

Knowledge and Awareness of Undergraduate students at Rehman College of Dentistry regarding Management of Dental Emergency: Tooth Avulsion

Behram Asim¹, Muhammad Ibrahim¹, Hamdan Adil¹, Khansa Moin¹, Mehtab Noor^{1*}, Abdul Basit²

1. Rehman College of Dentistry, Peshawar, Pakistan

2. Research Department, Rehman College of Dentistry, Peshawar, Pakistan

Abstract

Objective: The objective of the study was to assess the educational knowledge of clinical undergraduates regarding dental avulsion management.

Methodology: A questionnaire, containing 15 questions, was dispersed among clinical students studying at Rehman College of Dentistry during the period between February 2023 to April 2023.

Results: In total 100 questionnaires were dispersed among which 91 students answer back with response rate of 91%. When asked about any training or first aid course regarding dental trauma 23% students from 3rd year and 48% from final years responded with yes. When asked whether they have personal experience of dental trauma 13% students from 3rd year while 20% from final year responded yes. The overall knowledge of final year students was comparatively higher than final year students.

Conclusion: Most students had low to poor knowledge regarding management of tooth avulsion and need proper training.

Keywords: Tooth avulsion, trauma, management.

Introduction:

Dental traumatic injuries may affect both deciduous and permanent teeth as well as adjacent supporting oral structures.¹ The prevalence of injuries affecting dental structures is increased in the last years due to rise in road traffic accidents, assault cases, sports etc. These injuries are stated to be the most common form of facial trauma.² Among dental injuries, the more complex and serious dental trauma is tooth avulsion accounting for 16 % of injuries³. Tooth avulsion is described as total displacement of tooth from its alveolar socket. Commonly, affected age is 7-9 years and incisors as compared to other teeth are more susceptible to dental avulsion². Anterior tooth loss in any of maxillary or mandibular arch is responsible for poor aesthetics and functional damage affecting social, medical, and psychological behaviour of the patient⁴. The immediate management after traumatic dental injury plays an important role for better prognosis of detached or displaced permanent teeth. As tooth avulsion is complex trauma, it severely injures periodontal ligament and pulp. Therefore, better prognosis depends on steps taken to manage dental avulsion.⁵

The repositioning of primary tooth in its socket is not suggested because permanent successor may get affected whereas permanent avulsed tooth should be

crown portion and rinsed with running tap water before Replantation.⁶ If time limitations do not allow earlier replantation, it must be kept in storage media like saliva, milk or saline to conserve the vitality of periodontal ligament.⁷ If time limitations do not allow earlier replantation, it must be kept in storage media like saliva, milk or saline to conserve the vitality of periodontal ligament.⁷ Extra-alveolar dry period and physiological storage medium are considered as critical factors influencing the consequence of tooth avulsion.⁸ The guidelines for the management of avulsed teeth are available on websites of both American Academy of Paediatric Dentistry and International association of Dental Traumatology.⁹

Improper first aid methods and insufficient awareness leads to loss of avulsed teeth.¹⁰ Dental trauma requires immediate intervention, and it must be considered as emergency. The knowledge of parents, educational staff and health care professionals has important impact on avulsed tooth management.¹¹ Enhanced communication between community and dental health care professionals is necessary for improvement of awareness. The education of clinical assessment, investigations, diagnoses, and management about dental traumatology should be given to dental undergraduate students as well because they are future dentists and during emergency, they might be requested for assistance to maintain better dental health of patient. Though, limited data is present in literature regarding knowledge of Pakistani dental students about managing dental traumatic injury.

Dental avulsion is one of the most common emergencies which a dentist can encounter. So proper awareness regarding immediate management is necessary among clinical undergraduates. If they lack such knowledge,

thus appropriate changes in curriculum can be suggested. Moreover, besides changes in the

Corresponding Author:

Mehtab Noor

Rehman College of Dentistry, Peshawar, Pakistan

Email: mehtab.noor@rmi.edu.pk

Received: 10th June 2023

Revised: 19th June 2023

Accepted: 21st June 2023

DOI: <https://doi.org/10.52442/jrcd.v4i1.72s>

curriculum, workshops, and trainings for them can also be arranged if needed. As the local data is insufficient on knowledge of clinical undergraduates regarding traumatic dental injuries. Therefore, it is necessary to fill the gap through knowledge assessment of clinical students with reference to management of dental trauma. To assess the educational knowledge of clinical undergraduates regarding dental avulsion management.

