



# Emergency Management of Avulsed Permanent Incisors: Knowledge and Attitude of Primary School Teachers and Parents in Casablanca

Loubna Benkirane<sup>1</sup> Amal Chlyah<sup>1</sup> Mouna Hamza<sup>1</sup> Rahma Oumlil<sup>2</sup> Latifa Boujemla<sup>2</sup> Samira El Arabi<sup>1</sup>

<sup>1</sup>Department of Pediatric Dentistry, School of Dentistry of Casablanca, Hassan II University, Casablanca, Morocco

<sup>2</sup>Private Practice, Casablanca, Morocco

**Address for correspondence:** Loubna Benkirane, Pediatric Dentistry Department, Faculty of Dentistry of Casablanca, Hassan II University of Casablanca, Casablanca 20000, Morocco

**E-mail:** loubna.loubnabenkirane.benkira@gmail.com

## Abstract

**Objective:** Tooth avulsion is a real emergency in pediatric traumatology. The prognosis depends highly on the attitude adopted (notably by parents and teachers) at the time of the accident. Immediate reimplantation being the best treatment. The aim of this survey was to assess the knowledge of parents and primary school teachers regarding the management of permanent incisor avulsion, in the Wilaya of Grand Casablanca.

**Materials and Methods:** 80 public and private schools were randomly selected among of the 8 delegations of Grand Casablanca, then, a self-administered questionnaire of 10 items was submitted to both teachers and parents. The collected data was analyzed using Epi info 6.0 software.

**Results:** Among 640 teachers and 640 parents who took part in the survey, most were females (87.8% of teachers and 75% of parents). 8.3% of parents and 8.1% of teachers have reported having a previous experience with dental avulsion. 9.7% of parents and 3.9% of teachers will immediately replant the avulsed tooth, 68.8% of teachers and 48% of parents will see a dentist carrying the avulsed tooth. 11.7% of the parents and 19% of the teachers chose milk as a storage medium, the other part opted for a dry storage. There was a significant link between the parents' education level and the attitude adopted to manage permanent incisor avulsion ( $p < 0.05$ ). As to teachers, years of teaching did not influence decision making.

**Conclusion:** The state of knowledge of participant in this survey presents numerous shortcomings that must be corrected in order to improve the prognosis of permanent incisor avulsion among children in our country.

**Keywords:** Children, knowledge, management, parents, tooth avulsion, teachers

## Introduction

Avulsion of the permanent incisor is the one of most serious emergencies in traumatology. It represents 0.5 to 16% of all permanent dentition trauma and is particularly frequent among the age group 8-11 years old.[1,2]

At this age, the alveolar bone has limited resilience to extrusive forces, the roots are shorter and thinner, and the ligament fibers are more flexible.[3] Upper central incisors are the most affected teeth, causing thereby aesthetic and functional disturbances, at the origin of inconveniences for the children and their families.

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The treatment of choice is immediate reimplantation. If not possible, it is recommended to preserve the avulsed tooth in a suitable environment in order to promote pulpal and periodontal healing. This second option is conditioned by several factors: time and tooth's medium storage, the degree of root contamination and the stage of root maturity.[4]

Since oral trauma among children occurs mainly at school or at home, people who are likely to be present at the moment of the accident are parents and/or teachers. Therefore, their knowledge and attitude about the management of dental avulsion is vitally important in providing appropriate first aid and thus optimizing the prognosis.

This is why we proposed to investigate this knowledge and attitude through a survey conducted among parents and primary school teachers in Casablanca. The purpose being to implement the necessary measures among this population, in order to improve the prognosis of avulsed teeth and to keep these teeth as long as possible on the arch.

## Materials and Methods

A cross sectional study was conducted among two groups of 640 teachers and 640 parents. Of the 160 schools representing all primary schools in the eight delegations of Casablanca, ten public schools and ten private schools were randomly selected per delegation.

A prior approval was obtained from the relevant authorities in order to have access to the selected schools. Four teachers and five parents from the public sector and four teachers and three parents from the private sector were interviewed through a questionnaire comprising socio-demographic information, knowledge and attitude to manage avulsed tooth, and the need to be informed about first aid when faced with dental trauma.

At the end of each interview, teachers and parents were made aware of the best way to manage permanent incisor avulsion.

