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Knowledge and Attitude among Pediatricians towards Emergency Management of Avulsed tooth of Vadodara City, Gujarat

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Abstract

Context: Accidents involving trauma to the face and dentoalveolar structures is very common. Majority of traumatic injuries occur at home and the parents rush the children to their family pediatrician, due to lack of availability of nearby dentist. Thus, the ultimate prognosis of an avulsed tooth occurring in a child depends on the prompt management by his or her pediatrician.

Aim: The aim of the study was to determine the level of knowledge regarding tooth avulsion and its emergency management among Pediatricians in Vadodara City (Gujarat).

Settings and Design: An analytical cross sectional study was conducted amongst 97 Pediatricians practicing in Vadodara city, registered under Indian Medical Association (IMA), Baroda, Gujarat. **Materials and Methods**: A validated questionnaire comprising of 10 questions concerning avulsion of a tooth based upon that of Raphael and Gregory's study was used to assess the knowledge and attitude of Pediatricians regarding the same.

Statistical Analysis Used: The data was analyzed by using SPSS version 21.00 (Statistical Package for Social Sciences, Chicago, USA). Descriptive statistics were used to compare the results. The level of significance was set at 0.05.

Results: 21.7% of pediatricians believed in self-replantation but only 8.3% would attempt self-replantation themselves. Water and salt solution were the most accepted cleaning medium for avulsed teeth by majority of pediatricians (78.33%). 16.7% of pediatricians had encountered previous dental avulsion injuries in children but only 10.5% would recommend the tooth to be taken under moist conditions to the dentist.

Conclusion: The present study shows lacunae in knowledge regarding the treatment of avulsion injuries by pediatricians practicing in Vadodara, Gujarat. Lack of knowledge among pediatricians, necessitates the need for an educational programme to improve the awareness of immediate measures required for saving an avulsed tooth.

Keywords: Avulsion, knowledge, pediatricians, Vadodara **Introduction**

Accidents involving trauma to the face and dentoalveolar structures is very common. According to Andreasen and Andreasen [1], 10% of the population has experienced some kind of dental trauma and the frequency of tooth avulsion following traumatic injuries ranges from 0.5 to 16% in the permanent dentition [2] and from 7 to 13% in the primary dentition [3]. Once the tooth is avulsed, it should be placed immediately in its socket to allow for normal healing and repair. For success of replantation, maintenance of viable periodontal ligament cells present on root surface is crucial [4,5]. Hence, immediate replantation [4-6] (within 15 minutes after avulsion) or storage of the exarticulated tooth in solutions compatible with cell viability until replantation are critical procedures. The permanent anterior teeth are not only important for aesthetics but are also essential for speech, mastication, health of the supporting tissues and psychological and mental well-being of children. These injuries that result in the loss of tooth may have long-lasting cosmetic, functional, economic and psychosocial effects. Hence, immediate replantation of avulsed permanent incisors contributes to an improved self-image and enhanced selfesteem in children suffering from such injuries.

The single most important factor that determines the prognosis of a replanted tooth is the viability of the periodontal ligament present on the root prior to replantation. To prevent dehydration of the root surface during transportation, it has been suggested that it may be placed in saliva (buccal vestibule) [2], saline [7], milk [8] or wrapped in plastic wrap. [9] The storage medium must be of correct osmolarity and pH and milk fulfils these requirements and as such is an excellent medium. [6]

Majority of traumatic injuries occur at home and the parents rush the children to their family pediatrician, due to lack of availability of nearby dentist. Thus, the ultimate prognosis of an avulsed tooth occurring in a child depends on the prompt management by his or her pediatrician. Our search of the literature revealed no study from Vadodara that evaluated the knowledge of medical professionals in the management of tooth avulsion injuries. Hence, this study was undertaken with the aim to evaluate the knowledge and attitude of Pediatricians toward emergency management of tooth avulsion.