Methodology:

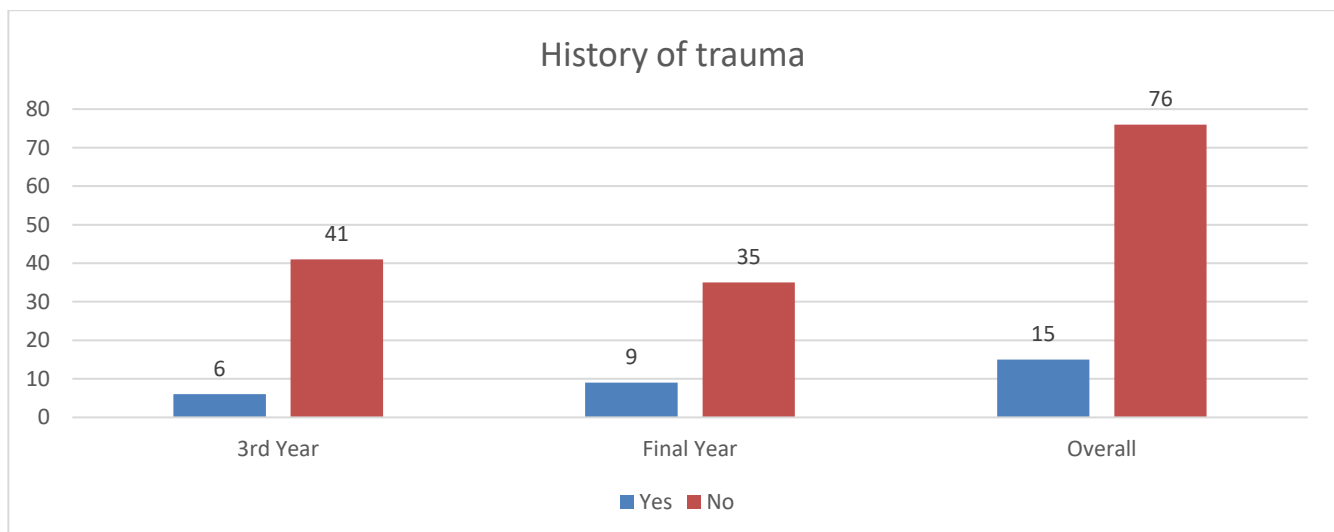
This descriptive cross-sectional study was carried out after taking approval from ethical and research committee of Rehman College of Dentistry. The modified and validated questionnaire from the previous studies was used to assess the knowledge level of third and final year dental undergraduate students on the topic of dental avulsion.¹² This questionnaire will be comprising of multiple choice close-ended questions and divided into two parts. The first section was

partitioned for getting demographics and educational data of students whereas the second section will be evaluated for knowledge of tooth avulsion management. The data was collected via google forms. Thus, before filling the questionnaire students were informed that by filling this form you give consent that data will be used for research and names of students will be not mentioned, so it is confidential.

Results:

The response rates from 3rd year students and final year students were 94%, and 88% respectively with an overall response rate of 91%. When asked whether they had any training or first aid course regarding dental trauma 11 (23%) students from 3rd year and 21 (48%) from final years responded with yes while 36 (77%) from 3rd year and 23 (52%) from final year said no.

When asked whether they have personal experience of dental trauma 6 (13%) students from 3rd year while 9 (20%) from final year responded yes. The details of which are given in figure 1.



When scenario was given regarding nine years old girl who fell down and one of her upper teeth was found missing with heavy bleeding 18 (38%) students from 3rd year while 6 (14%) from final years responded that the missing tooth is primary while 29 (62%) from 3rd year and 38 (86%) from final year responded with permanent tooth. When asked best about management 10 (21%) students from 3rd year and 29 (66%) from final year responded that immediately put back dislodged tooth into socket, 34 (73%) from 3rd year and 12 (27%) from final year said that bleeding should be controlled by biting on cotton ball while 3 (6%) students from 3rd year and 3 (6%) from final year said that no treatment is needed.

Regarding repositioning of the dislodged tooth 17 (36%) students from 3rd year while 20 (45%) from final year said that the tooth should be held by crown and should be washed in running water without rubbing, 13 (28%) from 3rd year and 7 (16%) from final year said that tooth should be held by root and should not be washed while 17 (36%) students from 3rd year and 17 (39%) from final year said that the tooth should be held by crown and

should be washed with antiseptic solution. When asked whether primary tooth should be repositioned or not, 15 (32%) from 3rd year while from final year (32%) said that it must be repositioned.