The statistical analysis of data was carried out using the Epi Info™ Version 6 software. The Chi-square test was performed to test the influence of the demographics and educational background on the knowledge of respondents and the level of significance was set at  $p \leq 0.05$ .

## Results

The survey response rate was 100%. Parents and teachers were mostly female, with a percentage of 75% and 87.8% respectively. The socio demographic characteristics of the two groups are represented in Table 1.

Parents and teachers' reaction and attitude towards the permanent incisor avulsion are reported in Tables 2, 3, and 4. The management of the avulsed permanent incisor was assessed according to parents' level of education and years of experience of the teachers (Tables 5 and 6).

**Table 1.** Socio-demographic characteristics of study participants

	Teachers	Parents
	n (%)	n (%)
<b>Gender</b>		
Female	562 (87.8)	480 (75)
Male	78 (12.2)	160 (25)
<b>Educational level</b>		
Non-literate	--	115 (18)
Elementary	--	151 (23.5)
Secondary	--	202 (31.6)
Academic	--	172 (26.9)
<b>Years of teaching</b>		
<3	45 (7)	--
[3-10]	163 (25.5)	--
>10	432 (67.5)	--

**Table 2.** Study population reaction and attitudes regarding permanent tooth avulsion

	Parents	Teachers
	n (%)	n (%)
<b>Have you ever been faced with a permanent tooth avulsion?</b>		
Yes	53 (8.3)	52 (8.1)
No	587 (91.7)	588 (91.9)
<b>If your child or a student has fell out his/her permanent tooth, what would be the first thing you do?</b>		
Replant immediately	62 (9.7)	25 (3.9)
Look for professional help	424 (66.3)	585 (91.4)
Doing nothing	125 (19.5)	28 (4.4)
Don't know	29 (4.5)	2 (0.3)

**Table 3.** Attitude of the study population choosing immediate reimplantation

	Parents	Teachers
	n (%)	n (%)
<b>You will put the tooth back to its original position</b>		
After controlling bleeding	11 (18)	2 (8)
After rinsing it	28 (45)	9 (36)
After cleaning it (disinfectant, soap)	4 (6.5)	2 (8)
After wiping it	4 (6.5)	1 (4)
Straight away without any pretreatment	15 (24)	11 (44)
<b>Once the tooth is replanted, what will you do?</b>		
You consult	38 (61.4)	2 (8)
You opt for a traditional remedy or self-medication	19 (30.6)	3 (12)
You do nothing	5 (8)	2 (8)

All the interviewees felt the need to know the appropriate measures to take in case of dental trauma. This need was very important for 89% of teachers and 53% of parents and slightly important for 8.5% of teachers and 33.6% of parents. Indifferent subjects represented 13.4% of parents and 2.5% of teachers.

## Discussion

The aim of this study was to assess the primary school teachers and parents' knowledge about managing per-

**Table 4.** Attitude of the participants who chose to consult

	Parents	Teachers
	n (%)	n (%)
<b>You will consult</b>		
A dentist	364 (85.9)	536 (91.6)
A doctor	60 (4.1)	49 (8.4)
<b>When do you think is the best moment to consult?</b>		
Immediately after trauma	370 (87.2)	548 (93.6)
After 30 mn	34 (8)	20 (3.4)
After a few hours	20 (4.7)	17 (2.9)
<b>How would you transport the tooth?</b>		
In dry condition	226 (72.6)	369 (83.2)
In milk	59 (19)	52 (11.7)
In water	26 (8.4)	22 (5)

manent incisor avulsion in children. Several studies around the world have already been carried out but none to date has been conducted in Casablanca.

It is interesting to note the predominance of females among the studied population, either for parents or teachers; mothers being the primary care on the one hand, and teaching at primary school being a discipline chosen mainly by women on the other. The level of parents' education reflects that of Moroccan context. Indeed, about 42% had no education or did not exceed primary schooling.

