UNLV School of DENTAL MEDICINE

Motor Vehicle Accident Dentoalveolar Trauma During Adolescence: A Case Report

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Background

Studies have reported up to 25% of adolescents and adults have experienced some form of dental trauma. Treatment and diagnosis of traumatic dental injuries can be delayed by physicians during complex medical emergencies especially if there is a risk of losing life, limb, or eye-sight. Motor vehicle accidents can result in head and neck injuries and patients often require a significant amount of time recovering in a hospital bed. Access to dental care and equipment can be limited in most inpatient hospital settings.

Relevant Trauma Guidelines

Obtain Information Regarding Mechanism of Injury

A thorough history of the mechanism of injury will help provide information about other possible injuries including serious head and neck injuries. If a patient reports dizziness, vomiting, delirium, or amnesia of the traumatic event, there should be a medical consult prior to any dental treatment. Conducting a cranial nerve exam may also be required.

Obtaining Medical and Dental History

Before treating any patient, it is imperative we obtain a medical and dental history to avoid any further complications.

Alveolar Fracture Guidelines

It is recommended to take one parallel periapical radiograph and two additional radiographs of the tooth with different angulations and an occlusal radiograph. CBCT or PANO may be necessary to determine the extent of fracture and to rule out any other mandibular fractures. Treatment includes administration of local anesthetic and repositioning of alveolar segment and teeth. It is recommended to stabilize segment and teeth with a passive or flexible splint for 4 weeks. Clinical and radiographic follow up is needed at 4 weeks during splint removal and 6-8 weeks post trauma. Additional examination is recommended at 4, 6, and 12 months. Yearly exams are necessary. It is possible for teeth to have unfavorable outcomes including pulpal necrosis, apical periodontitis, ankylosis, inadequate soft tissue healing, non-healing of bone fracture, and external inflammatory resorption.

Lateral Luxation Guidelines

The guidelines are similar with the exception of a two week initial follow up for pulp testing. Teeth with complete root formation almost always have pulpal necrosis and endodontic therapy should be initiated 2 weeks after trauma using CaOH as a medicament.

Case Description

Patient: 11 year-old male presents with CC: “My tooth splint broke. My teeth have moved and I can’t eat.”

Medical History: Patient was in motor vehicle accident 5 days ago and sustained traumatic dental injuries in his anterior mandible. Patient had concussion and fractured left femur. No previous systemic illness or conditions reported.

Medications/Allergies: For pain and infection management, patient was prescribed tramadol, ibuprofen, and augmentin.

Family/Social History: Patient’s father presented with minor injuries from MVA and mother was in critical condition at another hospital.

(CT taken day of traumatic incident while patient was intubated)

Extraoral Exam:

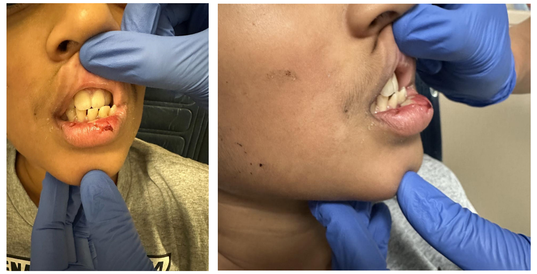
Patient has right supraorbital laceration. Left lower lip laceration with mild swelling. Minor abrasions on cheeks.

Intraoral Exam:

Present teeth: #19, #20, #22-30
#21 avulsed and missing.
#22, #23,#24,#25 all luxated facially with occlusal interferences. Significant tooth and alveolar segment mobility.
Previous splint had de-bonded.

Radiographic Exam:

Previous CBCT reveals lateral luxation with alveolar fracture for teeth #22,23,24,25 and avulsion of tooth #21. No cranial fractures present.



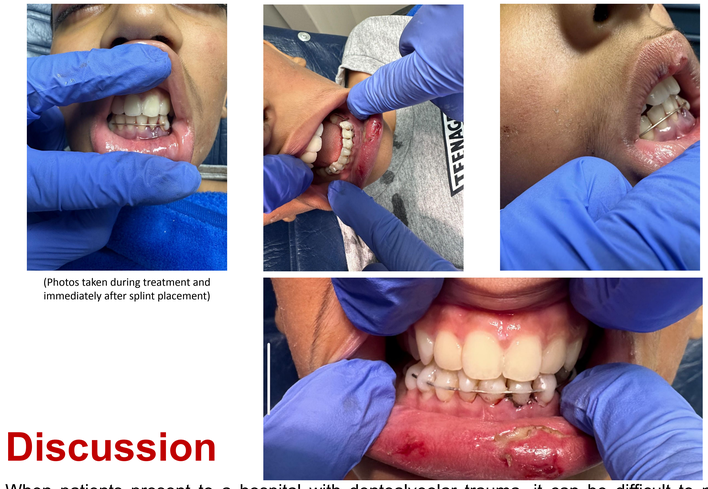
(Images 5 days post traumatic incident after initial splint fell off)

Treatment Plan

- Provide profound local anesthesia.
- Approximate displaced teeth and alveolar segment with digital pressure and verify proper occlusion.
- Use a flexible .016 stainless steel wire passive splint bonded with flowable composite to stabilize traumatized dentition.
- Recommend follow up as soon as patient returns home for management of splint removal and evaluation of pulp status and periodontal healing of affected teeth.

Dental Treatment

Due to his fractured femur, the patient was using a wheelchair for mobility. The treating physician team determined that it was preferable for patient to remain in a hospital setting while his dental needs were addressed. Bilateral inferior alveolar nerve blocks and local infiltrations with 2% lidocaine with 1:100k epinephrine were used to provide profound local anesthesia. Despite five days of healing, each mobile tooth as well as the alveolar segment was able to be approximated into proper position with firm digital pressure. Occlusion was verified and remaining teeth were bonded passively to a wire splint. A saline syringe was used to remove etch and 4x4 gauze was used to dry teeth. Excess composite was used due to the uncertainty of bond quality as no available air/water syringe made it difficult for ideal bonding conditions.



(Photos taken during treatment and immediately after splint placement)

Discussion

When patients present to a hospital with dentoalveolar trauma, it can be difficult to manage follow up care. We were unable to follow up with this patient because he had to fly home to another state after his discharge from the hospital. Patients and parents need to have adequate understanding of potential outcomes and post-operative home care. Traumatic experiences often make it difficult for parents to process the information provided. Attempts to follow up with patients and their parents should be made to ensure child receives timely re-evaluation and treatment if necessary.

References

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