

Case Report: Management of Traumatic Dental Extrusion

Seung Hyup Lee, DMD

University of Nevada Las Vegas School of Dental Medicine

Introduction

Traumatic dental extrusion is an extrusive luxation injury with the clinical sign of partial displacement of a tooth from the alveolar socket. This results in damage to the apical vessels and periodontal ligament. Pulp necrosis and inflammatory resorption are common consequences of traumatic dental extrusion. However, there are instances in which this does not occur and vitality is maintained. This case reports on the treatment of an 11-year-old male who presented with extrusion of his upper right lateral incisor. This report discusses treatment provided and follow-up visits.

Case Report

An 11-year-old male presented to the University Medical Center of Southern Nevada as an emergency patient following a fall resulting in traumatic dental injury. The patient presented with 4mm extrusion of tooth #7 without any fractures or additional trauma.

Clinical Examination

No loss of consciousness or post-fall nausea was reported. A trauma neurological exam was performed confirming a healthy neurologic status and no cranial nerve injury. Soft tissue palpation revealed no swelling or tenderness. #10 was extruded by 4mm with grade 3 mobility. Initial treatment involved anesthesia with lidocaine 2% 1:100,000 epinephrine and repositioning of the extruded tooth (Fig.1) A stainless steel wire (0.016") splint was placed from #5 to #10 (Fig. 2). Subsequent vitality testing confirmed tooth #7's vitality at two, three, and four weeks post-op.



Fig. 1 Repositioning



Fig. 2 Splint at ER



Fig. 3 PA after splint was made

Radiographic Examination

A periapical X-ray was captured subsequent to the application of a semi-rigid splint to ensure the accurate realignment of the dislodged tooth (Fig. 3). The periapical X-ray additionally verified the absence of any alveolar fractures. On January 9th, two weeks after initial presentation, a periapical x-ray was taken (Fig. 4). A visible intact lamina dura indicated a healthy periodontium. On January 25th, four weeks after initial presentation, A periapical X-ray was obtained, confirming the presence of a healthy periodontium. (Fig. 5) The splint was subsequently removed on January 25th.



Fig. 4 Post-Op X-ray (Week 2)



Fig. 5 Post-Op X-ray (Week 4)

Treatment Plan

During the initial appointment, the patient received 2.5mL of lidocaine 2% with 1:100,000 epinephrine for anesthesia, and cotton roll isolation was utilized. A stainless steel wire (0.016") splint was passively bonded from tooth #5 to tooth #10 (Fig. 2). On January 9th, two weeks after the initial presentation (Fig. 4), vitality testing was conducted on tooth #7, confirming its vitality. The patient reported tenderness upon percussion. The splint was not removed at that time due to moderate mobility and tenderness.

On January 16th, three weeks post-operation, tooth #7 responded vital to cold testing and exhibited sensitivity to percussion. By January 23rd, four weeks post-operation (Fig. 5), tooth #7 continued to respond vital to cold testing and showed no sensitivity to percussion, prompting the removal of the splint. On March 4th, the patient had a comprehensive exam. Panoramic x-ray and periapical x-ray were taken (Fig. 6 and Fig. 7). #7 continued to stay vital with no sensitivity to percussion.



Fig. 6 Comp-exam PA



Fig. 7 Panoramic X-ray

Discussion

Despite the common occurrence of pulp necrosis following multiple traumatic events, immediate dental care post-trauma can preserve tooth vitality. This case highlights the significance of education, follow-up care, and reinforcing oral hygiene practices for achieving optimal outcomes.

References

- Owtad P, Shastry S, Papademetriou M, Park JH. Management Guidelines for Traumatically Injured Teeth during Orthodontic Treatment. *J Clin Pediatr Dent.* 2015 Spring;39(3):292-6. doi: 10.17796/1053-4628-39.3.292. PMID: 26208077.
- Spinas E, Pipi L, Dettori C. Extrusive Luxation Injuries in Young Patients: A Retrospective Study with 5-Year Follow-Up. *Dent J (Basel).* 2020 Dec 16;8(4):136. doi: 10.3390/dj8040136. PMID: 33339132; PMCID: PMC7765625.
- Majewski M, Kostrzewska P, Ziolkowska S, Kijek N, Malinowski K. Traumatic dental injuries - practical management guide. *Pol Merkur Lekarski.* 2022 Jun 24;50(297):216-218. PMID: 35801610.