8.1% of the teachers and 8.3% of the parents said that they had already been confronted with an avulsion

**Table 5.** Management of avulsed permanent tooth by parents' level of education

	Non-literate	Elementary	Secondary	Academic	p
	n (%)	n (%)	n (%)	n (%)	
<b>What to do in case of avulsion?</b>					
Consultation	47 (40.9)	77 (51)	147 (72.8)	153 (89)	p<0.05
Reimplantation	7 (6.1)	12 (7.9)	27 (13.4)	16 (9.3)	
Doing nothing	51 (44.3)	46 (30.5)	25 (12.4)	13 (1.7)	
Don't know	10 (8.7)	16 (10.6)	3 (1.5)	0 (0)	
Total	115 (100)	151 (100)	202 (100)	172 (100)	
<b>Timing of consultation</b>					
Immediately	40 (85.1)	61 (79.2)	125 (83.4)	145 (96.7)	p<0.05
After 30 min.	5 (10.6)	8 (10.4)	15 (10)	5 (3.3)	
After a few hours	2 (4.3)	8 (10.4)	10 (6.6)	0 (0)	
Total	47 (100)	77 (100)	150 (100)	150 (100)	
<b>Storage medium</b>					
Milk	6 (24)	7 (14.6)	13 (12.5)	33 (24.6)	p<0.05
Water	1 (4)	8 (16.6)	4 (3.8)	12 (8.9)	
In dry condition	15 (60)	19 (39.6)	57 (54.8)	49 (36.6)	
Insuitable solution	3 (12)	14 (29.2)	30 (28.9)	40 (29.9)	
Total	25 (100)	48 (100)	104 (100)	134 (100)	

**Table 6.** Management of avulsed permanent tooth according to teachers' years of experience

	Less than 3 years	3 to 10 years	More than 10 years	p
	n (%)	n (%)	n (%)	
<b>What to do in case of avulsion?</b>				
Consultation	41 (91.1)	146 (89.6)	398 (92.1)	p>0.05
Reimplantation	2 (4.4)	7 (4.3)	16 (3.7)	
Doing nothing	2 (4.4)	10 (6.1)	16 (3.7)	
Don't know	0 (0)	0 (0)	2 (0.5)	
Total	45 (100)	163 (100)	432 (100)	
<b>Timing of consultation</b>				
Immediately	40 (100)	132 (91)	375 (93.8)	p>0.05
After 30 min	0 (0)	9 (6.2)	12 (3)	
After a few hours	0 (0)	4 (2.8)	13 (3.2)	
Total	40 (100)	145 (100)	400 (100)	
<b>Storage medium</b>				
Milk	4 (13.8)	15 (13.8)	33 (10.8)	p>0.05
Water	1 (3.4)	2 (1.8)	14 (4.6)	
In dry condition	8 (27.5)	36 (33)	78 (25.5)	
Unsuitable solution	16 (55.2)	56 (51.4)	180 (59)	
Total	29 (100)	109 (100)	305 (100)	

of the permanent incisor. These percentages are in line with those reported in the study of Petrovic in Serbia (0.5-16%),[5] and are below those found in Turkey[6] (35.8%) and in India[7] (47.4% in urban areas and 41.8% in rural areas).

The time of the first consultation and tooth's storage medium storage play an essential role in the prognosis of the replanted tooth. After 60 minutes of extraoral dry time, we believe that there are no viable ligament cells. [2] According to Andreasen, teeth replanted within 30 minutes of the trauma reach a 90% success rate, whereas those replanted after 2 hours have only 5% chance to have a vital pulp. Thus, extraoral time should be minimized as much as possible to prevent necrosis of periodontal ligament cells and root resorption. Immediate reimplantation becomes an absolute necessity.[8]

The International Association of Dental Trauma (IADT) recommend holding the tooth by the crown, to wash it quickly under cold water, and if not immediately replanted into its socket, to place it in a suitable medium. Several media have been proposed but the best one would be cell culture media such as Viaspan® or Hank's Balanced Salt Solution recommended by the American Society of Endodontists.[9] They have the ability to maintain periodontal ligament vitality for up to 24 hours.

Propolis proposed by Martin and Pileggi[10] and by Babaji in 2017[11] or green tea would have very advan-

tageous antibacterial, antioxidant and anti-inflammatory properties and would allow an excellent conservation up to 4 to 6 hours. However, these media are not widely available.

Fresh pasteurized milk with a favorable pH and osmolarity for the periodontal ligament cells is suggested as a very suitable medium[12] and above all the most available and most frequently recommended for excellent preservation for 4 to 6 hours. Egg white can also be an advantageous alternative for a 2-hour period, due to its high nutritional value and availability.[13] Storage in saliva is not recommended due to its high infectivity and hypotonic nature. Water is the least favorite medium as it can cause rapid cell lysis and acute inflammation due to its hypotonicity.