Therefore, the aim of the study was to determine the level of knowledge regarding tooth avulsion and its emergency management among Pediatricians in Vadodara City (Gujarat).

Materials and Methods:

A cross-sectional questionnaire study was carried out among 97 practicing Pediatricians of Vadodara city. All the pediatricians in Vadodara were included in the study. The list of total pediatrician practicing Vadodara City registered in Medical Association Baroda was obtained from www.barodamedicalguide.com. The study was approved by the University Ethical Board.

Inclusion Criteria

- Pediatricians registered under Indian Medical
- Association Vadodara, Gujarat.
- > Pediatricians willing to participate in the study.

Exclusion Criteria

- ► Non-practicing pediatricians.
- > Professionals refusing to provide written consent.

>Professionals who could not be contacted in three subsequent visits.

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▶ Professionals who did not fill the questionnaire.

A validated questionnaire comprising of 10 questions concerning avulsion of a tooth based upon that of Raphael and Gregory's study [10] was used to assess the knowledge and attitude of Pediatricians regarding the same. The questionnaire was prepared in English and vernacular language for data collection. This was distributed among the pediatricians and completed questionnaires were collected from them on the same day. They were given the opportunity to make inquiries or comments about the questions after collection of questionnaire. This was followed by distribution of information leaflets including the proper measures for managing avulsed teeth as per the guidelines by International Academy of Traumatology. [3] Participation in the study was completely voluntary and strictly confidential. An informed written consent was taken prior to their participation in the study. The survey was conducted over a three week period.

The data was collected and tabulated on SPSS (Statistical Package for Social Studies) version 22.0 (IBM Corporation, Chicago, IL, USA). The results were computed as percentages.

Results

A total of 97 Pediatricians practicing in Vadodara city, registered under Indian Medical Association (IMA), Baroda, Gujarat were surveyed to assess the level of their knowledge regarding the emergency management for tooth avulsion. Among them, only 60 of them agreed to be a part of the study. Among them, males were 63.33% and females were 36.67%. [Table 1]

Possibility of self-replantation and attempt to self-replantation

On being questioned about the possibility of selfreplantation, 21.7% of pediatricians believed in selfreplantation but only 8.3% would attempt self-replantation themselves. [Table 2 & 3]

Timing of replantation

The knowledge of timing of replantation was found to be highly variable among all pediatricians. Only 23.33% of pediatricians felt that replantation should be done immediately whereas, 18.33% pediatricians felt that the replantation procedure should be postponed to a later dental visit. Almost 20% pediatricians felt that replantation could be performed within the same day or after a few days of tooth avulsion. [Table 4]

Cleaning and transporting media:

Salt water solution were the most accepted cleaning medium for avulsed teeth by majority of pediatricians (51.66%). [Table 5] The most common response for the transporting medium was normal saline solution (46.67%). Only 3.33% of pediatricians felt milk to be the ideal transporting medium for avulsed teeth. [Table 6]

Previous information about dental avulsion:

Out of 60 pediatricians who participated in the study, only 31.7% of them had previous information of dental avulsion out of which 36.8% were males and 63.2% were females. The major sources of information was from books and media. [Table 7 & 8]

Knowledge about previous avulsion:

16.7% of pediatricians had encountered previous dental avulsion injuries in children and 70% of these pediatricians had referred them immediately to the dentist. However, only 30% of pediatricians recommended the tooth to be taken under moist conditions. [Table 9 & 10]

Discussion

Although dental injuries can occur at any age, they are more often seen between 1 and 4 years. During this developmental period, children learn to walk and then to run. During this period, their coordination and judgment are not completely developed and falls are common. As

the children gain confidence and coordination, the incidence of dental injuries decreases; which rises again later during the active age range (8-12 years), as a result of bicycle, skateboard, playground and sports activities. [11] In the event of any injury, parents generally rush to their children's pediatrician for immediate relief and treatment. Therefore, the practicing pediatricians were included in the study.

