



Homeless Health Care Case Reports: Sharing Practice-Based Experience

Volume I, Number I June 2005

“Got Milk?”

Responding to Pediatric Dental Injuries of Homeless Children

Judith L. Allen, DMD
Susan M. Kline, MN, ARNP

Advertisements declare that milk builds strong bones and teeth for children, but it also can be a critical solution during a dental emergency. Dental trauma is extremely common among children. One-third of five-year-olds have suffered injury to their primary teeth and one-fourth of 12-year-olds have suffered injury to their permanent teeth.¹ Knowing the right response at the right time can save a child's smile and self-esteem. Learn from this case how Health Care for the Homeless projects can prepare to respond to pediatric dental emergencies.

Case

A call was received from the local youth program for homeless children telling the receptionist at the dental clinic that a school-aged female child* had fallen while running and hit her mouth causing her left front tooth to come out in one whole piece. When a tooth comes out of the mouth in its entirety, it is referred to as an avulsion of the tooth. The youth program staff reported that the child was in great pain. The dental clinic staff instructed the youth program staff to place the tooth in a cup of milk handling it only by the crown (the part that sticks out of the gum) and bring the child and tooth as quickly as possible to the clinic. The child arrived at the clinic approximately 75 minutes after the accident. Initial assessment revealed that the tooth was avulsed in whole and could easily be reimplanted and splinted for healing. Using Save-A-Tooth® Emergency Tooth Preserving System (Hank's Balanced Salt Solution), the tooth was reconstituted for 15 minutes before attempting reimplantation. Following standard dental procedures, the tooth was reimplanted and stabilized with a splint. The history of the injury, the circumstances, pattern of trauma, and behavior of the child and parent were consistent with a non-abusive incident. The child was sent back to shelter with antibiotic treatment of Amoxicillin 500 mg TID for seven days and analgesia of Ibuprophen 400 mg every four to six hours as needed. The child was referred to a medical facility for evaluation of tetanus immunization status. The parent signed a release of information so that the shelter staff could be informed of the need for housing stability and a return appointment to the dentist in four weeks in addition to the antibiotic treatment and need for tetanus immunization.



*Descriptive details of the child and situation were altered to assure the privacy of the patient.

Four weeks later, the child presented at the dental clinic for removal of the splint. The child reported no pain, no swelling or other post-operative problems. The periodontal ligament of the tooth appeared healed. Examination revealed no mobility of the tooth suggesting reintegration. The patient was scheduled for endodontic treatment two weeks later. The parent agreed to permit the dentist to communicate once again with the shelter staff regarding the need for further care.

Two weeks later, the child returned for treatment as recommended. During the endodontic procedure, the tooth was found to be vital, which meant that a live pulp was present. The tooth was completely healed and had not necrotized due to the trauma. Standard endodontic treatment was performed and the child was scheduled for evaluation and assessment in six months. With this finding, one would expect the tooth to have a successful course and remain stable.

Typically, the dentist would follow this child every six months to monitor the tooth. Because this family was living in shelter and their situation unstable, the family was educated regarding the need for regular monitoring and plans were developed for accessing dental care wherever they were living. The family was encouraged to contact the dental clinic, regardless of location, should the family have difficulty identifying a dentist for care.

Discussion

Approximately 30 percent of children experience dental injuries. Injuries to the mouth include teeth that are knocked out, fractured, forced out of position, pushed up or loosened. Root fracture and dental bone fractures can also occur. The peak period for trauma to the primary teeth is 18- to 40-months of age since this is a time of increased mobility for the relatively uncoordinated toddler. Injuries to primary teeth usually result from falls and collisions as the child learns to walk and run. With the permanent teeth, school-aged boys suffer trauma almost twice as frequently as girls do. Sports accidents and fights are the most common causes of dental trauma in teenagers. The upper (maxillary) central incisors are the most commonly injured teeth. Protruding maxillary teeth are two to three times more likely to suffer dental trauma than normally aligned teeth. Dentoalveolar trauma may be classified into categories based on treatment protocols. These categories include dental avulsion, dental luxation and extrusion, enamel and crown fracture, dental intrusion, dental concussion and subluxation, root fracture, and alveolar bone fracture.