Only 3.9% of the teachers in the present study thought that immediate reimplantation was required, which is close to the percentage obtained in Sudan where 5.1% of the teachers said that they would immediately replant an avulsed tooth[14] and in Tel Aviv[15] where 5.5% opted for the same choice. This option was more widely suggested in Saudi Arabia[16] and India in Kannur[17] with a respective rate of 24.1% and 45.9%.

Similarly, among the interviewed parents, only 9.7% chose to return the avulsed tooth to its original position. This result is similar to that recorded in Turkey[18] where 9.3% stated that an avulsed tooth should be replanted but was lower than that reported in the United

Arab Emirates (16.5%)[19] and in India both in Imphal (22.2%)[20] and Chennai (30%).[21]

Inadequate answers from parents and teachers on the appropriate attitude to deal with avulsed permanent incisors can be explained, as other studies[14] have clearly indicated, by their lack of information on the subject, their concern about bleeding which could be life threatening and their apprehension of a possible complication.

According to IADT recommendations, the avulsed tooth should be quickly washed for up to 10 s under cold running water at the site of the accident before being repositioned in its socket. The root surface should be cleaned with saline solution if the tooth has been kept dry for less than 60 min.

Among the interviewees who opted for immediate reimplantation at the site of the accident, 44.5% of teachers thought that the tooth should be rinsed before being placed back in its socket. These results are consistent to those obtained from teachers in Kerala, India[17] where 36.6% knew that the tooth should be washed with water; the same result was also found in Nigeria[22] where 43% thought to clean the tooth with salt water, milk or under cold running water.

More interesting observations were described in Brazil where 73% of teachers thought that the tooth should be cleaned with filtered water or in a salt solution.[23] As for parents, 34.6% felt that the tooth should be rinsed first. This result is in line with that obtained from parents in Davangere, India (39.1%).[7] Nevertheless, those who thought that immediate reimplantation was necessary without any treatment of the avulsed tooth represented 46.1% of teachers and 25.4% of parents in our study. This reflects an underestimation of the infectious risk that a soiled tooth replanted may entail. The remaining interviewees, (12.6% of teachers and 11.7% of parents), thought that cleaning or disinfecting the replanted tooth would improve its prognosis.

This attitude was also noted in other countries. In Nigeria[22], among the 14.1% of teachers who indicated that they would replant the avulsed tooth, 44.4% would use toothbrush and toothpaste, and only 2.2% indicated that the tooth should be cleaned gently under tap water. In Turkey[18] almost a quarter of parents will scrub the tooth before reimplantation.

Concerning the transport medium, the study showed that there is a real lack of knowledge. More than 80% of the participants opted for an unsuitable medium: dry preservation for 61.4% of teachers and 58.5% of parents, and using an unsuitable liquid solution (alcohol, hydrogen peroxide, water...) for

26.9% of teachers and 22.5% of parents. The state of knowledge is not better elsewhere. In Hong Kong[24], while 21.7% of teachers chose milk, 40.1% thought that an avulsed tooth should be kept in a pad or paper tissue. In Saudi Arabia, teachers chose (in a decreasing order): cold milk (14.6%), physiological saline (6.7%) and patient's saliva (2.2%) in decreasing order.[25] In Sudan, only 2.3% of teachers chose milk as a storage medium, versus 33.1% who opted for a disinfectant solution and 49.1% for dry storage.[14] In Turkey[18], almost two thirds of parents chose an unsuitable medium or did not know which medium to choose. In Maharashtra, India[26], 80% of parents did not use any storage medium and only 2% found it necessary to use saliva or saline solution.

In Chennai[21], a disinfectant solution was chosen by 34.8% of the parents and almost a third opted for preservation in iced water. As a logical deduction, as the level of education goes higher, the response to tooth avulsion is going to be better, the time between the trauma and the consultation is going to shorten, and the choice of a storage medium is going to be more appropriate.

Indeed, the management of tooth avulsion in consistency to the parents' level of education showed in the present study a statistically significant difference both in relation to the conduct itself and to the time of consultation and the storage in which the tooth was preserved.