Questionnaires are good tools for collecting information from large samples in a short period of time provided they are carefully designed. For this study, the Ralph and Gregory questionnaire [10] was used to check the level of pediatricians' knowledge regarding tooth avulsion and its management. The questionnaire consisted of simple and closed ended questions, and the answers were categorized according to the pediatricians' direct selections. The questionnaire has been used in various other studies.[10,13]

Avulsion of tooth takes place when a tooth directly sustains trauma which displaces the tooth from the socket. The prognosis of the avulsed tooth depends on the immediate management of the tooth after it is displaced out of the socket. According to the guidelines of dental trauma management published by American Academy of Pediatric Dentistry and the IADT, the immediate replantation of a tooth is recommended for the best prognosis.[8] According to Andersson and Bodin an avulsed tooth if handled properly in the first 15 minutes can be retained for life.¹⁴ This indicates that immediate reimplantation is of absolute necessity in order to achieve a propitious sequel of the reimplanted tooth. [14] The current results demonstrated a significant lacunae of knowledge in pediatricians about management of dental avulsion. It is evident that the level of education had no noticeable influence on their knowledge about dental trauma and its immediate management.

Most of the pediatricians were not aware of replantation of an avulsed tooth, the methods of cleaning and the medium for storing them prior to replantation, thereby severely compromising the prognosis of the avulsed tooth which might lead to loss of the tooth eventually.

In the present study, only 21.7% of the pediatricians believed in replantation of an avulsed tooth and only 8.34% would attempt self-replantation themselves. The results of the study are similar to results given by Jyothi et al [15] in which only 5.7% of professionals would attempt self replantation. Lack of knowledge, fear to hurt the child, and the perceived association between bleeding and tooth loss seems to have prevented pediatricians from replanting the avulsed tooth.

Only 51.6% of pediatricians felt that replantation should be done within one hour of avulsion. The results of the study are comparable to the studies by Shubhashraj K and Hashim et al. in which 52% of medical professionals felt that replantation should be done immediately. [16,17] Only 10.8% and 26% of professionals felt that replantation should be done immediately in studies by Dali et al and Venkatraman et al. [18,19] A delay in providing emergency treatment would jeopardize the prognosis of the avulsed tooth.

The most common cleaning medium selected was normal saline (78.33%). Likewise, similar finding has been reported by few previous studies as by Subhashraj and Nuvvula et al. [16,20] However, in a study by Venkatraman et al., [19] tap water was selected as the most common cleaning medium. According to Andreason [1], milk maintains vitality of the periodontal ligament cells upto 3 hours and saliva can be used as a storage medium for a maximum of 2 hours due to its hypotonic nature. In the present study, only 3.33% of professionals selected milk as the transporting medium.

31.67% of the practicing pediatricians had previous knowledge of avulsion and 16.67% had actually seen a patient with avulsion injury. Only 21.5% of the participating pediatricians had received information regarding treatment of avulsion in their medical tenure. Studies by Subhashraj [16] and Venkatraman et al [19] showed that only 24% and 29% of the medical professionals had knowledge of avulsion injuries. A comparison of the present study with other studies has been presented in Table 11.

Conclusion

The present study shows lacunae in knowledge regarding the treatment of avulsion injuries by pediatricians practicing in Vadodara, Gujarat. Decreased levels of awareness among pediatricians, necessitates the need for an educational programme to improve the awareness of immediate measures required for saving an avulsed tooth.

References

- Andreasen JO, Andreasen FM. Textbook and colour atlas of traumatic injuries to the teeth, 3rd edn. Copenhagen: Munksgaard Publishers; 1994.
- Flores MT, Andreason L, Andreason JO, Bakland LK, Maimgren B, Barnett F et al. Guidelines for management of traumatic dental injuries II. Avulsion of permanent teeth. Dent Traumatol 2007;23:130-6.
- Trope M. Clinical management of the avulsed tooth: Present strategies and future directions. Dent Traumatol 2002;18:1-11.
- Hammarström L, Blomlöf L, Lindskog S. Dynamics of dentoalveolar ankylosis and associated root resorption. Endod Dent Traumatol. 1989;5:163-75.
- Löe H, Waerhaug J. Experimental replantation of teeth in dogs and monkeys. Arch oral Biol. 1961; 3:176-84.
- 6. Blomlof L, Lindskog S. Influence of osmolality and composition of some storage media on human

periodontal ligament cells. Acta Odontol Scand 1982;40:431-41.