The pattern of dental injuries among subpopulations of children, specifically those who are homeless, is not cited in the literature. Standard treatments of specific dental injuries by dentists are well documented in the literature. The recommended first aid responses to dental emergencies are noted on many websites and available in various pamphlets. Even though this information is readily available, studies have demonstrated that those who typically work with children such as teachers, coaches, daycare providers, even parents, are not aware of the first aid necessary to minimize the consequences of a dental injury.²⁶ Outcomes following a dental emergency are improved when the public is aware of first aid measures.^{7,8} A study conducted in an emergency room in Israel demonstrated that 12 of 335 emergency room physicians—only four percent—would have provided appropriate initial treatment for an avulsed tooth.⁹ Because primary care clinics may be consulted first when an injury occurs, those answering the telephones and greeting patients should be prepared to recognize and respond when dental injury is described by a parent or caregiver.



Many things went right for this girl that saved her smile. The youth program staff knew who to call to get immediate advice. The dental clinic staff responded appropriately by giving clear advice that saved the tooth, and provided emergency dental service. The youth program had milk available in which to preserve the tooth for transportation. The child was transported to the dental clinic in a timely manner. The dentist was prepared to appropriately treat this child following the standard of care. The child was assessed for risk of child abuse. The dental staff communicated and collaborated with shelter staff to advocate for housing stability and assure follow-up dental care after the initial injury treatment. The child was able to return for endodontic care as recommended. The dentist recognized the challenges that homelessness presented to this family for adherence to a plan of care and continued monitoring of the tooth, and took steps to address these issues with the parents in anticipation of these challenges.

Planning for dental emergencies is the key to success. Every shelter, emergency room, daycare, school, coach—anyone caring for children who can sustain dental injury—should have a Save-A-Tooth® dental emergency kit or its equivalent. The kit, which is readily available on the Internet, can hold an avulsed tooth safely up to 24 hours until the tooth can be reimplanted; milk sustains the tooth for only 60 - 90 minutes. Time is the critical factor in saving a tooth since the roots of a knocked-out tooth will start to die within 15 minutes. In addition, the Save-A-Tooth® solution buys time to find a dentist during weekends or after office hours.

Take Home Message: *Pediatric dental injuries are common: Be prepared!*

Be prepared to respond to dental emergencies.

- Educate telephone receptionists and front desk staff to recognize dental emergencies and how to respond.
- Obtain a Save-A-Tooth® Emergency Tooth Preserving System or equivalent; tell staff where it is and how to use it.
- Develop a transportation plan for patients experiencing dental emergencies.
- Establish a referral network and process for the treatment of dental emergencies—whether dental services are available at your health center or available within the community.

Support good health and safety practices by community partners serving people who are homeless.

- Educate shelter, childcare, day center or any staff who may be providing services to children to recognize dental emergencies and how to provide first aid.
- Assist agencies such as shelters, childcare centers or day centers acquire first aid supplies for dental emergencies.
- Develop an action plan in collaboration with other community agencies that assures a quick response and transportation.
- Inform shelter, childcare, daycare center or any clinical staff and emergency department that would treat a dental emergency about the proper handling of avulsed teeth and related dental trauma procedures, including the Save-A-Tooth® system.

Promote adherence to follow-up care plans for children who have experienced a dental emergency.

- Collaborate with shelters or housing agencies to assure that initial care can be completed before the family must move from their current housing.
- Educate parents regarding the importance of continued monitoring of teeth following a trauma.
- Assist parents anticipate potential barriers to care and identify solutions to overcome them so that the child receives care.