In Bhopal, India[27], the higher the educational level of the parents, the better was the knowledge and attitude towards emergency treatment of the avulsed permanent tooth. About 25.6% with secondary education, 20.9% with lower secondary education, 10.9% with primary education and 0.4% of the illiterate participants felt that reimplantation of an avulsed permanent tooth was possible.

Furthermore, the present survey did not show any relationship between the years of experience and the attitude of teachers towards this type of dental trauma. This is probably related to the lack of contact and/or information of the teaching staff regarding dental avulsion. This result was similar to that described in Turkey[6] but different from that of the Saudi Arabian study.[16]

The comparison of knowledge about dental avulsion between the private and public sectors should be analyzed with caution. While post-accident management, post-traumatic delay and transport of the tooth seem to be more favorable in private establishments, dry storage of the avulsed tooth was less common in public establishments.

Although the knowledge gathered in this study is limited, almost all respondents expressed a wish to acquire the necessary knowledge about the management of tooth avulsion. This is encouraging and is reported in all published studies assessing parents' and teachers' knowledge of the management of the avulsed tooth.[4,7,21]

## Conclusion

The present study showed that parents and teachers are aware of the need to consult a dentist after tooth avulsion. However, the importance of immediate reimplantation and preservation of the tooth in a suitable media is not well known.

Thus, several actions should be taken in our country to provide population with information about the emergency management of an avulsed tooth to improve their prognosis:

- Integrating a section dedicated to the management of trauma in general and tooth avulsion in particular in the national prevention program organized in schools.
- Planning awareness and informational campaigns for schools teachers.
- Large scale distribution of posters on the management of avulsed teeth in schools, sports centers, health clinics, emergency centers and doctors' offices.
- Promoting the use of protective mouth guards in sports clubs

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## References

1. Andreasen JO, Andreasen FM, Andersson L. Textbook and color atlas of traumatic injuries to the teeth. 4th edition. 2013
2. Andersson L, Andreasen JO, Day P, et al. Guidelines for the management of traumatic Dental injuries: 2. avulsion of permanent teeth. *Pediatr Dent* 2017;39(6):412-419 doi:10.1111/j.1600-9657.2012.01125.x
3. Oliveira TM, Sakai VT, Moretti AB, Silva TC, Santos CF, Machado MA. Knowledge and attitude of mothers with regards to emergency management of dental avulsion. *J Dent Child (Chic)* 2007;74(3):200-202
4. Sae-Lim V, Chulaluk K, Lim LP. Patient and parental awareness of the importance of immediate management of traumatised teeth. *Endod Dent Traumatol* 1999;15(1):37-41 doi:10.1111/j.1600-9657.1999.tb00747.x
5. Petrovic B, Marković D, Peric T, Blagojevic D. Factors related to treatment and outcomes of avulsed teeth. *Dent Traumatol* 2010;26(1):52-59 doi:10.1111/j.1600-9657.2009.00836.x
6. Arikan V, Sönmez H. Knowledge level of primary school teachers regarding traumatic dental injuries and their emergency management before and after receiving an informative leaflet. *Dent Traumatol* 2012;28(2):101-107 doi:10.1111/j.1600-9657.2011.01042.x
7. Shashikiran ND, Reddy VV, 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(3):116-121 doi:10.4103/0970-4388.27891
8. Kenny DJ, Barrett EJ, Casas MJ. Le point sur le traitement des avulsions et des intrusions. *J Can Dent Assoc* 2003;69(5):308-313
9. Udoe CI, Jafarzadeh H, Abbott PV. Transport media for avulsed teeth: a review. *Aust Endod J* 2012;38(3):129-136 doi:10.1111/j.1747-4477.2012.00356.x
10. Martin MP, Pileggi R. A quantitative analysis of Propolis: a promising new storage media following avulsion. *Dent Traumatol* 2004;20(2):85-89 doi:10.1111/j.1600-4469.2004.00233.x
11. Babaji P, Melkundi M, Devanna R, S SB, Chaurasia VR, V GP. In vitro comparative evaluation of different storage media (hank's balanced salt solution, propolis, Aloe vera, and pomegranate juice) for preservation of avulsed tooth. *Eur J Dent* 2017;11(1):71-75 doi:10.4103/ejd.ejd\_101\_16
12. Osmanovic A, Halilovic S, Kurtovic-Kozaric A, Hadziabdic N. Evaluation of periodontal ligament cell viability in different storage media based on human PDL cell culture experiments-A systematic review. *Dent Traumatol* 2018;34(6):384-393 doi:10.1111/edt.12437
13. Jain D, Dasar PL, Nagarajappa S. Natural products as storage media for avulsed tooth. *Saudi Endod J* 2015;5:107-113
14. Nissreen N. Mergany, YahiaE. Ibrahim, Amal H. Abuaffan. Knowledge and attitude of Sudanese school health teachers regarding first aid management of dental trauma *Dent Oral Craniofac Res* 2016;2(2): 242-246
15. Fux-Noy A, Sarnat H, Amir E. Knowledge of elementary school teachers in Tel-Aviv, Israel, regarding emergency care of dental injuries. *Dent Traumatol* 2011;27(4):252-256 doi:10.1111/j.1600-9657.2010.00970.x
16. Al-Obaida M. Knowledge and management of traumatic dental injuries in a group of Saudi primary schools teachers. *Dent Traumatol* 2010;26(4):338-341 doi:10.1111/j.1600-9657.2010.00894.x
17. Chandukutty D, Peedikayil FC, Premkumar CT, Narasimhan D, Jose D. Awareness of dental trauma management among school teachers of Kannur, Kerala, India. *J Clin Diagn Res* 2017;11(2):ZC08-ZC12 doi:10.7860/JCDR/2017/19308.9252
18. Ozer S, Yilmaz EI, Bayrak S, Tunc ES. Parental knowledge and attitudes regarding the emergency treatment of avulsed permanent teeth. *Eur J Dent* 2012;6(4):370-375
19. Hussain A, Hashim R, Khamees A. Knowledge of tooth avulsion first aid management among parents residing in UAE. *J Oral Sci* 2020;19:e206950 doi:10.20396/bjos.v19i0.8656950
20. Ningthoujam S, Gurunathan D, Singh WR, Mall BB. Parental self-perceived knowledge and attitudes toward emergency man-

