

Oral injuries in children attending a hospital in Saudi Arabia

Manal Al-Malik ✉

Consultant Paedodontist, Dental
Department, Armed Forces Hospital,
Jeddah, Saudi Arabia

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Abstract

Aims To determine the occurrence, causes, types and severity of oral trauma and the time elapsed until seeking dental care in children seen in a hospital in Jeddah, Saudi Arabia.

Materials and methods Data included all cases of oro-facial trauma for children aged 17 years and younger who presented at the emergency and dental departments of the hospital during a 12-month period.

Results A number of 112 patients with traumatic oral injuries visited the hospital during this period. 79 were males and 33 were females. The highest frequency of injury was seen in 9–11 year old children. The most common cause of trauma was due to falls (68%). Most of the dental injuries occurred in the street (57%). The most common types of injury were luxation injuries and complicated crown fractures. Maxillary teeth were more affected than mandibular teeth. Maxillary central incisors were found to be the most affected teeth. 51 patients had soft tissue injuries and 13 patients had facial bone fractures. The largest number of injuries presented on the same day for treatment (70%) or 1 day after (36%).

Conclusion From the data this study population showed trends and common cases of paediatric traumatic oral injuries seen in a major hospital in Saudi Arabia. The study helped us in improving awareness regarding the oral injuries and importance of minimizing its complication through educational programs

Keywords Oro-facial trauma • Dental injuries • Children • Prevalence

Address for correspondence:

Manal Al-Malik
PO BOX 419
Jeddah 21411, Saudi Arabia
Ph: 00966 2 6065175
Mobile: 00966 505628865
Fax: 009662 653 0368
Email: m.almalik@doctor.com

Introduction

Traumatic oro-facial injuries are widespread in the population and are a serious oral health problem among children and adolescents. It has been reported that the prevalence of these injuries has increased in the last 10 years and is expected to increase more among children [1,2].

Most of the time we are unable to prevent oral injuries, since living and growing carry a high risk of trauma, but there are certain measures that may reduce the prevalence of traumatic oral injuries in certain situations such as orthodontic treatment of proclined incisors and the use of mouth guards [3]. Frequently these injuries occur in young people and usually constitute a true dental emergency that requires immediate attention and management, particularly when associated

with trauma to supporting tissues, or if it occurs in conjunction with facial trauma.

It is a tragic experience for the young patient when oral and emotional health is affected. The situation is distressing for both child and parents, thus it is very important that the dentist, maxillofacial surgeons and the other members of the dental team are prepared to meet this challenging problem. The main objective of diagnosis and treatment of traumatic dental injuries affecting children are pain management, prevention of possible damage to developing tooth germ of permanent successor in primary teeth injuries and long time prognosis for injuries to permanent teeth [2]. The prognosis for successful treatment depends on the injury being treated without delay.

There are few reports available on the epidemiology of oral injuries in Saudi Arabia, and there is a need for further

research into the field of oral trauma to provide useful descriptions of common types of traumatic oral injuries that pediatric emergency health providers may face and to increase awareness and give more attention for prevention and trauma management plans in Saudi Arabia.

The purpose of this present study was to determine the occurrence, causes, types and severity of oral injuries in children and adolescents aged 0 to 17 years seen in a selective sample of the population in Jeddah, Saudi Arabia, and to evaluate the time interval between injury and seeking treatment.

Jeddah city is one of the three major cities in Saudi Arabia and the largest of the Western Province, lies on the Red Sea Coast. The population in Jeddah is around 2 million and as in many other developing countries, a high proportion of the population of Saudi is under 15 years of age.



Fig. 1 A child presented with a trauma to the upper anterior teeth including Class II tooth fracture of tooth #21 (involving enamel and dentine) and tooth displacement of tooth #11 causing occlusal interference



Fig. 2 This case shows a dental alveolar trauma with combined type of trauma including tooth fracture, tooth displacement, tooth avulsion and alveolar fracture

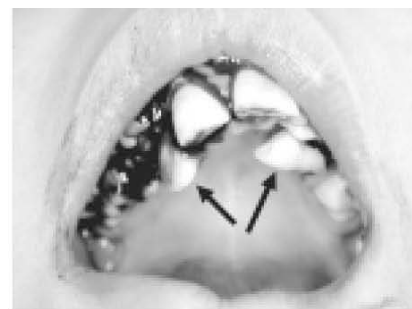


Fig. 3 A 10-years-old patient presented with combined type of trauma including fracture of the upper anterior teeth #11, #21, tooth luxation #12, tooth avulsion #22