When asked about viability of periodontal ligaments when dried in avulsed tooth 24 (51%) students from 3rd year while 14 (32%) from final year answered 30 mins, 12 (25%) from 3rd year and 10 (23%) from final year said 40 mins while 11 (23%) from 3rd year and 20 (45%) from final year said 60 mins.

In another scenario regarding 14-year boy who had anterior avulsed tooth and came back to clinic after 2 hours of accident the answers given are summarized in table 1

Best transportation solution	3 rd Year	Final year	Overall
Patient's saliva, water and antiseptic solution	10 (21%)	8 (18%)	18 (20%)
Milk, saline and Hank's solution	34 (72%)	35 (79%)	69 (76%)
Water, saline, alcohol	3 (6%)	1 (2%)	3 (3%)
Type of splint and its usage duration	3 rd Year	Final year	Overall
Flexible splint for 2 weeks	21 (45%)	21 (48%)	42 (46%)
Rigid splint for 4 weeks	21 (45%)	21 (48%)	42 (46%)
Do not splint the tooth	5 (10%)	2 (4%)	7 (7%)
Systemic medication	3 rd Year	Final year	Overall
Analgesic and Antibiotics	10 (21%)	5 (11%)	15 (16%)
Analgesic, Antibiotics, and tetanus protection	35 (79%)	23 (52%)	58 (64%)
No medications	2 (4%)	6 (14%)	8 (9%)
Expected complication of avulsed tooth	3 rd Year	Final year	Overall
Tooth mobility	6 (13%)	9 (20%)	15 (16%)
Tooth Loss	27 (57%)	18 (41%)	45 (49%)
Tooth Ankylosis	14 (30%)	17 (39%)	31 (34%)

Discussion:

Dental practitioners should possess clinical expertise, problem-solving diagnostic abilities, good emergency care, and adequate long-term follow-up for the emergency treatment, maintenance, and repair of anterior permanent teeth injuries. In the management of trauma, educational background, expertise, and abilities of dental practitioner is essential.¹³ Besides, this in overcoming any hesitation they may have about handling trauma, the causes should be looked at to help them¹⁴. The purpose of this study was to assess the educational knowledge of clinical undergraduates regarding dental avulsion management. The emergency treatment of an avulsed tooth is to hold the crown and wash under saline of tap water for 10 seconds and replant immediately, regardless of the phase of root development.¹⁵

The results of the study show that the students have a poor comprehension regarding management of tooth avulsion. Only 62% of students from 3rd year while 86% students from final year knew that upper maxillary incisor at age of 9 years is permanent tooth. Similarly, when asked about treatment 21% of students from 3rd year and 66% from final year knew the management i.e responded immediately put back dislodged tooth into socket. When asked about washing of the dislodged tooth only 36% students from 3rd year while 45% from final year had the knowledge that the tooth should be held by crown and should be washed in running water without rubbing. Moreover, only 68% of students from each class knew that only permanent tooth should be repositioned. Besides this, only 23% from 3rd year and 45% from final year knew that the maximum drying time

for periodontal ligaments outside oral cavity is 60 mins. The results of this study are similar to a study done by Fujita et. al.¹⁶ and Silva et. Al.¹⁷

In case instant replantation is not feasible than ideal storage media are Hank's balanced salt solution (HBSS), saliva, saline, milk, or water. and instantaneously taken to a dental practitioner for replantation and splinting followed by Analgesic, Antibiotics, and tetanus protection. The percentage of students who knew the correct transportation media in both the classes was relatively high i.e., 72% and 79% from 3rd year and final year respectively. While only 45% and 48% students from 3rd year and final year knew that flexible splint is required, 79% and 52% students knew that antibiotics are required and 30% and 39% knew that ankylosis might happen. The results of this study are similar to a study done by Jokis et. al.¹⁸

Conclusion:

Majority of students have poor knowledge regarding management of tooth avulsion although it is very common problem. Overall, the knowledge of final years students was comparatively higher than 3rd year students

References

1. Vulićević Z, Beloica M, Kosanović D, Radović I, Juloski J, Ivanović D. Prosthetics in paediatric dentistry. Balkan J Dent Med. 2017 Jul 26;21(2):78-82.
2. Zafar K, Ghafoor R, Khan FR, Hameed MH. Awareness of dentists regarding immediate management of dental avulsion: Knowledge, attitude, and practice study. J Pak Med Assoc. 2018;68(4):595.
3. Jain N, Srilatha A, Doshi D, Nellutla A, Alam KS. Knowledge of emergency management of avulsed tooth among intern dental students: a questionnaire based study. Int J Adolesc Med Health. 2018 Aug 17;1.

