
Reason for visit to dentist following trauma to primary teeth-A one-year Retrospective study

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Abstract: Aim of the study is to identify the clinical cases related to trauma to primary dentition visiting saveetha dental hospital. Traumatic injuries to primary teeth are second most frequent cause of consultation in pediatric dental practice. The most commonly affected primary teeth are upper central incisors and more than one tooth can be lesioned. Evaluation of patients who reported to saveetha dental hospital with trauma to primary teeth. Data was collected from DIAS software. Results were statistically analysed with SPSS software. Mobile tooth was the most common reason for visit to dentist following trauma to primary teeth. Also males in the age group of 5-7 reported more common. The highest prevalence among trauma to primary teeth was more common in age group 5-7 years with a male predominance and most common reason for visit to dentist was mobile tooth caused by trauma which were mostly extracted. Chi square test shows $p > 0.05$, not significant. Within the limitations of the study, the highest prevalence among trauma to primary teeth was more common in age group 5-7 years with a male predominance and most common reason for visit to dentist was mobile tooth caused by trauma which were mostly extracted.

Keywords: Dentist; Trauma; Primary teeth innovative technique

INTRODUCTION

Traumatic injuries to the primary teeth are the second most frequent cause of consultation in pediatric dental practice (Oliveira *et al.*, 2017) Traumatic crown injuries are considered a public dental health problem due to its costs and treatment, which may persist for rest of patient's infancy. (Tello *et al.*, 2016; Oliveira *et al.*, 2017)) The most commonly affected primary teeth are upper central incisors and more than one tooth can be lesioned. (Mendoza-Mendoza *et al.*, 2015) Complicated crown fracture and crown root fracture with pulp involvement expose dental pulp to oral environment. The time elapsed between accident and treatment is an important factor to consider before deciding the therapeutic approach for traumatically exposed pulp. (Andreasen *et al.*, 2002) Trauma has multiple complications for traumatized individual, family members and society. The impact is not only physical but also psychosocial and economic. Traumatic injuries are mostly irreversible and this treatment will continue rest of the patient's life. Traumatic dental injuries in the primary dentition appear to be stable at approximately 30% in most studies. (Ak *et al.*, 2019)

Dental caries is a global oral health problem with distinctive variations in its distribution. It continues to be the most common infectious disease in the children. (Govindaraju and Gurunathan, 2017) Dental caries is a complex process of demineralization and dissolution of substance of the teeth leading to cavitation. (Subramanyam *et al.*, 2018) Early childhood caries is one the arising prevalent chronic disease that can affect their life in many different aspects. Fluoride by far is one of the effective ways in declining the prevalence of caries and its progression. ('Fluoride, Fluoridated Toothpaste Efficacy And Its Safety In Children - Review', 2018) The optimum level of fluoride in drinking water is 0.7 to 1.2 ppm. Decreased fluoride concentration leads to increased risk of caries and increased concentration can lead to dental or skeletal fluorosis. (Somasundaram, 2015)

Treatment for trauma to primary teeth may vary according to the impact of injury, and the treatment modalities are restoration, pulp therapy, pulpotomy, pulpectomy and extraction. Pulp therapy in primary teeth has been performed using various instrumentation techniques. However, the conventional instrumentation technique used for root canal preparation in primary teeth is hand instrumentation. Various Nickel-Titanium (Ni-Ti) instruments are available to perform efficient root canal preparation in primary teeth. (Govindaraju, 2017) Pulpectomy is the preferred treatment of choice for non-vital primary teeth. Root canal preparation in primary teeth is a challenging

and time-consuming procedure. (Jeevanandan, 2017) Pulpectomy procedure is performed in primary teeth to avoid extraction and to maintain its form and function.¹² (Govindaraju, Jeevanandan and Subramanian, 2017b) Use of rotary instrumentation for pulpectomy is an emerging practice in pediatric dentistry. (Govindaraju, Jeevanandan and Subramanian, 2017a, 2017b) The use of rotary filed in primary teeth resulted in more conical shaped root canals and provided considerable dentin removal thereby ensuring adequate root canal cleaning, easy insertion and compaction of the material than those prepared with manual files despite the material used.(Lakshmanan *et al.*, 2020)

