

Treatment of Immature Avulsed Teeth: A Case Report

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Introduction

Children often participate in activities that are at higher risk for traumatic dental injury. Root cause of dental injuries vary among different age groups. Oral injuries in children are typically a result of falling [1]. Studies has shown that an upwards of twenty-five percent of children have experienced traumatic dental injury such as luxation, avulsion and/or fracture [2]. This case report follows the presentation of a child with a traumatic dental injury and the associated treatment considerations.

Trauma Case Report

A seven year old male suffered a traumatic dental injury from a playground accident that resulted in the avulsions of #8 and #9. Following the injury, patient arrived to the nearest urgent care clinic where #8 and #9 were replanted to positions shown in Figure 1. The patient was then referred to the pediatric emergency department at University Medical Center in Las Vegas, NV for the on-call pediatric dental team to evaluate. After responding to the hospital call and performing a clinical examination to determine if any alveolar fractures were present, local anesthetic was administered and #8 and #9 were re-positioned. A flexible stainless steel archwire was used to stabilize the teeth from #C to #H (Figure 2). Radiographs were utilized to confirm proper positioning. During the examination, degloving of the facial gingival mucosa was noted and required the placement of five sutures to approximate the wound margins. Amoxicillin was prescribed and tetanus status was confirmed with physician. The patient was then referred to the pediatric dental clinic at the University of Nevada, Las Vegas School of Dental Medicine for follow-up and continuity of care. At the two week follow up appointment #8 and #9 had Grade 1 mobility and splint was removed. Periapical radiographs were obtained at each appointment to evaluate root apices for healing or pathology. At the eight week post-operative appointment, signs of ankylosis were noted (high pitch sound when percussed) on #9 (Figure 7) [3]. Tooth #8 tested within normal limits. The patient was seen by an endodontist where root canal therapy was recommended due to replacement resorption on #9. Root canal therapy was completed in the pre-doctoral endodontic clinic at UNLV. The patient is currently seen in the pediatric clinic for follow-up and recall appointments.

Discussion

Following examination at the hospital, teeth were repositioned without extraction and socket irrigation due to being several hours post-trauma. The stabilization splint remained bonded for two weeks based on mobility of #8 and #9. The decision to not initiate root canal therapy at an earlier appointment was based on the endodontic considerations involving immature avulsed teeth. Immature teeth with open apices which are replanted following avulsion, are capable of revascularization and continued root formation [3]. Signs of resorption were not detected until approximately eight weeks post-trauma.

Conclusion

When individuals suffer from dental trauma such as avulsion, several considerations must be made regarding treatment options and potential outcomes. These considerations should be discussed with patients and/or patient guardians to aid with expectations. Emphasis should be placed on patient compliance for follow-ups as treatment plans may evolve, as seen in this case. Patient and guardian education during comprehensive examinations should include management of dental injuries.



