# FREQUENCY OF VARIOUS TYPES OF DENTOALVEOLAR INJURIES IN TRAUMA PATIENTS VISITING TO TERIARY CARE HOSPITAL

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## ABSTRACT

***Objectives:*** *To determine the frequency of various types of dento alveolar injuries in trauma patients.*

***Materials and Methods:*** *A Descriptive, Cross Sectional study was conducted at the department of Oral and maxillofacial surgery, Hayatabad Medical Complex, Peshawar from 30th July 2021 to 30th January 2022. A total of 198 patients were observed in the study. Non probability, consecutive sampling technique was applied.*

***Results:*** *Mean age was 45.6 Years ± 1.92. fourth decade had been the commonest one. Gender wise distribution among 198 patients were analyzed as n= male was 64 (32.3%) and female was 134 (67.7%). Distribution of Enamel Infarction among 198 patients were analyzed as n=Yes was 47 (23,7%) and No was 151(76.3%). Distribution of enamel fracture among 198 patients were analyzed as n= Yes was 45 (22.7%) and No was 153 (77.3%). Distribution of Enamel and Dentin fracture among 198 patients were analyzed as n= Yes was 50(25.3%) and No was 148 (74.7%). Intrusion of tooth into alveolar socket wall among 198 patients were analyzed as n=Yes was 69 (34.8%) and No was 129(65.2%).*

***Conclusion:*** *In this study, the most frequent dento alveolar Injury was alveolar wall fracture which accounts to be 54%. Dento alveolar injury were present more in females (67.7%) than males and the most commonly affected age range was 41-50 years.*

***Key words:*** *Dento alveolar injuries, Trauma, laceration, contusion, abrasion, assault, road traffic accident, fall*

## INTRODUCTION

Dento alveolar structures plays a vital role in stomatho gnathic system in terms of function and esthetic. In the context of oral and maxillofacial injuries these structures also get injured along with rest of the bones of the facial skeleton. These injuries are often ignored and not paid special attention as almost the entire services are served in saving lives of the patients and major maxillofacial injuries. Dento alveolar injuries (DAI) in trauma patients are about 5% of all injuries that need treatment. Not only children are affected by DAI, it also affects about 33% of adults[1].

Dento alveolar injuries have been reported in both genders. Though the difference in frequency between genders among various centers is variable. Male predominance over females have been reported in studies by Adeyemo W[2] and Masiga M[3] and various other studies [4,5].

The common etiological factors include sports, falls, road traffic accidents, inter personal violence etc[6]. However, sports accidents are the most common causes of dental trauma in teenagers according to Gutman[7].

While road side accidents and assaults are fre-

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quent in early adult hood[8].

Dento alveolar injuries include hard tissue insults (enamel infarction/fracture, enamel dentin fracture, complicated crown fracture, crown root fracture and root fracture). Injuries to supporting bone (intrusion of teeth into alveolar socket wall, alveolar socket wall fracture, alveolar fracture). Perio dontal insults (concussion, subluxation, extrusive luxation, lateral luxation, intrusive luxation, avulsion). Gingival injuries (contusion, abrasion, laceration, de gloving)[9].

The maxillary teeth as whole[10,11] and maxillary central incisors in particular are more frequently involved in DAI injuries according to various studies[12,13].

According to a study frequency of various types of DAI were crown fracture (22.1%), root fracture (2.8%), extrusion (5%), intrusion (48.6%), subluxation (2.1%), lateral luxation (7.1%), avulsion (12.1%)[14].

The diagnosis of such injuries can be made through thorough history and clinical examination along with some images. Ortho pan tomogram remains gold standard among plain images. Computed tomography or CBCT can further delineate and can give clear cut diagnosis of these injuries. Tooth loss can cause significant psychological, functional and esthetic effect that mandates early rehabilitation[15]. Treatment involves multidisciplinary team approach and depends on the extent and severity of the tissues involved that may range from a tooth filling to splinting teeth along with dealing rest of the bony disruptions in the facial region.

The rationale of this study was to provide local data regarding various types of dento alveolar injuries which will help in early recognition of the injuries and prevent morbidities. The data will be compared with other internationally published literature to identify the guidelines for prevention and control of such injuries and to establish local protocols according to community needs.

## MATERIALS AND METHODS

This was a descriptive (cross sectional) study which was conducted at the department of Oral and Maxillofacial Surgery Hayatabad Medical Complex from 30th July 2021 to 30th January 2022. A Non probability, Consecutive sampling technique was applied.

A total of 198 Patients of all genders greater than five years of age having DAI presenting to Oral and Maxillofacial Unit Hayatabad Medical Complex, Peshawar were seen during aforementioned period.

Data was collected after an approval of hospital Institutional ethical review committee (Ref#733/HEC/B&PSC/2022 dated 26th May 2022). The purpose, benefits and risk was explained to patients and informed consent was taken from the patients or their parents/guardians to take part in the study. Proper history and clinical examination was carried out along with radiographs such as Ortho pan tomogram (OPG) for diagnosis. The data collected was analyzed by SPSS version 22.