Primary teeth act as a natural space maintainer and guide the eruption of permanent teeth to their optimal position in the dental arch. The retention and preservation of the primary tooth in the dental arch in its normal function and free of pathology is of utmost importance.(Panchal, Jeevanandan and Subramanian, 2019) Primary teeth play an imperative role in the self-esteem of the preschool children and also plays a pivotal role in speech development, esthetics, and function. The maintenance of the primary dentition is important to guide the eruption of permanent teeth and traumatic dental injuries may affect this balance, and hence, it is considered as an important oral health problem.(Ravikumar, Jeevanandan and Subramanian, 2017) The major concern in the field of paediatric dentistry is the loss of primary teeth despite various efforts available in the prevention of dental caries in children. The principal goal in paediatric dentistry is to retain the primary teeth in the oral cavity until its physiological exfoliation to preserve arch integrity.(Jeevanandan and Govindaraju, 2018)

The first visit to dentist is an important event in child's life.(Govindaraju, Jeevanandan and Subramanian, 2017a, 2017b; Vinothini *et al.*, 2019) It provides the dentist an opportunity to advise parents on prevention of oral diseases and also allows for early detection of dental caries and also arrests in progression. It is recommended that the first dental visit should occur no later than 12 months of age. (Sistani *et al.*, 2017) Parents feel primary teeth are temporary and they fail to give enough importance and care. Other factors that influence early dental care are socio economic status, awareness and knowledge about infant oral health among pediatricians and general dentists and parent's attitude towards early dental care. (Muthu, Phanibabu and Rathnaprabhu, 2008) It is the responsibility of parents to pursue health-related necessities of their children. In this regard, the lack of parent's or guardian's attention will have a negative influence on the child's oral status.(Gurunathan and Shanmugaavel, 2016) The more positive a mother's attitude regarding her child's oral health, the more dental treatment the child will receive. (Sarnat, Kagan and Raviv, 1984).

Our department is passionate about research we have published numerous high quality articles in this domain over the past years (Abraham *et al.*, 2005; Devaki, Sathivel and BalajiRaghavendran, 2009; Neelakantan *et al.*, 2010, 2015; Arja *et al.*, 2013; Ramshankar *et al.*, 2014; Sumathi *et al.*, 2014; Surapaneni and Jainu, 2014; Surapaneni, Priya and Mallika, 2014; Ramamoorthi, Nivedhitha and Divyanand, 2015; Manivannan *et al.*, 2017; Ezhilarasan, 2018; Ezhilarasan, Sokal and Najimi, 2018; J *et al.*, 2018; Ravindiran and Praveenkumar, 2018; Malli Sureshbabu *et al.*, 2019; Mehta *et al.*, 2019; Krishnaswamy *et al.*, 2020; Samuel, Acharya and Rao, 2020; Sathish and Karthick, 2020)

Aim of the study is to evaluate the incidence of trauma to primary teeth among children and their reason for visit for treatment awho visited Saveetha Dental College and Hospitals.

Materials and methods:

Study design and setting: The study setting is university based single centered study. A retrospective study was conducted on 34 patients who visited a Private Dental College with an complaint of trauma to primary teeth. Thus the population includes pediatric patients who visited with a history of trauma for treatment. The advantage of this study was the flexible data that could be obtained immediately and less expensively. The drawback of this study is that there were geographic limitations and the people involved were from an isolated population. The internal validity of the study was carried out by analysing the age and gender of pediatric patients with a complaint of trauma. The external validity was determined by analyzing the history of patients.

