

# Knowledge and Attitude of School Teachers Regarding Emergency Management of Avulsed Teeth- A Cross Sectional Study

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## ABSTRACT

**Aim:** To assess knowledge and attitude of primary school teachers regarding emergency management of avulsed teeth in Nagpur city, India. **Materials & Methods:** It was a descriptive, cross sectional study conducted among 248 school teachers in government & private schools of Nagpur city. The questionnaire consisted the three sections: section one included demographic information, section two was related to the knowledge about the avulsion of teeth, section three was related to attitude of teachers regarding emergency management methods of avulsed teeth. **Results:** 58.5% of teachers knew correctly about what is an avulsed tooth. A significantly higher percentage of teachers in private schools than government schools suggested that replantation should be done within 30 min of avulsion. Knowledge of private teachers about cleaning of teeth as well as use of saline & milk as cleaning agents before replantation was significantly higher compared to their government counterparts. **Conclusion:** School teachers should be given appropriate information to handle the tooth during various dental emergencies by conducting emergency management programs on traumatic injuries.

**KEYWORDS:** Dental trauma, Knowledge, School teachers, Tooth avulsion, Replantation, Education

## INTRODUCTION

Dento-alveolar trauma involves injuries to the tooth, periodontium and supporting alveolar bone. These injuries are becoming a public health problem because of their high prevalence among children and adolescents.<sup>1</sup> The prevalence of dental trauma accounts for around 60% of total cases, and maxillary teeth are the most commonly involved teeth.<sup>2</sup> Dento-alveolar trauma is most common among 8-11 year old children due to their involvement in sports activities at school.<sup>3</sup> Traumatic injuries to teeth may cause intrusion, extrusion, avulsion, luxation and subluxation of the tooth. Tooth avulsion is the most serious form of dental trauma which involves complete falling off a tooth from its socket. Avulsion of teeth comprises for 1-16% of all dental injuries in permanent dentition.<sup>4,5</sup> The frequency of avulsion is three times higher in boys as compared to girls because of their active sports participation. Permanent incisors in 7 to 9 years of children are most commonly involved in avulsion due to trauma because of the loosely structured periodontal ligament surrounding these erupting teeth and elasticity of alveolar bone.<sup>6</sup>

Prognosis of avulsed teeth depends on the immediate first emergency care. Immediate replantation is the treatment of choice for the avulsed permanent teeth. While, taking into consideration the risk of damaging the permanent

successor, replantation of primary teeth is contraindicated.<sup>7,8</sup> The replantation of a tooth within 15 to 20 minutes after the accident leads to lesser damage & loss of periodontal cells.<sup>9</sup> Extra-alveolar period, storage medium and contamination and protection of the periodontal ligament are important parameters for maintaining vitality of periodontal ligament which in turn determines prognosis of traumatized teeth.<sup>7,8</sup> People most likely to be present at the site of injury to children are teachers. Thus, knowledge about emergency management of the avulsed tooth is important for overall prognosis of such cases. This study was aimed to assess knowledge and attitude of primary school teachers regarding emergency management of avulsed teeth in Nagpur city, India.

## MATERIALS AND METHODS

The present study was a descriptive, cross sectional study conducted among 248 school teachers in government & private schools of Nagpur city. Out of total schools in Nagpur city, 10 government & 10 private schools were randomly selected by lottery method. Permission for the study was obtained from the concerned authorities. The objectives of the study were explained to all the school teachers in Marathi language who participated in the

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study and also a written informed consent was obtained from all teachers.

Each school teacher in the selected schools was given a questionnaire which was prepared in regional language Marathi. The questionnaire consisted the three sections: section one included demographic information about age, sex, education level, type of school and years of teaching; section two was related to the knowledge about the avulsion of teeth (5 Questions), and section three was related to attitude of teachers regarding emergency management methods of avulsed teeth (6 Questions). The teachers were then asked to tick the most appropriate answer from the given list of answers. After completion, one of the examiner collected questionnaires from teachers on the same day. The results obtained were tabulated and expressed as frequency distributions and calculated in percentages. SPSS v 16.0 was used for analysis. Chi square test was used to compare the distribution of scores with gender, education, type of school. P value less than 0.05 was considered to be significant.

## RESULTS

Out of total 280 teachers, 248 teachers, 90 males (36.3%) and 158 females (63.7%) submitted completed questionnaire giving response rate of 88.5%. Mean age of the participants was 40.66 years and most of the teachers were having post-graduate education (60.7%). Almost 41% of the teachers were from government schools, while 58% were teaching in private schools (Table 1).

