

## A RETROSPECTIVE STUDY OF DENTO-ALVEOLAR INJURIES IN DIYARBAKIR, TURKEY

Hilal ALAN<sup>1</sup>, Gulten UNLU<sup>2\*</sup>, Vedat TARI<sup>3</sup>, Serkan AGACAYAK<sup>3</sup>

1. MsC, PhD, DDS, Researcher, Dicle University, Faculty of Dentistry, Department of Oral and Maxillofacial Surgery, Diyarbakir / TURKEY.
2. Prof.Dr., Dicle University, Faculty of Dentistry, Department of Oral and Maxillofacial Surgery, Diyarbakir / TURKEY.
3. MsC, DDS, Researcher Assist., Dicle University, Faculty of Dentistry, Department of Oral and Maxillofacial Surgery, Diyarbakir / TURKEY.

### Abstract

The purpose of this retrospective study was to determine the occurrence and the type of traumatic dental injuries managed by the University of Dicle, Faculty of Dentistry, Department of Oral and Maxillofacial Surgery. A total of 539 patients were seen for dental injuries with 1597 tooth injuries. During a period of 22 years, among 539 patients with dentoalveolar injuries, 300 (55.7 %) had been involved in falls, 144 (26.7%) resulted from traffic accidents, 47 (8.7%) from assaults, 29 (5.3%) from animal kicking, 11 (2%) from accidents at work, 5 (1%) in accidents that were sports related, 4 (0.6%) from accidents of an unspecified nature. This study shows that dental injury rates and patterns in a Diyarbakir-Turkey region are similar to other populations.

*(Journal of International Dental and Medical Research 2009; 2: (3), pp. 86-88)*

**Keywords:** Dentoalveolar trauma, Dental injuries, Retrospective Study.

**Received date:** 21 August 2009

**Accept date:** 14 October 2009

### Introduction

Traumatic injuries to the teeth are among the most serious oral health problems in active children and adolescents. Dental injuries are particularly important because of the critical sensory, communicative, gustatory and psychosocial functions of the teeth and the mouth. Unlike injuries to other parts of the body, fractures of the crowns of the teeth do not heal or repair. Dental trauma may have an uncertain prognosis; damage may appear at the time of the injury, and traumatic luxation can eventually result in pulpal necrosis (1).

Dental injuries are caused by motor vehicle accidents, falls, sports accidents, interpersonal violence, animal kicking and iatrogenic reasons (during dentoalveolar surgery or using laryngoscopy for general anesthesia) and occurs in isolation or in association with facial injuries or multi-system injuries (2-8). The first successful attempt to classify dental injuries was made by Ellis and Daury in

1970. This was expanded by the World Health Organization in 1978 and more recently by Andreasen and Andreasen in 1994. The classification of dental injuries may be divided into four categories: Injuries to the hard dental tissues and the pulp; injuries to the periodontal tissues; injuries to the supporting bone and injuries to the gingiva and oral mucosa (1).

The pattern of injury depends upon the site, direction and energy of impact and the resilience of the periodontal structures surrounding the tooth. Injuries to the teeth such as concussion, subluxation, lateral luxation, and intrusion tend to occur if the lips cushion the impact or the force is distributed over several teeth. If the force hits the teeth directly, fracture of a crown, displacement of a tooth, and penetrating lip wounds are more likely.

When the force is indirectly transferred to the teeth by an axial blow to the chin, fractures of crowns plus or minus root fractures are more likely, and the possibility of fracture of the mandible, luxation of the temporomandibular joint (TMJ), and cerebral injury must not be overlooked (6).

The purpose of this study was to determine the frequency, outcomes and risk factors for dental injury in all patients' age groups presenting at the Department of Oral and Maxillofacial Surgery at the Faculty of Dentistry, University of Dicle in Diyarbakir, Turkey.

#### \*Corresponding author:

Prof. Dr. Gulden UNLU, DDS PhD  
Dicle University, Faculty Of Dentistry,  
Department of Maxillofacial Surgery,  
21280 Diyarbakir, TURKEY.

Tel: +90 412 248 81 01-3486

Fax: +90 412 248 81 00

E-mail: [gunlu@hotmail.com](mailto:gunlu@hotmail.com)

## Materials and Methods

Information concerning age and sex distribution, etiology, types, place and extent of trauma as well as seasonal variations, time difference between traumatic injury and seeking of dental care and number of traumatic injuries was recorded retrospectively from 539 patients which treated in the Department of Oral and Maxillofacial Surgery, University of Dicle, Diyarbakır, Turkey between January 1986-January 2008 during 22 year period. Patient characteristics were analyzed using descriptive statistics. Comparisons were performed with  $\chi^2$  tests.

## Results

During a period of 22 years, among 539 patients with dentoalveolar injuries, 300 (55.7 %) had been involved in falls, 5 (1%) in accidents that were sports related, 144 (26.7%) resulted from traffic accidents, 47 (8.7%) from assaults, 29 (5.3%) from animal kicking, 11 (2%) from accidents at work, 4 (0.6%) from accidents of an unspecified nature (Fig.1).

