

Determine the Frequency and Pattern of Dental Developmental Alterations in Patients Presented With Dilacerated Teeth

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ABSTRACT

Aim: To examine the prevalence of dental developmental alterations in dilacerated teeth patients.

Study Design: Retrospective study

Place & duration of study: Faryal Dental Hospital Sheikhupura from January 2016 to January 2017.

Methods: All the patients of both genders who were attended our institution during the study period for stomatological treatments were included in this study. Patient's ages were ranging from 7 to 70 years. All the files of patients were analyzed on panoramic radiographical examination to examine the prevalence of DDAs. Patient's demographical details including age, sex, residence, location of teeth, involved teeth and associated DDAs were analyzed after taking informed consent from all the patients and parents/guardians.

Results: Out of 1500 patients, 30(2%) patients found with 48 dilacerated teeth. From 30 patients 50% patients had one or more than one dilacerated teeth. Majority of patients were females. Hypodontia was the most common dental developmental alterations followed by enamel pearls, taurodontism and microdontia.

Conclusion: The prevalence of DDAs in patients with dilacerated teeth was high in our setup.

Keywords: Dental developmental alterations (DDAs), Prevalence, Dilacerated teeth

INTRODUCTION

Frequency of developmental dental alterations (DDAs) have been analyzed and reported. Most of these articles dealt on data from selected populations, entities, ethnic groups, countries, ages and genders using clinical, radiographic or clinico-radiographic approaches. During many years, the clinico-radiographic and radiographic studies employed different imagenologic techniques and the most common were orthopantomograms; some studies complemented their data with dento-alveolar radiographs^{1,2}In 1849, Tomes described a rarely observed developmental alteration of the dental root now known as dilacerations.³ The most recent edition of the Glossary of Endodontic Terms of the American Academy of Endodontists, the dilaceration of the dental roots was defined as "a deformity characterized by displacement of the root from its normal alignment with the crown; may be a consequence of injury during tooth development. Common usage has extended the term to include sharply angular or deformed roots".⁴Two possible etiological causes of dilaceration were suggested: trauma to the primary tooth resulting in displacement of the tooth germ⁵ and to a developmental disturbance of unknown origin when a traumatic factor is not known⁶.

In a previous study, we reported the frequency of dilacerated teeth in the population attended in our institution.⁷ Other studies compared the frequency of different alterations among two different populations⁸ or studied an isolated ethnic group^{9,10}. Unfortunately, this diversity of methods employed to design the patients sample did not demonstrate the authentic frequency of the pathologic entities in the general population. There are few

studies in populations attending health or dental services with protocols including radiographic material for diagnosis analyzing patients grouped in more than five decades^{11,12}.

The present study was conducted aimed to examine the frequency, location and involved teeth of dental developmental alterations associated to dilacerated teeth.

METHODS

This retrospective study was conducted at Faryal Dental Hospital Sheikhupura during from the period January 2016 to January 2017. In this study total 1500 data of both genders visit for the stomatological treatment were analyzed. Radiographic examination was reviewed of all patients to examine the frequency of dilacerated teeth associated with dental developmental alterations. Patient's ages were ranging from 7 to 70 years. Demographical details including age, sex and residence were recorded after taking written consent from all the patients, parents/guardians. Patients with oral cancer, patients with third molar DA and those who were not interested to participate were excluded from this study. After complete screening, location of teeth, involve teeth and associated Dental developmental alterations were analyzed. All the data was analyzed by computer statistical software SPSS 20.0. Frequency and percentages were recorded. P-value <0.05 was set as significant difference.

RESULTS

During the study period we reviewed 1500 files of patients in which we found 30(2%) patients with 48 dilacerated teeth. Out of 30 patients 22(73.33%) patients were females while 8(26.67%) patients were males. 10(33.33%) patients were ages less than 25 years, 15(50%) patients were ages

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25 to 50 years and 5(16.67%) patients had ages above 50 years. 16(53.33%) patients had rural residency while 14(46.67%) patients had urban residency (Table 1). From 30 dilacerated teeth patients 15(50%) patients had dental developmental alterations. In which 10(66.67%) patients were females and 5(33.33%) patients were males(Table 2).From these patients we found 28 teeth involvement with DDAs. Hypodontia were the most frequent DDA found in 5 patients with 9 involved teeth, enamel pearl were found in 3 patients with 6 teeth, taurodontism found in 2 patients with 5 teeth involvement, microdontia found in 2 patients with 3 teeth, supernumeraries found in 1 patient with 1 tooth, short root found in 1 patient with 2 teeth and talun cusp found in 1 patient with 2 teeth involvement (Table 3). According to the location of DDAs 20(71.43%) teeth were maxilla and 8(28.57%) were mandible. From all the DDAs associated to dilacerated teeth, 12 (42.86%) were anterior in which 9 in maxilla and 3 in mandible area. 10(35.71%) DDAs were in molar portion in which 7 in maxilla and 3 were mandible. 6(21.43%) DDAs were in the premolar portion in which 4 were maxilla and 2 were mandible (Table 4).

