

Trauma Management in a Medically Compromised Patient

Rahul Nagda DDS, Alaleh Zadmehr DDS, Ling Zhan DDS PHD

Introduction

Traumatic dental injuries can be detrimental especially if the child has a complex medical history. This case report discusses dental trauma management coordinated with medical specialist, and successful rehabilitation of the teeth following evidence-based approach for a patient with complex medical conditions.

Case Presentation

Chief Complaint: A 10-year-old female presented to the UCSF Children's hospital Emergency Department late evening with complaint of trauma to her front teeth accompanied by grandmother.

History of Present illness:

- Accidentally hit by brother with a bat two days ago.
- Intermittently oozing blood in upper anterior tooth.
- Initially seen in urgent care locally that excluded any medical and neurology trauma beside dental trauma.
- However, was referred to UCSF which is over 350 miles away due to complex medical history and lack of dental services

Medical History: Idiopathic Hepatosplenomegaly, focal nodular hyperplasia, coagulopathy, asthma, thrombocytopenia elevated AST/ALT and migraine. Genetic, immunology and infectious workup had been negative.

Medication: Prilosec, Albuterol prn, Magnesium, Vit. B12

Allergies: NKDA, ibuprofen contraindicated

Dental History: Regular dental check up at UCSF.

Social History: Parents are separated. Mother is bipolar. Patient stays with Grandmother who is the legal guardian.

Clinical Exam and Radiograph

Extra-oral:

- Minor laceration on both upper and lower lips.
- No facial asymmetry or swelling.

Intra oral:

- Bruised gingiva which was constantly bleeding around maxillary central incisor area.
- #8 and #9 lateral luxation with minor enamel fracture, and occlusal interference but has no mobility on the teeth.
- Mandibular incisors were within normal limits.

Radiographic Evaluation: Closed apex of both tooth #8 and #9 with periapical radiolucency. No fracture root fracture noted.

Clinical pictures and Radiograph



Figure 1 A: Clinical picture of the patient when presented to the Emergency Department



Figure 1 B: Periapical radiograph showing closed apex of teeth and periapical radiolucency.

Diagnosis:

#8 – Lateral Luxation with Uncomplicated enamel fracture

#9 – Extrusive luxation with uncomplicated enamel fracture.

Treatment Plan: Reposition/splint #8 and #9 with flexible splint.

Medical Concerns: Liver disease and elevated bleeding risk

Tests and Medical consultation

- CBC showed low platelet count of 82000/mm³, INR 1.5, PT 17.1 seconds, PTT 37.1 seconds
- Treatment was further delayed by a day because ER medical attending's concerns on liver condition and bleeding risk
- UCSF pediatric Gastroenterology team consultation indicated possible needs of blood transfusion for dental procedure under General anesthesia (GA) that appeared to be overly aggressive.
- Further communication with the extended medical team formed a, cumulative decision to repeat CBC and coagulation test with similar results that supported treatment in outpatient care was adequate without needs of GA.

Dental Treatment

- Dental treatment completed with Nitrous Oxide and local anesthesia
- Cleaned trauma site with 0.12% chlorhexidine rinse.
- Repositioned and splint #8 and #9 with flexible splint.
- Post-op instructions given.