Fig. 4 Extra-oral soft tissue injury in a 9 years old patient caused by road traffic accident resulting in laceration lesion under the chin



Fig. 5 Same patient in Figure 4 showing intra-oral injuries including mandibular fracture and fracture of the lower posterior teeth



Fig. 6 A 3-years-old child involved with road traffic accident presented with abrasion on her face and multiple facial bone fractures including orbital bones, nasal bones, maxillary bones

The Armed Forces Hospital in Jeddah is one of the four main hospitals in the city. It provides health services free of charge for their own military personnel and their dependants. The hospital serves around 750,000 patients per year including accident and emergency cases such as traumatic road traffic accidents and dental health services is provided to around 70,000 patients per year.

Material and methods

This prospective study included all cases of oro-facial trauma for children and adolescents aged 17 years and younger who presented at the emergency and dental departments of the Armed Forces Hospital in Jeddah, Saudi Arabia between September 2005 and August 2006.

Data was collected for the study from a clinical examination of the child and a history taken from the parents or guardian; including age, gender, cause of trauma and when and where the child had the trauma. Type and severity of trauma, presence or absence of soft tissue injury, number of teeth affected, the time interval between dental injury and seeking treatment and type

of treatment provided were also noted. All data were collected for the study by one reviewer.

Diagnosis and classification system

Types of dental injuries were categorised as: intrusion, luxation injuries (which includes subluxation, lateral luxation and extrusive luxation) and avulsion (Figs. 1, 2 and 3).

Classification of tooth fractures were as follows; Class I: Enamel crown fracture, Class II: Enamel and dentin fracture without pulpal involvement, Class III: Enamel and dentin fracture with pulp involvement, Class IV: Crown-root fracture, Class V: Root fracture (Figs. 1 and 3).

Soft tissue injuries were classified as: 'laceration' if it was a shallow or deep cut into the tissue resulting from tear, 'abrasion' if it was a superficial wound produced by rubbing or scraping of the mucosa, 'contusion' if it was a bruise and not accompanied by a break in the mucosa usually causing submucosal hemorrhage and 'others' which included cases of oro-facial burn to the soft tissue (Fig. 4).

Aetiology of trauma

Causes of trauma were classified as: a 'fall' if it resulted from loss of balance while running, riding, playing, walking, or similar situations. Trauma was classified as an 'impact' if it was due to slap, blow, fight or contact with flying objects. Trauma was classified as a 'collision' if it was related to a road traffic accident or direct contact with another person or object. Trauma was classified as 'others' included all cases of burns in the oral cavity from hot tea or coffee and trauma in the mouth caused by sharp objects.

The data was entered into a computer data file and SPSS statistical program (version 10.0) was used to analyse the data descriptively and Chi-square was used to test the relationship between qualitative data. The level of statistical significance for all tests was set at $P < 0.05$.

Results

A total number of 112 patients with traumatic dental injuries visited the hospital for dental care during this 12 month period. The patients ranged in age between 13 months to 17 years old.

Of the 112 patients, 79 were males (70.5%) and 33 were females (29.5%). The proportion of dental trauma was higher in boys than girls and this difference in the prevalence between boys and girls was statistically significant ($P < 0.05$).

The age and sex distribution of children with trauma are seen in Table 1. The highest frequency of injury occurred in the 9 to 11 years age group (23.2%).

The most common cause of trauma was due to fall (68.8%), followed by collision (14.3%), while impact was the cause of injury in 8.9% of the cases. The injuries classified as 'others' comprises oro-facial burns and trauma from sharp objects, accounted for 8% (Table 2).

Most of the dental trauma occurred in the street or in the playground (57.1%), while 33.9% occurred at home and only 8.9% occurred at school. The difference in where the injury took place was statistically significant ($P < 0.05$) (Table 3).

The different categories of injury recorded in this sample were as follow: 80 patients had dentoalveolar trauma, 51 patients had soft tissue injuries and 13 patients had facial bone fractures. Of those, 32 patients had both soft tissue injuries with dentoalveolar trauma or facial bone fractures.

