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RESEARCH ARTICLE

ASSESSMENT OF THE KNOWLEDGE AND ATTITUDE OF PARENTS REGARDING THE MANAGEMENT OF AVULSION OF TOOTH: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: Traumatic accidents and sports activities may cause injuries to the teeth and surrounding structures especially among children and adolescents. The most commonly involved is tooth avulsion. The experience of pain, emotional distress and physical impairment during dental trauma has a potential of producing dental anxiety in the children. **Objective:** The study aimed to assess the level of knowledge and attitude of parents regarding the management of avulsion of tooth. **Material and method:** A questionnaire comprising of 10 questions with multiple choices was given to the 80 parents participated in the study. The knowledge assessed through the responses given by the parents after completing the proforma. The data was collected and statistically analyzed. **Result:** 78.75% of parents experienced that the tooth of their child become avulsed by the trauma. **Conclusion:** Preventive programs and educational campaigns should be conducted to improve the knowledge of the parents, teachers and general population about the preservation and management of the avulsed tooth.

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INTRODUCTION

Traumatic dentoalveolar injuries are frequent in children and adolescents during their day to day activities like cycling, skating, running etc. These activities results into injuries affecting teeth, their supporting structures and adjacent soft tissues, contributing to the appearance of major psychosocial problems that affects child's life. The most common dental emergency is tooth avulsion involving maxillary central incisors in both primary and permanent dentition. Dental avulsion is defined as the complete displacement of tooth out of socket along with severed periodontal ligament with or without fracture of the alveolar bone (Loo, 2014). The mechanism for tooth avulsion is thought to be the lack of resiliency of the periodontal ligament seen at those ages (Nikam *et al.*, 2014). According to Andreasen *et al.*, loosely structured short periodontal ligament surrounding the erupting teeth, incompletely formed roots and the elasticity of alveolar bone favors the avulsion of the teeth. An estimate of 0.5–16% of avulsions is seen in permanent dentition and 7–13% in primary dentition (Mahajan, 2017).

Epidemiological studies indicate that dental trauma is a significant problem in young people and the incidence of trauma will exceed risk of dental caries and periodontal disease in their near future (Nikam *et al.*, 2014). Dental avulsion brings aesthetic, functional and psychological consequences, both on the child and the parents. The experience of pain, emotional distress and physical impairment during dental trauma has a potential of producing dental anxiety in the children (Loo *et al.*, 2014). There are various modalities to replace a lost tooth. The most preferred and desired treatment option is the immediate reimplantation. The reported success rate in immediate reimplantation ranges from 85% to 97% depending on the stage of root development (Mahajan, 2017). However, the prognosis of avulsed teeth depends on prompt and adequate action taken at the site of the accident such as minimizing the time the tooth remains outside of the alveolus, using an adequate storage and transportation medium, protecting the root surface and periodontal ligament from damage. In case of an emergency of avulsed teeth, parents of the children are the first people to attend and make decisions (Mahajan, 2017). Thus, it is essential that the population including parents and caretakers, teachers and coaches, among others should know about the management of these situations, as they are often present at the site of the

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injury. Awareness and knowledge of the parents in the handling these emergency situations of avulsed teeth influence the prognosis of the teeth. Therefore, the present study was aimed to assess the level of knowledge and attitude of parents regarding the management of avulsion of tooth.

MATERIALS AND METHODS

The study population consists of 80 parents who accompanied their children, aged between 6-12 years, for receiving dental care for the first time in the Department of Pedodontics and preventive dentistry, Government Dental College and Hospital, Patiala. The objectives and nature of the study were explained to the participants. The participants were asked to complete a proforma of 10 questions which was a modified form of questionnaire used by Raphael and Gregory in their study. The data obtained were tabulated and statistical analysis was done using SPSS statistics version (22.0). The P value ≤ 0.05 was considered to be significant; the chi-square test was applied to investigate the association between the obtained results.

RESULTS

A total of 80 parents were interviewed, out of them 70 were female and 10 were male. 88.75% of parent responded that their child has a history of trauma so severely that the tooth knocked out of the socket. The various responses to the questions by the parents were summarized in Table 1.

DISCUSSION

The result of the study showed that 78.75% of parents experience that the tooth of their child become traumatically avulsed during physical activities. When a tooth is avulsed, attachment damage and pulp necrosis occurs. The tooth is separated from the socket mainly due to the tearing of the periodontal ligament that leaves viable periodontal ligament cells on most of the root surface. In addition, due to the crushing/scraping of the tooth against the socket, small-localized cemental damage also occurs. If the periodontal ligament left attached to the root surface does not dry out, the consequences of tooth avulsion are usually minimal. The hydrated periodontal ligament cells will maintain their viability allowing healing with regenerated periodontal ligament cells when reimplanted without causing much destructive inflammation (Trope, 2011).