- Haammarstrom L, Pierce A, Blomlof L. Feiglin B, Lindskog S. Tooth avulsion and replantation: A review. Endod Dent Traumatol 1986;2:1-8.
- Andreasen JO, Kristerson L. The effect of limited drying or removal of the periodontal ligament. Periodontal healing after replantation of mature permanent incisors in monkeys. Acta Odontol Scand 1981;39:1-13.
- Blomlof L, Lindskog S, Andersson L. Storage of experimentally avulsed teeth in milk prior to replantation. J Dent Res 1983;62:912-6.
- Raphael SL, Gregory PJ. Parental awareness of the emergency management of avulsed teeth in children. Aust Dent J 1990;35:130–3.
- Rai S, Munshi AK. Traumatic injuries to the anterior teeth among south kanara school children – prevalence study. J Indian Soc Pedod Prev Dent 1998;16:44-8.
- Borssen E, Holm AK. Traumatic dental injuries in a cohort of 16 year olds in northern Sweden. Endo Dent Traumatol 1997;13:276-80.
- Shashikiran ND, Reddy VVS, Nagaveni NB. Knowledge and attitude of 2,000 parents (urban and rural - 1,000 each) with regard to avulsed permanent incisors and their emergency management, in and around Davangere. J Indian Soc Pedod Prev Dent 2006;24:116-21.
- 14. Andersson L, Bodin I. Avulsed human teeth replanted within 15 min—a long-term clinical follow-up study. Endod Dent Traumatol 1990;6:37–42.
- 15. Jyothi KN, Venugopal P, Nanda S, Shah MK. Knowledge and Attitude of medical doctors towards emergency management of avulsed tooth - A Cross sectional survey. J Dent Sci Res 2011;2:156-67.

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- Subashraj K. Awareness of management of dental trauma among medical professionals in Pondicherry, India. Dent Traumatol 2009;25:92-4.
- 17. Hashim R. Physician's knowledge and experience regarding the management of avulsed teeth in United Arab Emirates. J Clin Dent Med Res 2012;5:91-5.
- 18. Dali M, Naulaka D, Rajbanshi L. Knowledge, Attitude and practice in emergency management of avulsed tooth among medical doctors in Nobel Medical College, Biratnagar, Nepal: A cross sectional survey. Int J Dent Health Sci 2014;1:3-12.
- 19. Venkatraman M, Pratap K, Padma TM, Kalyan VS, Bhargava A, Varma LS. Knowledge and attitude of medical professionals towards emergenvy management of avulsed tooth in a teaching medical hospital, Khammam Town, South India. J Indian Assoc Public Health Dent 2015;13:183-7.
- 20. Nuvvula SK, Dedeepya P, Lakshmi KR. Knowledge regarding emergency management of avulsed teeth: A Survey of general dentists in Nellore, Andhra Pradesh. J Indian Assoc Public Health Dent 2011;17:560-3.