The distribution of injury in patients according to age group is shown in Table 4. The most common type of injury was luxation recorded in 33 patients, intrusion recorded in 13 patients, while avulsion was recorded in 3 cases. 4 of the cases recorded had both types of injury luxation and avulsion.

For tooth fracture injuries, Class III type of tooth fracture including enamel, dentine with pulp involvement was the most common (13 patients), followed by Class II type of fracture involving enamel and dentine without pulp involvement (8 patients) and Class I type of fracture involving enamel only (6 patients), while Class IV type of tooth fracture involving crown-root fracture was the least frequent type of tooth fracture injury (4 patients). None of the cases showed signs of Class V root fracture.

Maxillary teeth were more affected than mandibular teeth. 105 patients (92.9%) had injury to their maxillary teeth compared to 4 patients (3.5%) with injury to their mandibular teeth. 3 patients (2.7%) had both upper and lower teeth affected.

Anterior teeth were more affected than posterior teeth. A total of 111 patients had trauma to their anterior teeth and only one patient suffered trauma to his posterior teeth.

Table 1 Distribution of gender by age groups

Age groups (years)	Gender No. (%)		Total
	Male	Female	No. (%)
0–2	10 (8.9)	7 (6.3)	17 (15.2)
3–5	12 (10.7)	9 (8.0)	21 (18.8)
6–8	15 (13.4)	3 (2.7)	18 (16.1)
9–11	16 (14.3)	10 (8.9)	26 (23.2)
12–14	10 (8.9)	4 (3.6)	14 (12.5)
15–17	16 (14.3)	-	16 (14.3)
Total	79 (70.5)	33 (29.5)	112 (100)

Table 2 Distribution of gender by cause of injury

Cause of injury	Gender No. (%)		Total
	Male	Female	No. (%)
Fall	52 (46.4)	25 (22.3)	77 (68.8)
Impact	9 (8.0)	1 (0.9)	10 (8.9)
Collision	13 (11.6)	3 (2.7)	16 (14.3)
Others (burn, sharp objects)	5 (4.5)	4 (3.6)	9 (8.0)
Total	79 (70.5)	33 (29.5)	112 (100)

Table 3 Distribution of gender by where injury took place

Place of injury	Gender No. (%)		Total
	Male	Female	No. (%)
Home	18 (16.1)	20 (17.8)	38 (33.9)
School	6 (5.3)	4 (3.6)	10 (8.9)
Street	55 (49.1)	9 (8)	64 (57.1)
Total	79 (70.5)	33 (29.5)	112 (100)

The distribution of injuries according to the primary and permanent dentition affected is shown in Table 5 and 6. A total of 162 teeth were traumatized. Of those traumatized teeth, 68 were primary teeth (41.9%) and 94 were permanent teeth (58.02%). The most commonly affected tooth in both primary and permanent dentition was the upper central incisor. In primary dentition, 45 of the upper central incisors were affected by trauma, with left side being more affected than right side (25 teeth and 20 teeth respectively). In the permanent dentition, again the most commonly affected tooth were the upper central incisors (69 teeth), but with right side affected more frequently than the left side (40 teeth and 29 teeth respectively).

Statistical analysis was also performed to check the incident of trauma by tooth affected in primary and permanent teeth. In primary teeth, the most commonly occurring type of dental trauma was luxation injury (31 teeth, 46%), followed by intrusion (17 teeth, 25%), while the least occurring dental trauma was avulsion (2 teeth, 3%). The most commonly occurring type of dental fracture was Class III type of fracture. In permanent teeth, the same results were seen. The most commonly occurring type of dental trauma was luxation injury (38 teeth, 40%), followed by avulsion (15 teeth, 16%). The most commonly occurring type of dental fracture was the Class III type of fracture.

Oro-facial soft tissue injury was recorded in 51 patients (45.5%). The most

Table 4 Distribution of types of trauma by age group

Age (Years)	Types of trauma (No. of patients)						
	C I	C II	C III	C IV	Intrusion	Luxation	Avulsion
0–2	1	1	2		1	4	
3–5	1		4		7	5	1
6–8	2				1	7	
9–11	2	7	3		4	8	
12–14			3	4		1	
15–17			1			8	2
Total	6	8	13	4	13	33	3