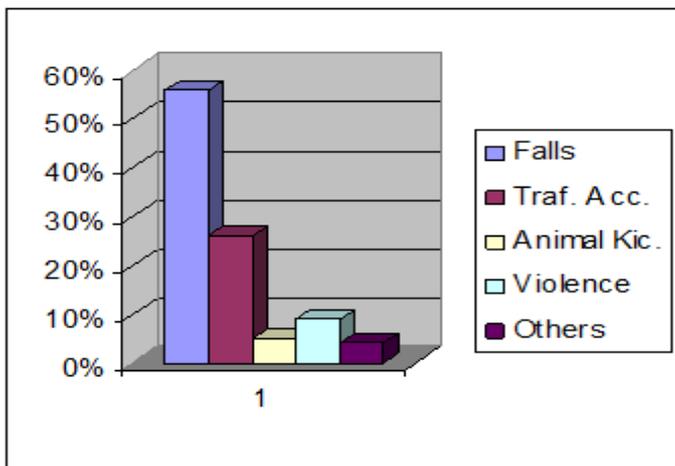


Figure 1. Causes of injury.

Seventy percent of all injuries occurred in men and boys and thirty percent in women and girls, yielding a male-to-female ratio of 2.3:1.

The age range was 1 years to 64 years (mean 13 years) and most common people in the 5-15 years old age group. Anterior maxillary teeth and especially maxillary central incisors were most common traumatized teeth.

There were altogether 1597 injured teeth from the 539 trauma cases. In other word, one patient averagely had 3 teeth traumatized.

It was also found that 70% of dental traumas were permanent teeth and 30% primary teeth. For both types of dentition, injuries to the upper anterior teeth were predominant.

The overall monthly distribution of dental injuries is uneven, peaking in summer and declining in winter (Fig.2).

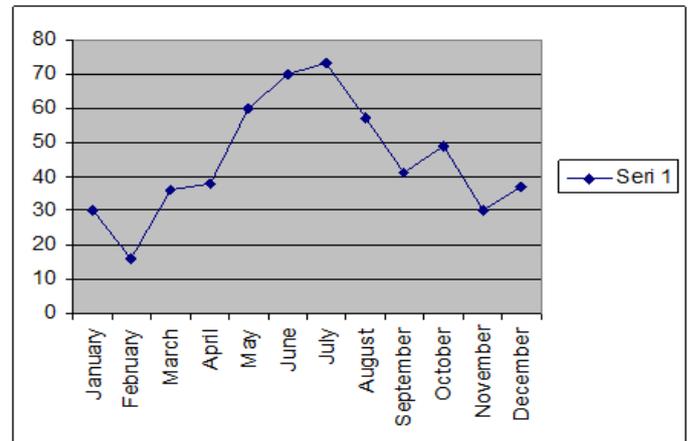


Figure 2. Seasonal distribution of dento-alveolar injuries.

The type of injuries was summarized in Fig 3. The most common dental injuries were exarticulation (avulsion) and followed by luxation.

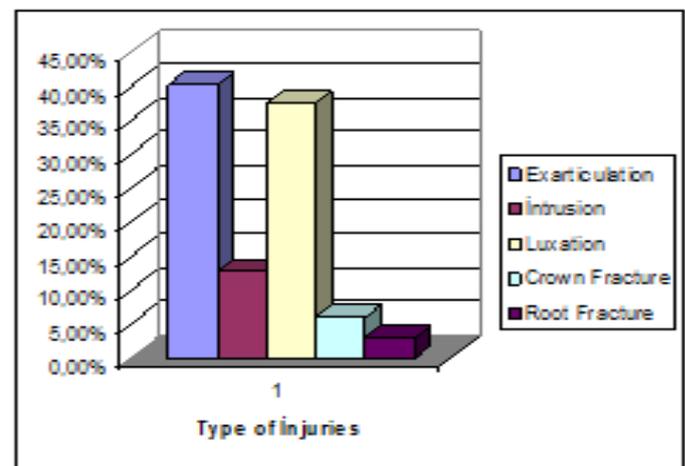


Figure 3. Type of injuries.

## Discussion

We have evaluated the incidence and etiology of dentoalveolar trauma in patients over a 22 years period, from January 1986, to January 2008. Data were collected for medical history, symptoms reported or pathologic signs displayed by the patients, and results of clinical and radiologic examination. The records of patients were analyzed according to frequency of dental trauma in facial injuries, age and gender distribution, monthly and yearly distribution of injury, cause of injury, frequency and type of injury.

Our results confirm that boys are more prone to injuries than girls. A possible explanation for this could be that girls mature earlier than boys, who also tend to be more involved in outdoor activities

(2-9).

The etiology of injuries in the present study was in agreement with earlier reports. The most common cause of injury was a fall. As a child learns to walk and run, the incidence falls increases because the development of co-ordination and mobility is immature (2,3,10). When young children fall they are less able to protect the face, and are likely to sustain soft tissue injuries to the lips, tongue and face (3,9). Older age groups are more likely to be involved in traffic accidents. This confirms previous studies (9).