Legends Table

Table 1: Demographic Data

SN.	Variables	Frequency	Percentage (%)
1.	Total	60	
	Respondents :	38	63.33
	Male	22	36.67
	Female		

Table 2: Possibility of Self-Replantation

SN.	Response	Male	Female	Total (%)
1.	Yes	5	8	13 (21.67)
2.	No	28	19	47 (78.33)

Table 3: Attempt for Self-Replantation

SN.	Response	Male	Female	Total (%)
1.	Yes	2	3	5 (8.34)
2.	No	26	29	55 (91.66)

Table 4: Timing of Replantation

SN	Response	Male	Female	Total (%)
1.	Immediately	11	3	14 (23.33)
2.	As bleeding stop	5	9	14 (23.33)
3.	<1st hour	5	4	9 (15)
4.	<the day<="" same="" td=""><td>4</td><td>4</td><td>8 (13.33)</td></the>	4	4	8 (13.33)
5.	After few days	2	2	4 (6.67)
6.	Later dental visit	2	9	11 (18.34)

Table 5: Cleaning Medium

SN.	Response	Male	Female	Total (%)
1.	Water	7	9	16 (26.67)
2.	Salt Water	16	15	31 (51.66)
3.	Milk	3	1	4 (6.67)
4.	Others	4	5	9 (15)

Table 6: Transporting Medium

SN.	Response	Male	Female	Total (%)
1.	Dry transport	5	3	8 (13.33)
2.	Disinfecting	5	4	9 (15)
	Solution			
3.	Ice water	7	0	7 (11.67)
4.	Child's	4	2	6 (10)
	mouth			
5.	Milk	1	1	2 (3.33)
6.	Fruit juice	0	0	0 (0)
7.	Saline	16	12	28 (46.67)
	solution			

Table 7: Previous Information

SN.	Response	Male	Female	Total (%)
1.	Yes	7	12	19 (31.67)
2.	No	20	21	41 (68.33)

Table 8: Sources of Information

SN.	Response	Male	Female	Total (%)
1.	Books	2	4	6 (31.57)
2.	Media	2	4	6 (31.57)
3.	Newspapers	2	2	4 (21.07)
4.	Others	1	2	3 (15.79)

Table 9: Previous Avulsion

SN.	Response	Male	Female	Total (%)
1.	Yes	4	6	10 (16.67)
2.	No	27	23	50 (83.33)

Table 10: Previous Management of Avulsion

SN.	Response	Male	Female	Total (%)
1.	Referred to the	2	5	7 (70)
	in the line of the last			
	immediately			
2.	Requested the	1	1	3 (30)
	tooth to be taken			
	in moist			
	condition			

Table 11: Comparison with Other Studies

SN	Question	Shubhash-Raj	Dali Et Al	Jyothi Et Al	Hashim	Nuvvula Et	Venkatr-	Present
						Al	Amam Et	Study
							Al	
1.	Possibility of	5.5%	-	-	0.8%	-	-	21.7%
	self-replantation							
2.	Attempt for self-	-	5.5%	5.7%	0%	-	-	8.3%
	replantation							
3.	Timing of	52% immediate	4.3%-15 min.	32.8%- 15min.	52%	7.38%-	3% - 15	23.33
	replantation	48% - 30 min.	6.5%-30 min.	$42.8\ -\ 32\ min$	immediate	immediate	mins	%-
		or later	Rest> 30 min.	or later.	48%- 30 min.		- 23%	immed
					or later		within 30	iate
							mins	28.33
								%- ≤1
								hour
4.	Cleaning	57.5% - ns	84.7%- tap	77% - tap	41.6% - ns	55.71% - ns	78% - tap	78.33
	medium		water	water.	39.2% - tap		water	% - ns
					water			
5.	Transporting	58%	58.6%- ns	51.4%-milk	42.4% - ns	8.11% -	53% - ns	46.67
	medium	35.5%- ns,	4.3%- milk	35.7%-ns	8% - milk	Viaspan	4% - milk	% - ns
		4.5%- milk						3.33%
								- milk

6.	Previous	9.5%	14.3%	31.5%	-	-	21%	31.7%
	information							
7.	Sources of		78.9%-	17.4%-	-	-		38.33
	information		medical	medical				% -
			tenure	course.				Books
8.	Previous	24%	41.3%	31.5%	19.2%	-	29%	16.7%
	knowledge of							
	avulsion							
9.	Immediate dental	36.5%	94.4%	91.4%	68%	-	-	70%
	referral							