- agement of avulsed permanent teeth in Imphal: A cross-sectional study. *Natl J Maxillofac Surg* 2019;10(1):33-42 doi:10.4103/njms.NJMS\_64\_17
21. Loo TJ, Gurunathan D, Somasundaram S. Knowledge and attitude of parents with regard to avulsed permanent tooth of their children and their emergency management--Chennai. *J Indian Soc Pedod Prev Dent* 2014;32(2):97-107 doi:10.4103/0970-4388.130781
  22. Olatosi OO, Iwuala SO, Isiekwe GI, Oredugba FA, Adenaike AS, Oluwo AO. Knowledge and attitude of some nigerian school teachers on the emergency management of avulsed permanent incisor. *J West Afr Coll Surg* 2013;3(4):30-52
  23. Pithon MM, Lacerda dos Santos R, Magalhães PH, Coqueiro Rda S. Brazilian primary school teachers' knowledge about immediate management of dental trauma. *Dental Press J Orthod* 2014;19(5):110-115 doi:10.1590/2176-9451.19.5.110-115.oar
  24. Young C, Wong KY, Cheung LK. Effectiveness of educational poster on knowledge of emergency management of dental trauma--part 2: cluster randomised controlled trial for secondary school students. *PLoS One* 2014;9(8):e101972 doi:10.1371/journal.pone.0101972
  25. Alluqmani FA, Omar OM. Assessment of schoolteachers' knowledge about management of traumatic dental injuries in Al-Madinah city, Saudi Arabia. *Eur J Dent* 2018;12(2):171-175 doi:10.4103/ejd.ejd\_38\_18
  26. Nikam AP, Kathariya MD, Chopra K, Gupta A, Kathariya R. Knowledge and attitude of parents/caretakers toward management of avulsed tooth in Maharashtra Population: A questionnaire method. *J Int Oral Health* 2014;6(5):1-4
  27. Jain A, Kulkarni P, Kumar S, Jain M. Knowledge and attitude of parents towards avulsed permanent tooth of their children and its emergency management in Bhopal City. *J Clin Diagn Res* 2017;11(5):ZC40-ZC44 doi:10.7860/JCDR/2017/24953.9855