

# Dental Management of Traumatic Crown Fractures in a Pediatric Patient: A Case Report

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## Introduction

Complicated crown fractures, defined as injuries involving enamel, dentin, and pulp exposure, present a significant clinical challenge, particularly with immature root apices. Preservation of pulp vitality in complicated crown fractures is critical to support continued root development and favorable long-term outcomes. Vital pulp therapy is therefore considered the treatment of choice to maintain pulpal health and optimize long-term outcomes.

## Case Report

In the present case, we report on an eight-year-old male who presented to the pediatric dental clinic of Tufts University School of Dental Medicine four days following a fall resulting in trauma to the maxillary incisors. His medical and dental histories were noncontributory.

### Extraoral examination revealed:

- No facial bone fractures and no mandibular fracture
- TMJ intact, normal range of motion.
- No soft tissue injuries or swelling

### Intraoral examination revealed:

- No intraoral soft tissue injuries.
- Tooth #8: Complicated crown fracture with pulp exposure. Tender to percussion, not sensitive to palpation.
- Tooth #9: Uncomplicated crown fracture (enamel and dentin fracture) without pulp exposure. Not tender to percussion or sensitive to palpation.
- No displacement or mobility on any of his teeth.

## Management



Fig. 1. Intraoral photograph

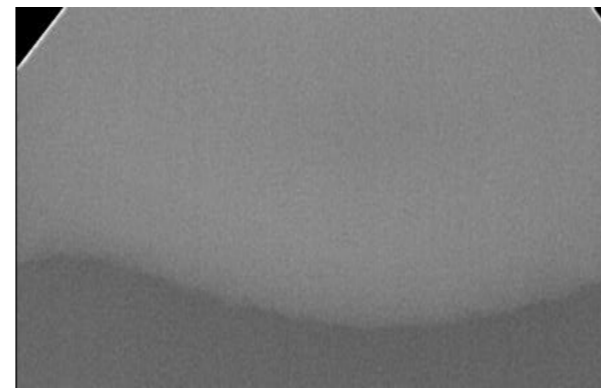


Fig. 2. Upper lip radiograph

### Initial Trauma Visit:

Periapical radiographs (PA) of teeth #8 and #9 and an upper lip radiograph were obtained.

Tooth #8: Partial pulpotomy was performed by removing approximately 1–2 mm of inflamed pulp tissue, followed by irrigation with sodium hypochlorite; hemostasis was achieved within 2–3 minutes.

Mineral Trioxide Aggregate (MTA) was placed over the pulp, covered with a glass ionomer liner, and both teeth were restored with composite resin to ensure an adequate coronal seal. Postoperative (post-op) radiographs and photographs were taken.



Fig. 3. PA of teeth #8 and #9



Fig. 4. Post-op PA of teeth #8 and #9



Fig. 5A. Post-op intraoral photograph



Fig. 5B. Post-op intraoral photograph

### Follow-up visits were completed at 6 weeks, 3 months, and 6 months.

Teeth #8 and #9 were asymptomatic. Restorations were intact. Patient reported no symptoms associated with either tooth. Cold testing at 3 months revealed a normal response to cold in both teeth.



Fig. 6. 6-week post-op PA radiograph

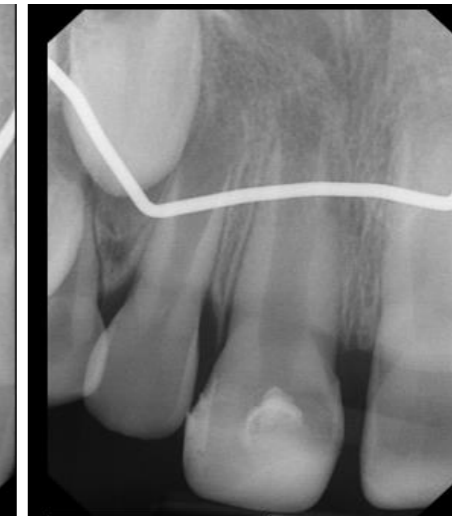


Fig. 7. 3-month post-op PA radiograph



Fig. 8. 6-month post-op PA radiograph



Fig. 9. 6-month post-op intraoral photograph

## Conclusion

- Complicated crown fractures in immature permanent teeth present a unique clinical challenge, as preservation of pulp vitality is critical for continued root maturation and long-term tooth survival.
- Early diagnosis, appropriate management, and careful follow-up are critical for the successful management of complicated crown fractures.

## References

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