Studies performed Gassner shown that, play accidents were the prime cause of dental trauma and followed by sport accidents (4, 5).

The cumulative monthly distribution of injuries peaked in the summer months and fell in the winter months. This has been observed in several other papers (2-4, 9). Traffic voyages are further more in the summer because of holiday and traffic accidents increase in the summer. All of these may be the reasons that dental injuries cases increase in the summer.

Sae-Lim et.al (1995) were reported that 79% of dental trauma were permanent teeth and 21% primary teeth (8). This result is appropriate the result of ours.

It is reported that in both primary and permanent dentitions, dental trauma was significantly more often inflicted on maxillary anterior teeth (8, 9). In the present sample was in agreement with earlier reports.

Mostly investigators were reported that the most common type of trauma were luxation injuries (4, 5, 8, 9). In comparison with the findings of other studies, the most common type of injury is extrusion in this study.

The most common type of treatment used in our clinic was arch bar splint (29%) and followed by wire composite splint (25%), wire splint (25%), and extraction (21%) (Fig.4).

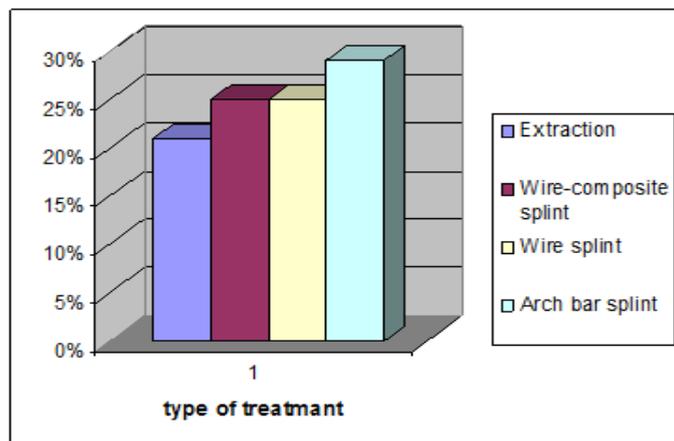


Figure 4. Type of Treatment.

The teaching of injury epidemiology and injury prevention to health care workers should be improved. Population-based epidemiologic data on injuries must be used to reassess conventional wisdom about injuries and to target future efforts at prevention of dentoalveolar injuries.

## Conclusions

In this article, we provide evidence that databases such as the one instituted at our hospital raise and establish awareness of causes of and reasons for trauma. This study shows that dental and facial skeleton injury rates and patterns in Diyarbakir-Turkey region are similar to other populations. In addition emergency medicine can play an important role in the initial management of tooth injuries. Therefore, further study with a dentist is recommended.

## Acknowledgements:

The authors wish to thank Prof.Dr. Yusuf Çelik for analyzed statistics of the study.

## References

1. Birgen N, Inanıcı MA, Aliustaoglu S, The forensic evaluation of dental injuries in Istanbul, Turkey. *Forensic Science International* 1999;106: 37-7.
2. O'Neil DW, Clark MV, Lowe JW, Harrington MS, Oral trauma in children: A hospital survey. *Oral Surg Oral Med Oral Pathol* 1989;68:691-6.
3. Kotecha S, Scannell J, Monaghan A, Williams RW, A four year retrospective study of 1,062 patients presenting with maxillofacial emergencies at a specialist paediatric hospital. *Br J Oral Maxillofac Surg* 2008; 293-296.
4. Gassner R, Tuli T, Hachl O, Moreira R, Ulmer H, Craniomacillofacial trauma in children: a review of 3,385 cases with 6,06 injuries in 10 years. *J Oral Maxillofac Surg* 2004; 62:399-9.
5. Gassner R, Bösch R, Tuli T, Emshoff R, Prevelence of dental trauma in 6000 patients eith facial injuries. *Oral Surg Oral Med Oral Pathol* 1999; 87:27-6.
6. Dewhurst SN, Mason C, Robert J, Emergency treatment of orodental: a review. *Br J Oral Maxillofac Surg*. 1998;36:165-11.
7. Newland MC, Ellis SJ, Peters RK et al. Dental injury associated with anesthesia: a report of 161,687 anesthetics given over 14 years. *Journal of clinical Anesthesia* 2007;19:339-7.
8. Sae-Lim V, Tan HH, Yuen KW, traumatic dental injuries at the accident and emergency department of Singapore general hospital. *Endod Dent Traumatol* 1995;11:32-5.
9. Schatz JP, Joho JP, A retrospective study of dento-alveolar injuries. *Endod Dent Traumatol* 1994;10:11-4.
10. Love RM, Ponnambalam Y. Dental and maxillofacial skeletal injuries seen at the University of Otago School of Dentistry, New Zealand 2000-2004. *Dental Traumatology* 2008; 24: 170-7.