

INTRODUCTION

In emergency medicine the golden hour is described as the period of time (60 minutes) following a traumatic injury where medical intervention may have the greatest impact on patient survival. Although the consequences aren't as severe in dentistry, the fact remains the same: time plays a major role in the outcome of treatment especially when it comes to dental trauma.

A recent article published by the Medical Journal of the Islamic Republic of Iran (2) performed a systematic review and meta-analysis on the prevalence, etiology, types, and other epidemiologic aspects of dental trauma in children and adolescents (0-18 years old) and showed that an estimated 17.5% of the pediatric population has a prevalence for dental trauma. This presentation highlights the significance of time in relation to trauma and the outcome of treatment.

THE IMPORTANCE OF TIME IN RELATION TO DENTAL TRAUMA

Avulsion



The tooth is completely displaced from the socket.

Treatment: Only replant and splint permanent teeth, if indicated.

The most commonly avulsed in both the primary and permanent dentition is a maxillary central incisor. Most often an avulsion injury involves only a single tooth. (1)

Best Time to Treat for a Favorable Prognosis:
Immediately – 1hr outside the mouth

Intrusion



The periodontal ligament space along apex of the tooth is absent.

Treatment: Allow to re-erupt or use orthodontic intervention. Root canal therapy if necessary.

Intruded permanent teeth have a poorer prognosis compared to primary teeth. Intruded teeth tend to be followed by rapid root resorption, pulpal necrosis, or ankylosis. (1)

Best Time to Treat for a Favorable Prognosis:
Dependent on Severity

Luxation



The tooth is slightly displaced in the socket.

Treatment: Requires rigid/flexible splint for stabilization.

Teeth that are displaced but not intruded should be repositioned by the dentist or parent as soon as possible after the accident to prevent interference with occlusion. (1)

Best Time to Treat for a Favorable Prognosis:
Dependent of Severity

Alveolar Fracture



Displacement of the incisor tooth in addition to the fracture of alveolar ridge.

Treatment: Reposition of bony segment and splint teeth for stabilization.

Small fractures through the alveolar process frequently accompany injuries to the teeth. In most instances the segment of bone contains at least one tooth but may involve several. (3)

Best Time to Treat for a Favorable Prognosis:
Dependent on Severity/Restorability
(May need Oral Surgeon Intervention)

CASE 1 – C.F. 14 YR OLD FEMALE

*Patient seen 1.5 hours after arrival

Patient arrived to outpatient dental clinic referred from the emergency room following a fall off school bleachers. Patient's chief complaint was, "My tooth fell out when I fell." Patient has no medications, allergies or systemic issues. Clinically, tooth #8 (right maxillary central incisor) was luxated and tooth #9 (left maxillary central incisor) was avulsed and dry wrapped in paper towel. Patient wears traditional braces.

Treatment for Luxated #8: Patient anesthetized and tooth repositioned. Orthodontic wire used as splint.
Treatment for Avulsed #9: Root canal therapy completed chairside extraorally. Socket curetted and site irrigated with chlorhexidine. Tooth coated in fluoride/replanted.

Patient advised to follow-up with Jamaica Hospital Dental Clinic/Primary Care Dentist and start soft diet. Patient also given prescription for 0.12% chlorhexidine gluconate, antibiotics, and analgesics.

* Preliminary radiographs and final shown below (same day)



CASE 2 – C.S. 10 YR OLD FEMALE

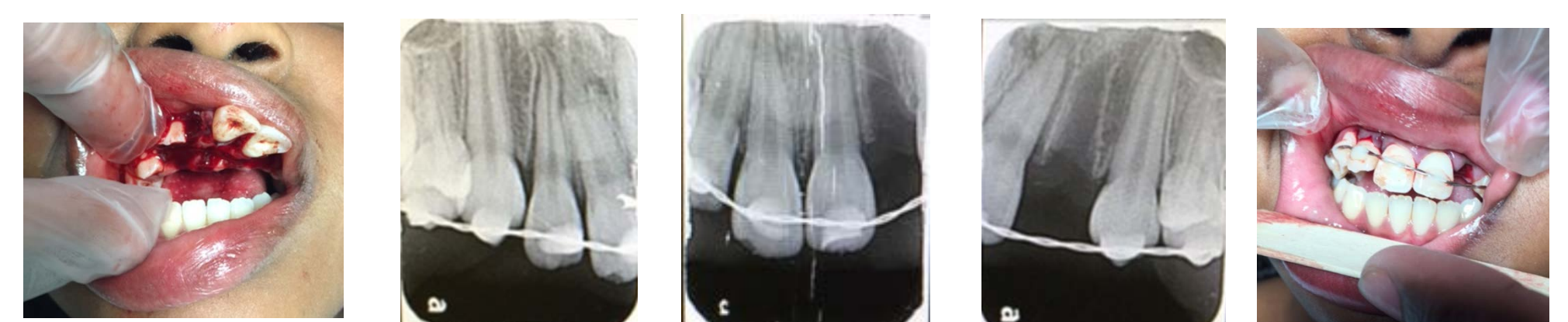
*Patient seen 45 minutes after arrival

Patient seen in Pediatric Emergency Room following a forward fall off of a bike. Patient's chief complaint was, "I fell off my bike and my teeth hurt." Patient has no medications, allergies or systemic issues. Clinical exam and CT showed anterior alveolar segment fracture and intrusion of tooth #7 (right maxillary lateral incisor). Tooth #10 (left maxillary lateral incisor) was avulsed and could not be located by the patient.

Treatment for Alveolar Fracture #7-9: Patient anesthetized and site irrigated with saline. Right maxillary lateral incisor (#7) and left maxillary central incisor (#9) intentionally extracted, fractured segment repositioned with digital pressure, and teeth replanted. Site splinted from canine to canine and gingival lacerations sutured.

After the procedure, the patient was advised to start soft diet and follow up with Jamaica Hospital Dental Clinic/Primary Care Dentist. Patient given prescription for antibiotics and analgesics.

*Pre-operative pictures and radiographs shown below (1 week follow up)



CONCLUSION

In regards to dental trauma, studies have shown that early intervention more often leads to a favorable prognosis. Andreasen and Hjørting-Hansen reported a follow-up study of 110 replanted teeth. Of those replanted within 30 minutes, 90% showed no discernible evidence of resorption two or more years later. (4) However, 95% of the teeth replanted more than 2 hours after the injury showed root resorption. If the tooth has been out of the mouth for less than 30 minutes, the prognosis is therefore more favorable. Patients should receive immediate attention after arriving at the dental office. The patient's general status should be quickly assessed to confirm that there are no higher priority injuries and if the tooth has not already been replanted, the dentist should make every effort to minimize the additional time that the tooth is out of the socket. (1)

Pediatric dental trauma should not be taken lightly. Although the term, "Golden Hour" is related to emergency medicine, its concept is equally applied to emergency dentistry. Time is of the essence whenever it involves trauma and it is our duty as dentists to make sure our patients are informed and receive the best care.

REFERENCES

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3. Hupp. *Contemporary Oral and Maxillofacial Surgery, 5th Edition*. Mosby, 2008. VitalBook file.
4. JO Andreasen, E Hjørting-Hansen: Replantation of teeth. I. Radiographic and clinical study of 110 human teeth replanted after accidental loss. *Acta Odontol Scand*. 24, 1966, 263–286