Figure 1: Pt presentation to ER

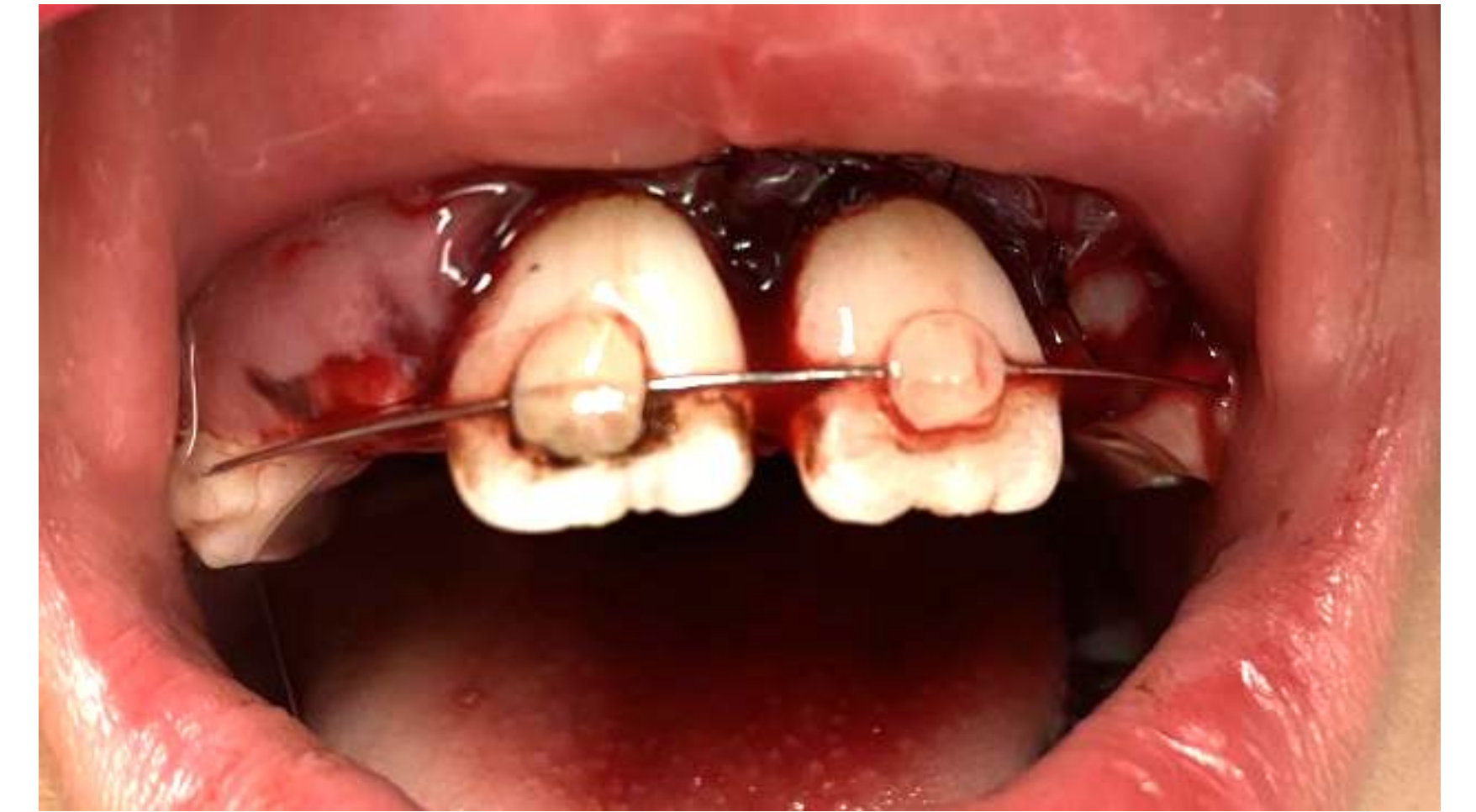


Figure 2: Stabilization



Figure 3: One week post-op



Figure 4: Two week splint removal

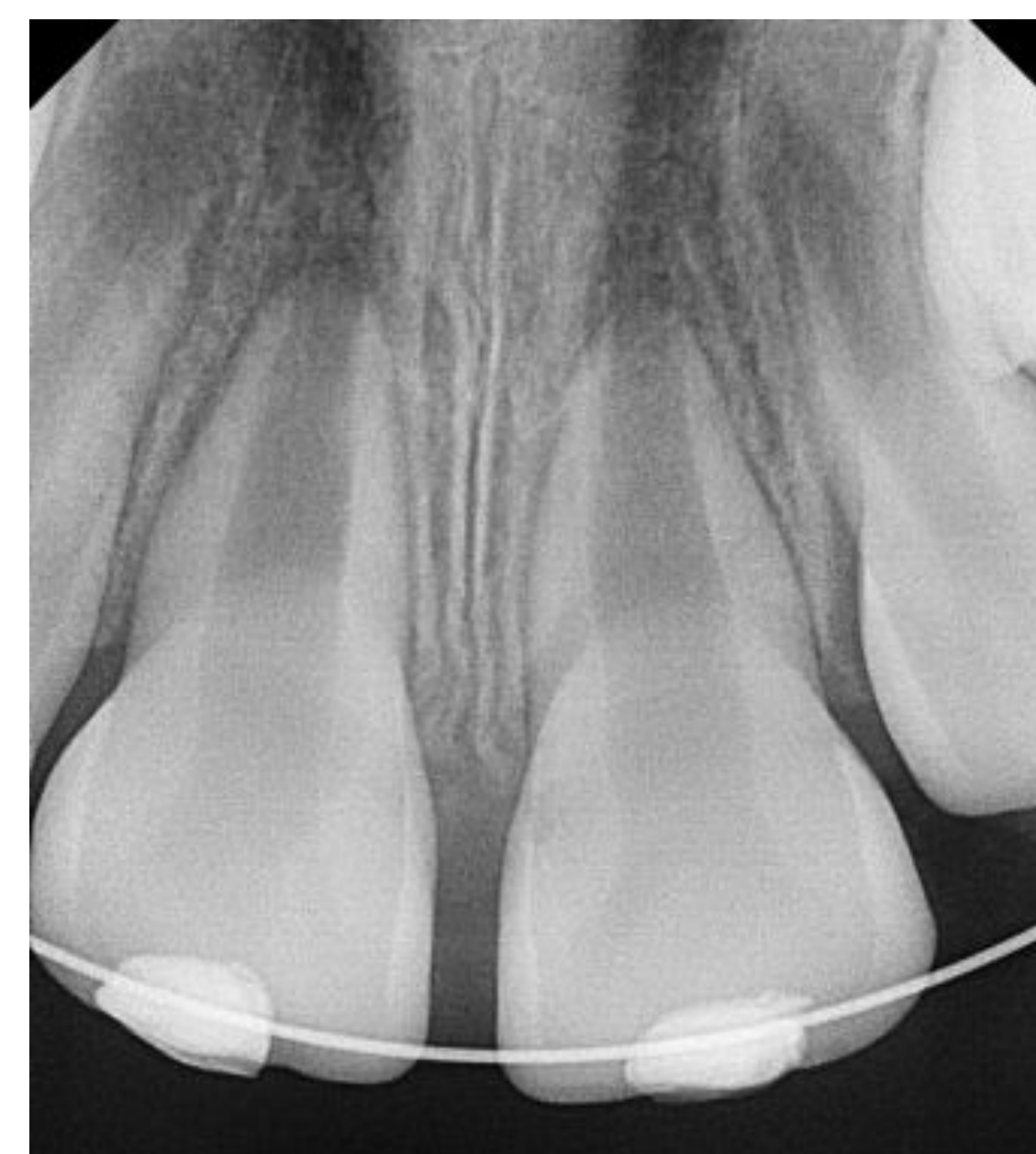


Figure 5: Two weeks



Figure 6: Four weeks



Figure 7: Eight weeks



Figure 8: Six week post-op



Figure 9: Five month post-op

References

1. Andersson L. Epidemiology of traumatic dental injuries. *Pediatr Dent*. 2013 Mar-Apr;35(2):102-5. PMID: 23635975.
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3. Fouad AF, Abbott PV, Tsilingaridis G, et al. International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 2. Avulsion of permanent teeth. *Dent Traumatol* 2020;36(4):331-342. <https://doi.org/10.1111/edt.12573>.