Data collection: The inclusion criteria of was the pediatric patients with a history of trauma. The exclusion criteria was patients pediatric patients without trauma and adult patients who reported with trauma. The patient records were reviewed and analysed between June 2019 and March 2020 and the details of patients who reported with history of trauma was noted. Additionally the cause of trauma and symptoms were also noted. All available data was included to minimise sampling bias. Cross verification of details were done with the help of photographs. The data of age and gender of pediatric patients who reported with trauma tabulated. Incomplete and censored data was excluded. Data was entered in a methodical manner. Data was recorded and tabulated on Excel.

Statistical Analysis: After Excel tabulation, the data was exported to IBM SPSS software [Version 20: IBM Corporation NY USA]. Descriptive statistics were used to calculate correlation between age and gender of patients who reported with trauma. The dependent variable was the history and cause of trauma. The independent variables were age and gender. Pearson chi square test was done to statistically analyze the data. Pearson chi square test was used to identify any significant level of variation of association the significance level was set at 0.05

Ethical Approval: The ethical approval for the retrospective study was obtained from the university (SDC/SIHEC/2020/DIASDATA/0619-0320).

RESULTS AND DISCUSSION

The results obtained in the study depicts that the most common reason for visit to dentist was mobile tooth(50%) followed by fractured tooth, avulsed tooth, pain in tooth and swelling was the least common (Figure 1). While comparing the age group, 5-7 years age group was the more common age group for visiting dentist due to trauma (Figure 2). Males were more commonly affected by trauma when compared to females (Figure 3).

This study was conducted to identify the reason for visit to dentist following trauma to primary teeth. With the results obtained in the study, we come to know that patients with age group of 5-7 years that too males are more commonly affected by trauma to primary teeth and visit the dentist. The common reason for visit to dentist was mobile tooth than other reasons like fractured tooth and avulsed tooth.

In our study it was reported that 5-7 years of age was more common to visit a dentist. In contrast to our study, Hargreaves et al. the study reported that trauma was least common at the age 1-2 yrs(10.7%) and most common at 4-5 yrs(20.6%) of age. The trauma most commonly seen was fracture of enamel only(71.8%), dentin fracture(11.2%), tooth loss(8.2%) and discoloration (5.6%). (Hargreaves *et al.*, 1999) . Onetto et al reported that ten to twelve year old children had the highest number of injuries. Zadik et al. reported that prevalence of children with traumatized teeth was 11.1%, no difference between males and females. The tooth most commonly affected was the maxillary central incisor. The most common type of injury was fractured tooth and common type of fracture was that of enamel with or without dentin. (Zadik, 1976) .

In our study it was reported that mobility was the most common reason for visit to dentist and mobile tooth was the common type of injury. In contrast to our study, Onetto et al reported that Falling was most common cause of injury followed by striking objects and bicycle accidents. Most injuries in primary dentition occurred at home. Most children sought treatment after 24 hours. The most common injuries were luxation, intrusion and subluxation. (Onetto, Flores and Garbarino, 1994) Perez et al reported that the leading cause of trauma was falls(46%), 132 children sustained soft tissue injury, 61 permanent teeth were fractured and 36 primary teeth were fractured. (Perez *et al.*, 1991) Zadik et al.reported that The most common type of injury was fractured tooth and common type of fracture was that of enamel with or without dentin. (Zadik, 1976) .

According to Christabel et al reported that the prevalent type among Chennai children is gingival type. The papillary penetrating type of frenal attachment decreases with age. The dentists should correlate the age of the child and type of frenal attachment and morphological variations during their clinical examination to avoid misdiagnosis and unnecessary treatment. (Christabel and Linda Christabel, 2015) Packiri et al reported that the data obtained from the review, display a lack of high quality study, with proper sample size and adequate follow up period. Further, randomized clinical trials are required, for forming a reliable scientific evidence, that can guide the paedodontist in formulating a best treatment option in case of paediatric oral ranula.(Packiri, Gurunathan and Selvarasu, 2017)

The time duration between the occurrence of trauma and the patient reporting to the dentist should be shorter. This however is set to affect the prognosis of the tooth, that is, shorter the duration better the prognosis. The advantages of the study were the availability of data and history of the patients. The limitations of the study were the obtained data was not location specific and belonged to different ethnicity.