Although more than 75% of parents wanted to save the avulsed tooth but only 7.5% of parents were able to put the avulsed tooth back into the socket at the site of injury, as mostly worried with controlling bleeding and pain. Andreasen JO and Hjorting-Hansen E in their study concluded that under any circumstance, best results will be achieved if the tooth remains out the socket for less than 20 minutes whereas Lin S *et al.*, in their study found that appropriate reimplantation of an avulsed permanent tooth within 30 minutes has shown to have a 90% chance of success. Only a negligible chance (5%) of long term retention of an avulsed tooth exists if reimplantation occurs after two hours (Jain, 2017).

Table 1. Responses to the various questions given by the parents regarding tooth avulsion

Questions	Answers	Female (%)	Male (%)	Total (%)	P value
Question 1: Has your child ever experience trauma to a tooth so badly, that it become loose?	a. Yes b. No	64(91.42) 6(8.57)	7(70) 3(30)	71(88.75) 9(11.2)	0.04
Question 2: What would you do if the tooth is knocked out of the socket?	a. Save it b. Discard it	58(82.85) 12(17.14)	5(50) 5(50)	63(78.75) 17(21.25)	0.01
Question 3: What would you do if the tooth is in child's mouth, however out of place?	a. Put it back into the alveolus b. Remove it from child's mouth c. Discard it completely	3(4.28) 62(88.57) 5(7.14)	3(30) 0(0) 7(70)	6(7.5) 62(77.5) 12(15)	2.49e-9
Question 4: Have you seek any professional treatment?	a. Yes b. No	13(18.57) 57(81.42)	5(50) 5(50)	18(22.5) 62(77.5)	0.02
Question 5: To whom will you take the child first to?	a. Doctor b. Hospital c. Dentist	11(15.71) 8(11.42) 51(72.85)	5(50) 1(10) 4(40)	16(20) 9(11.25) 55(68.75)	0.03
Question 6: When will you visit the dentist for the treatment after the trauma?	a. Immediately b. Next day c. After Few days	27(38.57) 41(58.57) 2(2.85)	8(80) 2(20) 0(0)	35(43.75) 43(53.75) 2(2.5)	0.04
Question 7: How will you carry the tooth?	a. In water b. In cloth c. In milk d. Not in any media	2(2.85) 51(72.85) 1(1.42) 16(22.85)	1(10) 4(40) 2(20) 3(30)	3(3.75) 55(68.75) 3(3.75) 19(23.75)	0.01
Question 8: Do you think it is necessary to save avulsed Permanent tooth?	a. Yes b. No	68(97.14) 2(2.85)	8(80) 2(20)	76(95) 4(5)	0.01
Question 9: Are you interested in knowing the emergency management of avulsed Tooth?	a. Yes b. No	67(95.71) 3(4.28)	7(70) 3(30)	74(92.5) 6(7.5)	0.003
Question10: Do you have any previous knowledge regarding management of avulsed tooth?	a. Yes b. No	7(10) 63(90)	4(40) 6(60)	11(13.75) 69(86.25)	0.009

In the present study, 53.75% of parents seek for the professional care after 24hrs of the trauma. Prolonged extra-alveolar duration leads to an uncertain prognosis and teeth reimplanted within one hour after the injury have shown highest rate of functional healing. The sooner the tooth can be reimplanted in its socket after avulsion, better the prognosis will be for retention without root resorption. However in situation where immediate reimplantation of the avulsed tooth is not possible, the tooth should be placed in specific storage media like Hank's Balanced Salt Solution or storage mediums such as sterile saline solution, milk, saliva, etc. that can save the pulp and periodontal ligament from the damage. In our study, 68.75% of the parents responded that they would wrap the avulsed tooth in cloth. In Raphael and Gregory study, only 5% of respondents knew that milk was the best choice of medium for transporting avulsed teeth. Avulsed teeth can be stored in milk for up to six hours prior to replantation and subsequently show a low index of root resorption (Raphael, 1990). In the study by Al-Zaidi and Al-asmari AA, 41.3% of parents carried the avulsed tooth in water (Al-Zaidi, 2017). The findings of our study showed that 86.25% of parents do not have any previous information about the management of avulsed tooth. More than 90% showed the interest in knowing the emergency management of avulsed tooth and 95% were agreed to save the avulsed tooth. In the present study, the female participants showed higher level of awareness in comparison to the male.

Conclusion

The reimplanted tooth serves as a space maintainer and often guides adjacent teeth into their proper position in the arch that is an important function during the transitional dentition period and has a psychological value also. The lack of experience and knowledge expressed by the parents answering the questionnaire concerning dental trauma reflects the need for more effective connection between dental professionals and caretakers that enable them to manage or perform correctly when facing a case of dental avulsion.

Preventive programs and educational campaigns should be conducted to improve the knowledge of the parents, teachers and general population about the preservation and management of the avulsed teeth.

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