The results showed that 58.5% of teachers knew correctly about what is an avulsed tooth. Almost half of the teachers would look for a dentist in case of avulsed teeth, while 4.9% would not do anything. According to 78.9% of teachers replantation of avulsed teeth is possible & 21.1% did not agree to it. There was no significant difference in knowledge about possibility of replantation of avulsed teeth in teachers with different educational levels (p=0.41) as well as type of school (government vs private) (p=0.09) Among them who agreed for replantation, only 42.9% said that replantation should be done within 30 min of avulsion. A significantly higher percentage of teachers in private schools than government schools suggested that replantation should be done within 30 min of avulsion (p=0.001). Teachers with different education levels did not differ with their knowledge about maximum waiting time before replantation (p=0.47). Almost 3/4<sup>th</sup> of teachers knew that cleaning of teeth should be done before replantation, while more than half of them suggested the use of water to clean the teeth. Knowledge of private teachers about the cleaning of teeth as well as the use of saline & milk as cleaning agents before replantation was significantly higher compared to their government counterparts (p=0.005). When asked about most suitable transport media for carrying avulsed tooth, 54.2% chose water, 20.8% chose cloth, while only 7.5%, 5.8% & 8.3% opted for saliva, milk & HBSS respectively. A significantly higher no of private school teachers reported the use of milk and saliva as transport

media as compared to government teachers (p=0.04). Among the participants, 39% had an experience of tooth avulsion in their schools. 88.3% of the teachers felt the need of educating the teachers in emergency management of avulsed teeth. Out of total participants, 47.6% received education on emergency management of avulsed teeth, while only 14.5% of them made children aware about the avulsed tooth (Table 2).

		Mean (SD) or Frequency (%)
Age		40.66(7.87)
Sex	Male Female	90 (36.3) 158 (63.7)
School	Government Private	102 (41.1) 146 (58.2)
Education	Graduate Postgraduate PhD	55 (21.4) 151 (60.7) 42 (17.9)
		248 (100)

Table 1: Sociodemographic characteristics of teachers

		Percentages
What is an avulsed tooth	Broken down Come out of socket Don't know	33.3 58.5 8.1
In case of avulsed tooth	look for dentist call child's parents Not do anything	50.8 44.3 4.9
Replantation of avulsed teeth possible	Yes No	78.9 21.1
Time limit for Replantation	<30 min <1 hrs <6 hrs <24 hrs	42.9 34.5 11.8 10.9
Clean teeth before replantation	Yes no	80.3 19.7
Method of cleaning	Water Saline Milk Any other	56.3 26.1 10.9 5.9
Transport media	Water Cloth Pts mouth Milk HBBS saline	54.2 20.8 7.5 5.8 8.3 3.3
No of children with avulsed teeth seen	0 1-2 2-5 >5	61.0 28.5 4.1 5.7
Teachers should be educated in emergency management	Yes no	88.3 11.7
Received education on emergency management	Yes no	47.6 52.4
Made children aware about emergency management	Yes no	14.5 85.5

Table 2: Knowledge and attitude of the teachers regarding emergency management of avulsed teeth

## DISCUSSION

The results of the present study conducted on 248

teachers showed that 39% of the teachers had seen avulsed tooth at their schools; only 47.6% of them received education on emergency management of avulsed teeth. Many teachers in government and private schools did not know what was an avulsed tooth. Poor knowledge of teachers can be attributed to low level of exposure to health education regarding tooth avulsion. Avulsed teeth can have a better prognosis if replanted immediately with minimal damage to cells of root surfaces. In this study, 3/4<sup>th</sup> of teachers were aware regarding replantation of the avulsed tooth back into its socket. However, in contrast to the present study, Blankytyn C et al found that only 10.7% of the participants knew that the knocked-out tooth can be replaced back into its socket.<sup>10</sup>

In the current study, no statistically significant difference was found between the teachers and the level of education & type of school regarding the possibility of tooth re-plantation, the percentage of teachers who would perform an re-implantation was high (78.9%) of the teachers. Results of the present study were in contrast to study conducted by Mori GG et al.<sup>11</sup> Extra-alveolar time is most important factor to maintain the vitality of avulsed tooth after replantation which ultimately affects the prognosis of replanted teeth. A significantly higher no of private as compared to government teachers suggested re-plantation of teeth within 30 min of avulsion. This results were in concordance to study by Kaur M et al.<sup>12</sup>

In maximum cases of avulsion, the avulsed tooth falls on the ground and get dirty. Thus, for a better prognosis, cleaning the dirty avulsed tooth is very important. Most of the teachers in private schools reported the use of saline or milk to clean avulsed teeth, while very few in government schools reported use of saline or milk as cleaning agent. In a study carried out by Blankytyn C et al, only 8% teachers washed teeth with milk prior tooth replantation which was in contrast to present study.<sup>10</sup>

Preservation of teeth in a suitable medium to maintain cell vitality is important in places where there is no possibility of reimplantation. Because of its high osmolarity, better composition and relatively easy availability at the trauma site, milk is the better transport media among various wet media. Vitality of teeth can be maintained in milk for a period of six hours. Hank's Balanced Salt Solution (HBSS) showed better results with longer storage time, but due to its non-availability at the site of trauma, it is least commonly used in India. In the present study, almost 3/4<sup>th</sup> cited wet media for transport of avulsed teeth, while Basir et al reported only 26% of participants in their study used wet media for transport.<sup>13</sup> Milk was chosen by 5.8% of the teachers. In the Honk Kong, Czech republic and Brazil, milk was chosen by only 3.6%, 4% and 7.6% of the teachers respectively which was similar to the present study.<sup>13,14,15</sup>

## CONCLUSION

The results of the present study showed that school teachers in both government and private schools had insufficient information regarding tooth avulsion. This

could be attributed to the lack of information, inadequate training and low ability of the teachers in this issue. Thus, school teachers should be given appropriate information to handle the tooth during various dental emergencies. This can be accomplished by conducting emergency management programs concerning traumatic injuries, especially tooth avulsion, for teachers in all teaching institutions of Nagpur city, India.

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