4. Hassan H, Nir HM, Ardini YD, Shamsuri N, Mustapha NA. The Awareness on Emergency Management of Tooth Avulsion Injury among Primary School Teachers. *Int J Stud Child Women Elderly Disabled*. 2018;4(2018):222-31.
5. Yu CY, Abbott PV. Responses of the pulp, periradicular and soft tissues following trauma to the permanent teeth. *Aust Dent J*. 2016 Mar;61:39-58.
6. Duruk G, Erel ZB. Assessment of Turkish dentists' knowledge about managing avulsed teeth. *Dent Traumatol*. 2020 Jan 10.
7. De Brier N, Dorien O, Borra V, Singletary EM, Zideman DA, De Buck E, International Liaison Committee on Resuscitation First Aid Task Force, Bendall JC, Berry DC, Carlson JN, Cassan P. Storage of an avulsed tooth prior to replantation: a systematic review and meta-analysis. *Dent Traumatol*. 2020 Apr 28.
8. Wang G, Wang C, Qin M. A retrospective study of survival of 196 replanted permanent teeth in children. *Dent Traumatol*. 2019 Oct;35(4-5):251-8.
9. Levin L, Day P, Hicks L, O'Connell A, Fouad AF, Bourguignon C, Abbott PV. International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: General Introduction. *Dent Traumatol*. 2020 May 30.
10. Yeng T, O'Sullivan AJ, Shulruf B. Learning about dental trauma for medical students. *Dent Traumatol*. 2020 Jun;36(3):237-40.
11. Khan A, Goyal A, Somaiya V, Rathesh A, Sathiyamoorthy J, Larkin K, Currell SD, Nimmo AJ. Knowledge of Australian primary education providers towards dental avulsion injuries: a cross-sectional study. *Aust Dent J*. 2020 Mar;65(1):46-52.
12. Al Essa NA. Tooth avulsion management: state of dental student's knowledge. *Egypt Dent J*. 2017 Jan 1;63(1):111-20.
13. Mahmood IA, Morshidi DN, Hamzah SH, Baharuddin IH, Ahmad MS. Malaysian dental students' knowledge of managing dental trauma in children. *European Journal of Dental Education*. 2021 Aug;25(3):550-5.
14. Lakshme PS, Don KR, Priya VV. Knowledge on Emergency Management of Avulsed Tooth among Dental Students. *Indian Journal of Forensic Medicine & Toxicology*. 2020 Oct 1;14(4).
15. Duruk G, Daşkıran IC. Evaluation of Knowledge on Emergency Management of Avulsed Teeth Among Turkish Medical and Dental Students. *Pesquisa Brasileira em Odontopediatria e Clínica Integrada*. 2022 Dec 5;22:e210092.
16. Fujita Y, Shiono Y, Maki K. Knowledge of emergency management of avulsed tooth among Japanese dental students. *BMC oral health*. 2014 Dec;14:1-6.
17. Lima DC, Saliba SA, Garbin CA, Fernandes LA, Cosme-Silva L, Saliba NA. Knowledge and Attitude of Brazilian Elementary School Teachers Towards Dental Trauma. *Pesquisa Brasileira em Odontopediatria e Clínica Integrada*. 2021;21:e210063.
18. Radić M, Benjak T, DEČKOVIĆ VUKRES V, Rotim Ž, FILIPOVIĆ ZORE I. Presentation of DMF index in Croatia and Europe. *Acta stomatologica Croatica: International journal of oral sciences and dental medicine*. 2015 Dec 21;49(4):27

How to cite this article?

How to cite this article: Amin N, Ibrahim M, Adil H, Moin K, Noor M. Knowledge and Awareness of Undergraduate students at Rehman College of Dentistry regarding Management of Dental Emergency: Tooth Avulsion. *J Rehman Coll Dent* 2024;4(1):21-24

Author Contributions

1. Nayab Amin- Conceptualization, Methodology of study and Manuscript writing
2. Muhammad Ibrahim - Data Collection
3. Hamdan Adil - Data Collection
4. Khansa Moin - Data Collection
5. Mehtab Noor - Results Interpretation