Table 1: Baseline characteristics of Dilacerated teeth patients

| Characteristics | No. | % |
|--------------------|-----|-------|
| Gender | | |
| Male | 8 | 26.67 |
| Female | 22 | 73.33 |
| Age (years) | | |
| <25 | 10 | 33.33 |
| 25 – 50 | 15 | 50.00 |
| > 50s | 5 | 16.67 |
| Residence | | |
| Urban | 14 | 46.67 |
| Rural | 16 | 53.33 |

Table 2:Prevalence of DDAs associated to dilacerated teeth

| DDAs | No. | % |
|------|-----|------|
| Yes | 15 | 50.0 |
| No | 15 | 50.0 |

Table 3: Frequency of DDAs with involved teeth associated to dilacerations

| Characteristics | n | Teeth involved(n=28) |
|-----------------|---|----------------------|
| Hypodontia | 5 | 9 |
| Enamel Pearl | 3 | 6 |
| Taurodontism | 2 | 5 |
| Microdontia | 2 | 3 |
| Supernumeraries | 1 | 1 |
| Short root | 1 | 2 |
| Talun Cusps | 1 | 2 |

Table 4: According to the location of DDAs

| Area | Maxilla | Mandible | Total |
|----------|------------|-----------|------------|
| | 20 (71.43) | 8 (28.57) | 28 (100) |
| Anterior | 9 | 3 | 12 (42.86) |
| Molar | 7 | 3 | 10 (35.71) |
| Premolar | 4 | 2 | 6 (21.43) |

P-value between maxilla and mandible <0.05

DISCUSSION

Present study was conducted to analyze the prevalence and pattern of dental developmental alterations in patients with tooth dilacerations. In this analysis we reviewed 1500 data of patients who were visited at our institution for the

stomatological treatment were analyzed. We found 30(2%) patients with 48 dilacerated teeth. Out of 30 patients 22(73.33%) patients were females while 8(26.67%) patients were males with p-value <0.05. These results showed similarity to some other studies in which female patient's population was high as compared to males.^{13,14} In our study we found maximum patients were in the age group 25 to 50 years 50%. These results were similar to other study in which patients with ages 20 to 45 years was high in numbers¹⁵.In present study after complete screening we found from 30 dilacerated teeth patients 15(50%) patients had dental developmental alterations. In which 10(66.67%) patients were females and 5(33.33%) patients were males. A study conducted by Constantino et al¹⁶ regarding prevalence of DDAs in dilacerated teeth reported females patients had high prevalence of DDAs compared to males 63% and 37%

In this study, we found 28 teeth involvement with DDAs. Hypodontia were the most frequent DDA found in 5 patients (33.33%) followed by enamel pearl and taurodontism. These results showed similarity to many previous studies conducted regarding dental anomalies in which hyperdontia were found most frequently and rated 30 to 45%^{17,18}. We found according to the location of DDAs 20(71.43%) teeth were maxilla and 8(28.57%) were mandible. Many of previous studies were comparable to our study^{19,20}. From all the DDAs associated to dilacerated teeth, 12 (42.86%) were anterior in which 9 in maxilla and 3 in mandible area. 10 (35.71%) DDAs were in molar portion in which 7 in maxilla and 3 were mandible. 6(21.43%) DDAs were in the premolar portion in which 4 were maxilla and 2 were mandible. These results were similar to some other studies in which most of the DDAs teeth were in anterior zone followed by molar and premolar area^{21,22}

CONCLUSION

The prevalence of dental developmental alterations was quite high 50% and the most affected teeth were maxilla and hypodontia were the most frequent DDAs in dilacerated teeth. Moreover, knowledge of the prevalence of dental anomalies and their distribution can contribute to accurate diagnosis and treatment planning in dental clinics of the region.

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