Table 5 The distribution of injuries according to primary teeth affected

Tooth No.	No. of teeth affected							Total
	Dental injury			Tooth fracture				
	Intrusion	Luxation	Avulsion	C I	C II	C III	C IV	
53		1						1
52	1	2		1	1			5
51	5	8		2	2	3		20
61	8	12		1	2	2		25
62	3	2	1			1		7
63			1					1
75							1	1
72		2						2
71		2						2
81		2						2
85							1	1

Table 6 The distribution of injuries according to permanent teeth affected

Tooth No.	No. of teeth affected							Total
	Dental injury			Tooth fracture				
	Intrusion	Luxation	Avulsion	C I	C II	C III	C IV	
12		3	1			2		6
11	4	11	10	3	3	5	4	40
21	4	10	4	2	6	2	1	29
22		4				1		5
24		1						1
26							1	1
36							1	1
41		2						2
31		3		1				4
32		2		1				3
33		2						2

common type of soft tissue injuries was lacerations seen in 33 patients. Contusions accounted for 9 patients, abrasions for 6 patients and 3 patients were burn cases.

A total of 13 cases had traumatic dental injuries with bone fracture involvement. Of those 6 patients had isolated mandibular fracture, 2 had both maxillary and mandibular fracture, 2 had infraorbital

fracture, 1 had zygomatic arch fracture, 1 had buccal plate fracture and 1 had a combined maxillary, condylar and infraorbital fracture. (Figs. 5 and 6)

The time interval between injury and presenting for treatment ranged from 50 minutes upto 4 weeks. The largest number of the injuries presented on the same day. 78 patients (69.6%) presented for treatment

on the day of trauma, while 40 (35.7%) attended 1 day after the injury, 17 (15.2%) attended within 2 to 3 days, 3 (2.7%) attended within one week and 6 (5.4%) sought care after 3 to 4 weeks (Table 7).

Treatment of dental injuries ranged from no active treatment (34 patients) which included re-assurance for parents and child, advice on soft diet and medications prescribed that included analgesia for pain relief, antibiotic as a prophylactic measure or both. When treatment was performed this was as follows; 18 patients had restorations that mainly included composite build up, 2 patients had pulp therapy, 18 patients had extractions, 23 patients required fixation and splinting and 20 patients needed suturing.

Discussion

The aim of the study was to determine the occurrence, causes, types and severity of oral injuries in children and adolescents who visited the Armed Forces Hospital in Jeddah, and to evaluate the time interval between injury and seeking treatment as well as treatment provided for this group of patients. The present study provides information on the prevalence of trauma found in a selected group of patients. The study was confined to children visiting the hospital, so that findings must be viewed with caution, nevertheless the Armed Forces Hospital is one of the major hospitals in the city.

During the period of the study, a total of 112 patients aged between 16 months to 17 years old with traumatic dental injuries were recorded. There were more boys than girls affected by trauma, 79 boys compared to 33 girls had suffered dental injuries. This might be attributed to boys being more violent and participating more in aggressive play, games and sports. Our finding of a high frequency of traumatic dental injuries in boys is in agreement with some studies [4,5,6] but disagrees with others [7,8].

The most frequent trauma occurred in the 9 to 11 year age group and this finding is consistent with other studies [5,9].

Fall was the most common cause of injury in this study (69% of cases of trauma). This result is in accordance with previous findings [4,6,8,10,11].

This study showed that most injuries occurred in the street (57%), with boys to girls ratio 5:1. This could be because boys are more energetic and are more engaged in outside activities. This finding is contrary to previous findings which found that most injuries occurred in the home or at school [6,12].

Table 7 Type of injury in relation to time elapsed since injury

Type	Time Elapsed					Total
	Same day	1 day	2–3 days	4–7 days	8–30 days	
Intrusion	4	6	2		1	13
Luxation	14	7	4	3	3	31
Avulsion	3	2				5
C I fracture	1	3	1		1	6
C II fracture	3	3	1		1	8
C III fracture	7	4	2			13
C IV fracture	2		2			4
Bone fracture	11	1	1			13
Soft injury	33	14	4			51

Among all causes of traumatic dental injuries in children, the majority of these injuries are accounted for dentoalveolar trauma and soft tissue injuries [13,14]. In this study, the majority of cases recorded were dentoalveolar trauma (71%) with boys being affected more than girls. The luxation and intrusion type of injuries were seen more in the younger age group (3–5 year old), whereas dental fracture cases were recorded more in the older age group (9–11 year old).