CONCLUSION

Within the limitations of the study, them highest prevalence among trauma to primary teeth was more common in age group 5-7 years with a male predominance and most common reason for visit to dentist was mobile tooth caused by trauma which were mostly extracted.

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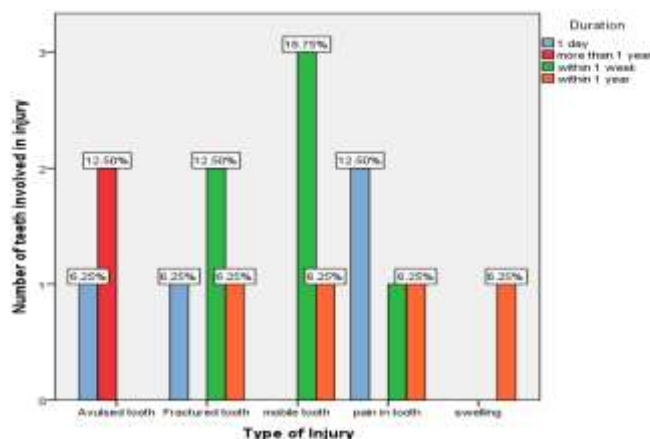


Fig.1: The bar graph represents association between the different type of injury and time duration taken to report for treatment. X axis represents type of injury and Y axis represents time taken for the patients to report for treatment. The graph depicts that patients more commonly visited within one year and mobile teeth was common reason for visit.

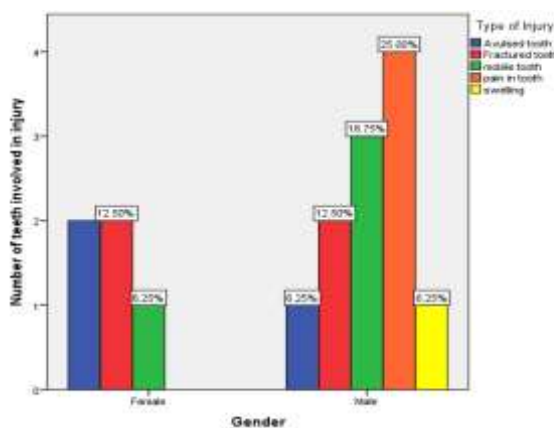


Fig.2: Bar graph represents association between gender and type of injury. X axis represents gender and Y axis represents number of teeth involved in injury. Majority of the male patients had reported with trauma and pain in the tooth was the most common reason to visit the dentist. Chi square test shows p value=0.314, not significant, proving that there is no significant association between gender and type of injury.

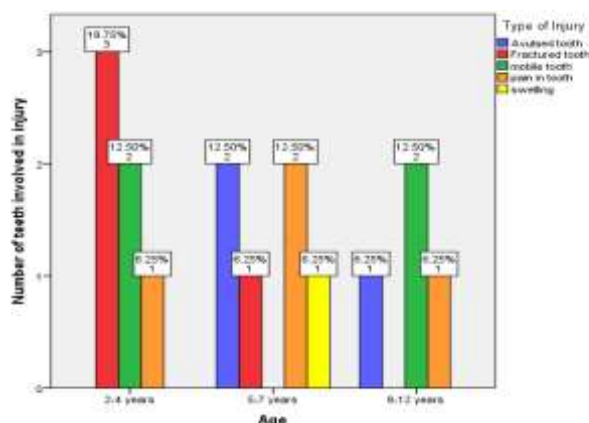


Fig.3: The bar graph represents the association between age group of patients and number of teeth involved in injury. X axis represents age and Y axis represents number of teeth involved. The graph depicts that age group 5-7 more commonly visited dentist. Chi square test shows p value=0.754, not significant, proving that there is no significant association between age group of patients and number of teeth involved in injury.