposed to the total number of general child admissions in their hospital which was included in their study. However, it is lower than 68%, 49% and 16.9% documented by Zerfowski and Bremerich [8] Kahabuka *et al* [9] and Al Jundi [10]. The higher age range involved in some of these studies may have accounted for their much higher value.

The findings of this study have revealed that in consonance with other injury-related studies [5-8,10,11,19,20], males appeared to be more prone to soft tissue trauma as male to female ratio of 2.3:1 was observed. This could be expected as males are usually more aggressive than females and many times engage in higher degree of activities that require physical exertion [20]. This ratio conforms to 2.6:1 recorded by Fasola *et al* [19]. However, this ratio is higher to those from some previous studies involving trauma to facial bones in children, suggesting that there may be less involvement of females regarding oral soft tissue injuries. Stylogiani *et al* [6] and Tanaka *et al* [7] recorded a male to female ratio of 1.4:1 and 2.1:1, respectively regarding hard tissue maxillofacial injuries. The specific reason for this cannot really be substantiated.

The highest age incidence for soft tissue trauma was in the 0-5 years age group accounting for 60% of the cases. Children of pre-school age are known to be more vulnerable to accidents especially in societies like ours where toddlers are kept under the care of children who are only a few years older [21]. This may be blamed on the deteriorating economic condition which has forced both parents in many families to work and even at times engage in money making ventures to keep the family going, which may keep them away from home after normal working hours.

Comparable to previous reports [8,10,11,22,], falls (66.0%) were the most common cause of injury in this study. The children mainly involved in falls were those in the 0-5 years age group. Zerfowski and Bremerich [8] similarly

reported that falls predominantly occurred in the toddler stage. It has been said that every child at one time or another experiences a series of falls which may be due to lack of coordination or judgment [23,24]. Various activities in children may lead to falls and children under the age of 2 years who have unsteady gaits while learning to walk are especially prone. Histories given from this study indicated that a great number of these falls occurred at homes and in the play grounds at schools. The school swing is usually at the level of the mouth of children who are between the ages of 2-5 years and by standing behind or in front, a child could be hit in the facial region. Falls from slippery surfaces while fetching water and misses while jumping across uncovered gutters were also reasons attributed to these falls. Some other children fell from the bed and church benches while asleep and in a few instances due to poor visibility when power supply suddenly went off. Some of these accidents, however, can be said to be inevitable consequences of childhood [20]. At the age group whereby falls appeared to be increased also coincides with the age at which younger siblings are often born in the family thus leading to a situation when there is reduced care and attention given to the older siblings. Six of these children fell from heights which included verandas and storey buildings. None of them were reported to have fallen from trees even though findings by Adekeye [5] revealed that falls from mango trees were common. It is possible that such cases of facial soft tissue injuries reported to the general hospital or other private clinics in the city of study. In addition, may be Adekeye did not report the soft tissue cases.

Road traffic accidents (RTA) were next in aetiological cause accounting for 18% of the injuries. This value is higher than 1.5% reported by Al Jundi [10] but lower than 32.8% documented by Oginni *et al* [11]. Measures such as the use of the seat belt and speed limit laws have been found to be effective in reducing the incidence of maxillofacial trauma due to road traffic accidents [25] and adherence to this may have accounted for the lower value in Jordan by Al Jundi [10]. Road traffic accidents may still persist as causes of facial trauma in this environment because traffic rules and regulations such as observation of speed limits and the use of seat belts are just being enforced but despite this, compliance is not absolute. Out of the road traffic accidents observed in this study, 55.6% were pedestrian type injuries. This finding is, however, lower than that of Oginni *et al* [11], who reported 70% pedestrian type injuries and that the children were knocked down while trying to cross the road or at the road side. The reason for the higher value in their study may be due to the fact that in Ile-Ife being a smaller city than Ibadan, more children may decide to walk than take public transport to their destinations as distances covered may be shorter. Reil [26] has pointed out that pedestrian type of injuries among children may be due to poor attentiveness of children at road crossing. Furthermore; in our society

some young children are sent unaccompanied on errands which may necessitate them crossing busy roads [19]. It is also a common sight to find children from low socioeconomic families hawking immediately after school hours to help raise funds to cater for their needs. Such children may have an increased susceptibility to pedestrian type of injuries. One of the children in this study under the age of 5 years jumped out of a moving bus while an adolescent fell while trying to board a mini bus already in motion. Sports, assaults and work-related injuries as causes of soft tissue injuries in this study were found to be low. The likely reason for the low incidence is because these causes are usually patterns of adolescent and adult types of trauma. The majority of this study population, however, consisted of preschool children (60.0%).