The most common type of dental fractures seen in the present study were of the complicated type of dental fractures (involving enamel, dentine and pulp) which were found in 42% of the cases of trauma. This is not in agreement with other studies that showed that fracture of enamel was the most common type of fracture [15] or with studies that showed that uncomplicated crown fracture was the most common [5,6,16]. These different findings could be due to the fact that our sample included patients who presented to the hospital. Usually, patients who suffer trauma with no acute symptoms tend not to report to hospital and these cases remain untreated. Therefore cases of enamel fractures may have not attended the hospital and were unreported since such cases are without symptoms or visible complications.

In our study, the most commonly occurring type of dental trauma in both primary and permanent teeth was luxation injury (46% and 40% respectively). This finding is in accordance with previous findings for primary teeth [5,8,17], but disagree with many studies for permanent teeth where injuries to the supporting tissues were found to be less common in the permanent than in the primary dentition

[5,6,15]. Generally, luxation injuries are seen more frequently, especially in the primary dentition, due to the soft and resilient bone surrounding the teeth in young children, as well as the stage of root development either immature root or root resorption has started which make the teeth less firm in its sockets [2].

In the present study, maxillary teeth showed a higher percentage of trauma (93%) and were affected more often than mandibular teeth and this is finding was similar to other studies [5,8]. The maxillary central incisors were found to be the most affected tooth in both primary and permanent dentition. These findings are in consistent with other studies [5,6,8].

Soft tissue injuries were found in 46% of the patients. This percentage was higher than was found in a previous report [5], but similar to others [18,19]. More boys than girls were affected with soft tissue injuries and most of the cases reported were in children less than 11 years old compared to children above 15 years of age. Lacerations were the most common type of soft tissue injury recorded. This is inconsistent with a previous reports [11,19]. The high incident of soft tissue injury might be because the study was done on a hospital population, where serious trauma cases including facial injuries are received immediately after the injury. It is suggested that soft tissue injuries in children require special attention because healing occurs faster in children than in adults and hypertrophic scars may form more easily in this young age group [14].

The study showed that only 13 of the 112 patients (12%) had injuries involving facial bone fracture. Again a higher proportion of injured patients were boys

compared with girls, resulting in a ratio of 3:1. Most of the cases reported were in the older age group (15–17 year old). This finding of low prevalence is in agreement with many other studies which showed that younger children are more prone to dentoalveolar trauma and soft tissue injuries, while the frequency of facial bone fractures is usually low [10,13,14,20]. This must be because the maxilla and mandible of a child has unerupted teeth or because there is a mixed dentition and that produces more stable structure, requiring greater force to cause fracture [14].

Regarding the period between injury and time of presentation for dental care, this study showed that the largest number of the injuries (70%) presented on the same day and 36% presented the day after for treatment. There was no tendency for delay in presentation for dental care after injury in the sample of our study. This high number of patients seeking treatment early was expected and not surprising because of the availability of dental care to this selected population at no cost. This finding is contrary to a previous study where only 17% of children sought treatment on the same day or the day after injury [6]. Traumatic dental injuries are emergencies that must be treated immediately and properly in order to reduce the suffering of both patient and their parents. The time interval between injury and treatment affects the successful outcome with minimal side effects, especially if this injury involves teeth fractures with pulp exposure [3]. Unfortunately, many patients do not seek professional advice and treatment immediately after an injury, especially if the accident is so severe that dental treatment cannot be started immediately because other injuries have higher priority [3]. The lack of treated cases of trauma or the delay in seeking treatment in some studies was due to low dental awareness with parents only seeking treatment for symptomatic teeth and only if patient feels pain [15]. Immediate intervention is more important, especially when it involves facial bone fractures and because the facial bones of a child heal much more rapidly than those of an adult, treatment is required at an early stage, usually within 5 days. Delayed intervention may cause deformities in the child [14].

The treatment provided in the current study ranged from no active treatment to more interventional kinds of treatment such as extraction and fixation. It is suggested that further studies are needed to assess the outcomes of post dental injury treatment

and the developmental disturbances of permanent teeth due to trauma in their primary.