## RESULT

Age of the participants among 198 patients were analyzed as n= 18-30 Years 22 (11.1%) 31-40 Years 20(10.1%) 41-50 Years 62(31.3%) 51-60 Years 48(24.2%) 61-70 Years 28(14.1%) 71-80 Years 18(9.1%). Mean age was 45.6 Years ± 1.92(as shown in Table No. 1). Gender Wise Distribution among 198 patients were analyzed as n= Male was 64 (32.3%) and Female was 134(67.7%) as shown in Table No. 2.

Distribution Of Enamel Infarction among 198 patients were analyzed as n=Yes was 47(23,7%) and No Was 151(76.3%) as shown in Table No :4 Distribution of Enamel Fracture among 198 patients were analyzed as n= Yes was 45(22.7%) and No was 153(77.3%) as shown in Table No. 4. Distribution of Enamel and Dentin fracture among 198 patients

**Table-1: Age Wise Distribution (n=198)**

| Age of the participants | Frequency | Percent |
|---|---|---|
| 18-30 Years | 22 | 11.1% |
| 31-40 Years | 20 | 10.1 % |
| 41-50 Years | 62 | 31.3 % |
| 51-60 Years | 48 | 24.2 % |
| 61-70 Years | 28 | 14.1 % |
| 71-80 Years | 18 | 9.1 % |
| **Total** | **198** | **100.0%** |

**Table-2: Gender Wise Distribution (n=198)**

| Gender Wise Distribution | Frequency | Percent |
|---|---|---|
| Male | 64 | 32.3% |
| Female | 134 | 67.7 % |
| Total | 198 | 100.0 % |

**Table 3:Distribution of alveolar bone and periodontal injuries**

| | concussion | Subluxation | Lateral luxation | extrusion | intrusion | avulsion | Alveolar fracture | Fracture socket wall | Intrusion of tooth into alveolar socket wall |
|---|---|---|---|---|---|---|---|---|---|
| Yes | 69 (34.8%) | 64 32.3% | 72 36.4% | 69 34.8% | 56 28.3% | 59 29.8% | 107 54% | 85 42.9% | 69 34.8% |
| No | 129 65.2%) | 134 67.7% | 126 63.6% | 129 65.2% | 142 71.7% | 139 70.2% | 91 46% | 113 57.1% | 129 65.2% |
| Total | 198 100% | 198 100% | 198 100% | 198 100% | 198 100% | 198 100% | 198 100 | 198 100% | 198 100% |

**Table 4: Distribution of dental hard tissue injuries**

| | Enamel infarction | Enamel & dentine fracture | Enamel fracture |
|---|---|---|---|
| Yes | 47 (23.7%) | 50 (25.3%) | 45 (22.7%) |
| No | 151 (76.3%) | 148 (74.7%) | 153 (77.3%) |
| Total | 198 (100%) | 198 (100%) | 198 (100%) |

were analyzed as n= Yes was 50(25.3%) and No was 148(74.7%) as shown in Table No. 4. Intrusion of tooth into alveolar socket wall among 198 patients were analyzed as n=Yes was 69(34.8%) and No was 129(65.2%) as shown in Table No. 3.

Fracture of the socket wall among 198 patients were analyzed as n= Yes was 85 (42.9%) No was 113(57.1%) as shown in Table No. 3. Distribution of Concussion among 198 patients were analyzed as n= Yes was 69 (34.8%) and No was 129(65.2%) as shown in Table No. 3.

## DISCUSSION

The presentation of DAI may vary according to age, gender, profession, socio economic status and life style of the individuals. The prevalence of DAI ranges from 6.4%[16] to 15.5%.[17,18] and 21% [1].

The frequent most age group in our study had been the fourth decade unlike studies conducted by Junior SM[19]. The difference in the study could be due to the reason that in this region the DAI in children and young age are not taken seriously. Majority of such injuries in young age group are dealt in periphery hospitals and mostly undergo extraction of deciduous teeth or newly erupted permanent teeth. Such injuries are usually hard to be assessed in already treated individuals at our center after they get primary treatment at various other centers. Secondly the patients included in our study were having other etiological factors too besides motor bike and bicycles related maxillofacial injuries. Direct relationship of age with DAI had been reported in one of a study and also a higher prevalence among 9-year-old children (26.9%)[20]. As with increasing age the individuals are more involved in sports and other activities predisposing them to more traumatic insults.

A higher prevalence of males than females for DAI have been reported in various studies[21,22,23]. Females were most frequently involved in our study contrary to other study groups[20,24]. Difference could be due to local norms and mind set in which females are dependent more on males and are reported earlier to the facilities for treatments to get better and early treatment to achieve more functional and esthetic results at the earliest and hence lesser psychological and social problems at later date as females are more esthetic conscious.

Enamel plus dentine fracture (25.3%) had been frequent finding in our study than Enamel fracture only (22.7%) which is not in accordance to the another study in which enamel fractures being the most frequent one (67.0%), followed by enamel-dentine fractures (19.3%) and concussions (8.3%)[20].

## CONCLUSION

In this study, the most commonly affected age range was 41-50 years with mean age of Mean age of 45.6 Years ± 1.92 and DAI was presented more in females (67.7%) than males. The most frequent DAI was alveolar wall fracture which accounts to be 54%. The enamel and dentin fracture (25.3%) was frequently involved than enamel fracture (22.7%) alone.

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