Resources

For dental and health care professionals

- Clinical Guideline on Management of Acute Dental Trauma, American Academy of Pediatric Dentistry, 2004 (www.aapd.org/media/Policies_Guidelines/G_Trauma.pdf)
- Management of Dental Trauma in Children, Pediatric Dental Health, August 1, 2003 (<http://dentalresource.org/topic50trauma.html>)
- Tooth Avulsion Clinical Resources, CCHS Digital Library (<http://cchs-dl.slis.ua.edu/clinical/oral/tooth/dental-emergencies/tooth-avulsion.htm>)

For parents and others who care for and work with children

- Emergency Care, American Academy of Pediatric Dentistry (www.aapd.org/publications/brochures/ecare.asp)
- Dental First Aid, Ohio Department of Job and Family Services, March 2004 (www.odjfs.state.oh.us/forms/pdf/1201.pdf)
- Dental Emergencies and Injuries, American Dental Association (www.ada.org/public/manage/emergencies.asp)
- Dental Emergencies - First Aid Care, Iowa Child Care Resource & Referral (www.childnetiowa.org/healthconsulting/Dental%20Emergencies%20%2011-04%20%20vns.doc)
- Tooth Avulsion Patient/Family Resources, CCHS Digital Library (<http://cchs-dl.slis.ua.edu/patientinfo/oral/oral-emergencies/dental-emergencies/tooth-avulsion.htm>)
- Tooth Injuries, KidsHealth, May 2004 (http://kidshealth.org/PageManager.jsp?dn=KidsHealth&lic=1&ps=107&cat_id=149&article_set=22530)
- Broken or knocked out tooth, Medline Plus (www.nlm.nih.gov/medlineplus/ency/article/000058.htm#First%20Aid)

First Aid Kit Supplies

- Save-A-Tooth® Emergency Tooth Preserving System (www.save-a-tooth.com)

Authors

Judith L. Allen, DMD
Health Care for the Homeless Dental Program, Cincinnati, OH
gcajla@grodigy.net

Susan M. Kline, MN, ARNP
Clinical Specialist, HCH Clinicians' Network, Seattle, WA
skline@nhchc.org

Health Care for the Homeless Clinicians' Network
National Health Care for the Homeless Council
PO Box 60427
Nashville TN 37206-0427
615/226-2292

Acknowledgements

The authors wish to thank the HCH Clinicians' Network 2004 - 05 Steering Committee for its review and critique of this case report.

This publication was supported by a grant from the Health Resources and Services Administration.

References

1. Andreasen JO, Andreasen FM. Classification, etiology and epidemiology of traumatic dental injuries. In: Andreasen JO, Andreasen FM, eds. *Textbook and color atlas of traumatic injuries to the teeth*. 3rd ed. Copenhagen: Munksgaard, 1994:151-77.
2. Blakytyn C, Surbutts C, Thomas A, Hunter ML. Avulsed permanent incisors: knowledge and attitudes of primary school teachers with regard to emergency management. *International Journal of Paediatric Dentistry*, Sep 2001;11(5):327-32.
3. Chan AW, Wong TK, Cheung GS. Lay knowledge of physical education teachers about the emergency management of dental trauma in Hong Kong. *Dental Traumatology*, Apr 2001;17(2):77-85.
4. Sae-Lim V, Lim LP. Dental trauma management awareness of Singapore pre-school teachers. *Dental Traumatology*, Apr 2001;17(2):71-6.
5. Stokes AN, Anderson HK, Cowan, TM. Lay and professional knowledge of methods for emergency management of avulsed teeth. *Endodontic & Dental Traumatology*, Aug 1992;8(4):160-2.
6. Raphael SL, Gregory PJ. Parental awareness of the emergency management of avulsed teeth in children. *Australian Dental Journal*, Apr 1990;35(2):130-3.
7. Saroglu I, Sonmez H. The prevalence of traumatic injuries treated in the pedodontic clinic of Ankara University, Turkey, during 18 months. *Dental Traumatology*, Dec 2002;18(6):299-303.
8. Sae-Lim V, Chulaluk K, Lim LP. Patient and parental awareness of the importance of immediate management of traumatized teeth. *Endodontics & Dental Traumatology*, Feb 1999;15(1):37-41.
9. Holan G, Shmueli Y. Knowledge of physicians in hospital emergency rooms in Israel on their role in cases of avulsion of permanent incisors. *International Journal of Paediatric Dentistry*, Jan 2003;13(1):13-9.