Figure 2 A: Clinical picture after repositioning and splinting teeth

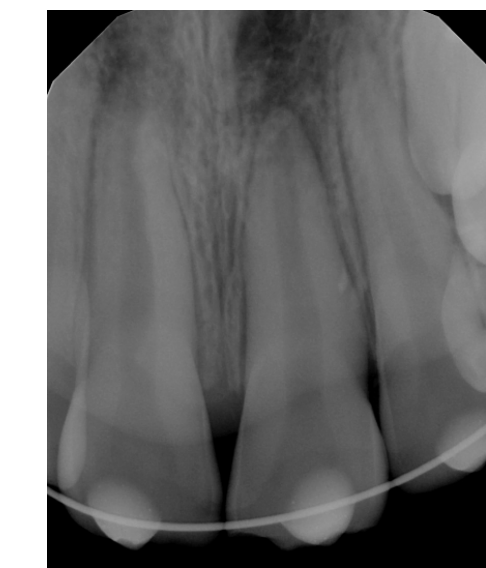


Figure 2 B: Radiograph after repositioning and splinting teeth

Follow – up Visits and Treatment

- 1 Month follow up: Flexible Splint lost at 2 weeks. Vitality test #8 cold +, #9 –, PDL –. Mobility –, No discoloration of the teeth noticed
- 4 months - Vitality test #8 cold +, #9 +, PDL – Within normal limits. No discoloration on teeth noticed
- 7 months Periodic exam – Vitality test #8 +, # 9 - with yellowish discoloration of #9 → Pulp Necrosis of #9 with asymptomatic apical periodontitis. Referred to PG endodontic clinic in UCSF for RCT.
- CBC 1 day prior to the dental appointment with Platelet count of 86000/mm³ → Medical clearance for dental treatment. Root canal treatment on tooth #9 was completed and restored with composite.



Figures 3 A and 3 B : Intra and Extraoral picture at 1 month follow up visit.



Figure 4A: Clinical picture at recall visit

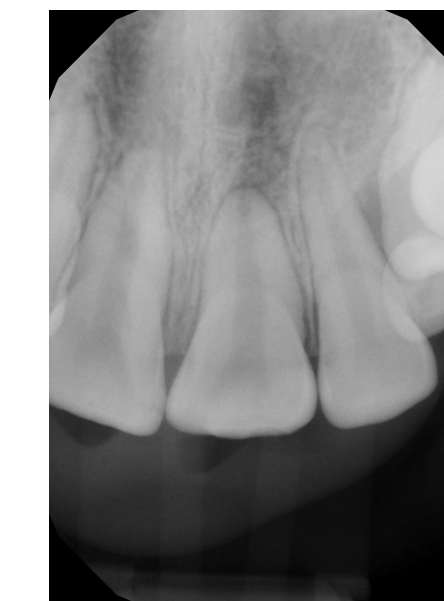


Figure 4B: Peri-apical radiograph at recall visit



Figure 4C: Peri-apical radiograph after endodontic treatment

Discussion

- Liver disease can result in splenomegaly. Although splenomegaly is usually asymptomatic, it can result thrombocytopenia from hypersplenism.
- Liver disease can also cause coagulopathy due to liver dysfunction on synthesizing coagulation proteins .¹
- CBC and bleeding time test needs to be completed prior to invasive dental procedure and communication with medical team and specialist to assess bleeding risk and management plan.
- Based on AAPD guidelines, for patients with platelet count of more than 75,000/mm³, dental treatment can be completed with no other precaution. However, blood transfusion or additional support is needed before dental procedures if platelet count is less than 75,000/mm³.²
- Pulpal necrosis is the most frequent complication after lateral luxation on permanent teeth (44.2%).³
- Based on AAPD guidelines, teeth should be stabilized for 4 weeks with a flexible splint after lateral luxation. The pulpal condition of the tooth should be monitored. Root canal treatment is indicated if pulpal necrosis is observed to prevent root resorption.⁴

References

1. McCormick PA, Murphy KM. Splenomegaly, hypersplenism and coagulation abnormalities in liver disease. Baillieres Best Pract Res Clin Gastroenterol. 2000 Dec;14(6):1009-31. doi: 10.1053/bega.2000.0144. PMID: 11139352.
2. American Academy of Pediatric Dentistry. Dental management of pediatric patients receiving immunosuppressive therapy and/or radiation therapy. The Reference Manual of Pediatric Dentistry. Chicago, Ill.: American Academy of Pediatric Dentistry; 2021:471-9.
3. Clark D, Levin L. Prognosis and complications of mature teeth after lateral luxation: A systematic review. J Am Dent Assoc. 2019 Aug;150(8):649-655. doi: 10.1016/j.adaj.2019.03.001. Epub 2019 Jun 5. PMID: 31176453.
4. Day PF, Flores MT, O'Connell AC, et al. International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 3. Injuries in the primary dentition. Dent Traumatol 2020;36(4):343-359.