Burns, bites and non accidental injuries were not observed as causes of oro-facial soft tissue injuries in this study, even though bites play an important role in soft tissue trauma in Western countries [27,28]. It may be that such patients reported at other private clinics and hospitals in the city. Human bites and child abuse are associated with social stigma and for this reason false histories in such cases may have been given.

The tongue was found to be the most frequently involved site of injury (31.3%) in this study and majority (95%) occurred in children below 5 years age. This is in contrast to previous reports by Key [29] and Oginni [11] where the forehead had the highest incidence of 53% and 38%, respectively. In this study only 2.3% of injuries occurred in the forehead. Fasola et al. [19] on the other hand observed the lips as the commonest site of soft tissue injuries. The high incidence of trauma to the tongue especially in the preschool age group could be attributed to the fact that young children at times play with objects in their mouths causing traumatic injury to their tongues when they fall. Furthermore, children especially the very young have the infantile swallow pattern and therefore tend to protrude the tongue often from the mouth. The proximity of the incisive surfaces of the anterior teeth to the tongue on protrusion increases the chances of infliction of injury during accidental trauma. The lips (29.7%) and the cheeks (10.9%) were the next most frequently affected sites. There was only one case of soft tissue injury to the nose. It has been said the nose in the negroid race is less prominent than in Caucasians thus making it less susceptible to injury [11].

Slightly less than half of the patients (46.0%) presented in the hospital within 24 hours of injury. Studies by Onetto *et al* [30] in Chile similarly revealed that most children (65%) sought treatment following dental trauma after 24 hours. Various reasons are usually responsible for the delay before seeking consultation. In some instances, due to financial handicap the patients are taken to quacks or patent medicine stores and chemists for treatment possibly at reduced charges. Also, some of these injuries which are small may be treated at home and the parents may then report at the hospital when there is no improvement and

they lack satisfaction. In some cases delay was due to lack of accessibility to the hospital as some were referred from primary health centres in the villages where first aid treatment had been carried out.

Simple methods in accordance with sound treatment procedures were instituted in the management of these cases as most were not extensive. Wounds which had been debrided and linear were closed by direct suturing in only 24% of the patients. This value is much lower than 66% and 70% reported by Fasola et al [19] and Kahabuka [9], respectively, who had study populations which were inclusive of older patients. The much lower value in this study may be attributed to the fact that a lot of the injuries were lacerations to the tongue and most of these patients were below 5 years of age. Cooperative ability in children at this age when attempting to suture under local anaesthesia which is most frequently employed in these departments is limited. Most of the lacerations were however small and the tongue being a highly vascular organ heals well especially in children. For this reason some of these lacerations were left to heal by second intention. Staples and adhesives which were used in Europe were not employed as these were not available [29,31]. Debridement and conservative management was carried out in 76% of patients. This included administration of antibiotics, analgesics, tetanus toxoid and dressing of extra oral wounds. There was no record of plastic reconstruction in any of the cases and similarly there were no complications.

Conclusion/recommendations

Oral trauma in children continues to be a common paediatric emergency. In conclusion, oro-facial injuries in children may have significant dental and psychological consequences especially as a result of the unpleasant effect of the facial appearance. It is, therefore, paramount to embark on preventive measures to reduce these injuries and its attendant complications. Having safe home and school environment is important to minimize trauma in children. Public enlightenment programmes should be disseminated through the mass media to enlighten parents and guardians on dangers of child neglect and teaching children the proper way to cross roads. The government should discourage child labour and hawking in children. Zebra crossings should be put on streets especially in the near vicinity of schools to ensure safe crossing for the children. Enforcing the use of seat belts and speed limit laws will go a long way in reducing injuries in children. Even though incidences of non accidental injuries do not appear to be a common place in Nigeria, children with soft tissue injuries should be screened for abuse and neglect.

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Received: 14 April 2003

Accepted: 6 April 2004