Conclusion

The data from this study population showed trends and common cases of paediatric traumatic oral injuries seen in a major hospital in Saudi Arabia. Since this is an unpreventable health problem, we need to improve oral trauma awareness and to stress the importance of minimizing its complications through educational programs. We need to educate the public regarding prevention of traumatic injuries and the actions to be taken in case of dental injury. We need to motivate parents and the public to seek immediate dental treatment following any traumatic dental injury. We need to educate the dental team to improve their knowledge and skill to enable them to make an accurate diagnosis and perform appropriate emergency treatment thus improving patient care and providing optimal trauma care standards. We also need to educate the personnel in the emergency department of the hospitals and other health care providers, who receive the orofacial injuries to enable them to distinguish the severity of the injury and so refer them immediately to be seen by a dentist.

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References

1. Glendor U (2008) Epidemiology of traumatic dental injuries - A 12 year review of literature. *Dent traumatol* 24(6): 603–611
2. Andreasen JO, Andreason FM (1994) Textbook and color atlas of traumatic injuries to the teeth, 3rd edn. Copenhagen, Denmark: Munksgaard 151–177
3. McDonald RE, Avery DR, Lynch TR (1983) Management of traumatic injuries to the teeth and supporting tissues. In McDonald RE, Avery DR (eds). *Dentistry for the child and adolescent*. 4th ed. St. Louis: CV Mosby 429–487
4. Soporowski NJ, Allred EN, Needlema HL (1994) Luxation injuries of primary anterior teeth-prognosis and related correlates. *Pediatr Dent* 16(2): 96–101
5. Saroglu I, Sommez H (2002) The prevalence of traumatic injuries treated in the pedodontic clinic of Ankara University, Turkey, during 18 months. *Dent Traumatol* 18(6): 299–303
6. Rajab LD (2003) Traumatic dental injuries in children presenting for treatment at the Department of Pediatric Dentistry, Faculty of Dentistry, University of Jordan, 1997–2000. *Dent Traumatol* 19(1): 6–11
7. Bijella MF, Yared FN, Bijella VT, Lopes ES (1991) Occurrence of primary incisor traumatism in Brazilian children: a house-by-house survey. *ASDC J Dent Child* 57(6): 424–427
8. Osugi OO (1996) Traumatized primary teeth in Nigerian children attending university hospital: the consequences of delays in seeking treatment. *Int Dent J* 46(3): 165–170
9. Sanchez AV, Garcia-Godoy F (1990) Traumatic dental injuries in 3 to 13 year old boys in Monterrey, Mexico. *Endod Dent Traumatol* 6(2): 63–65
10. Kaban LB (1993) Diagnosis and treatment of fractures of the facial bones in children 1943–1993. *J Oral Maxillofac Surg* 51(7): 722–727
11. Gordy FM, Eklund NP, DeBall S (2004) Oral trauma in an urban emergency department. *J Dent Child* 71(1): 14–16
12. Bastone EB, Freer TJ, McNamara JR (2000) Epidemiology of dental trauma: A review of the literature. *Aust Dent J* 45(1): 2–9
13. Haug RH, Foss J (2000) Maxillofacial injuries in the pediatric patient. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 90(2): 126–134
14. Gassner R, Tuli T, Hachl O, Moreira R, Ulmer H (2004) Craniomaxillofacial trauma in children: a review of 3,385 cases with 6,060 injuries in 10 years. *J Oral Maxillofac Surg* 62(4): 399–407
15. Al-Majed I, Murray JJ, Maguire A (2001) Prevalence of dental trauma in 5–6 and 12–14 year-old boys in Riyadh, Saudi Arabia. *Dent Traumatol* 17(4): 153–158
16. Hinds K, Gregory J (1995) National diet and nutrition survey: children aged 1.5 to 4.5 years. Report of the dental survey. London: HMSO
17. Perez R, Berkowitz R, McIlveen L, Forrester D (1991) Dental trauma in children: a survey. *Endod Dent Traumatol* 7(5): 212–213
18. Fried I, Erickson P (1995) Anterior tooth trauma in the primary dentition: incidence, classification, treatment methods and sequence: a review of the literature. *ASDC J Dent Child* 62(4): 256–261
19. O'Neil DW, Clark MV, Lowe JW, Harrington MS (1989) Oral Trauma in children: a hospital survey. *Oral Surg Oral Med Oral Pathol* 68(6): 691–696
20. Lida S, Matsuya T (2002) Paediatric maxillofacial fracture: their aetiological characters and fracture patterns. *J Craniomaxillofac Surg* 30(4): 237–241

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