

# Uncomplicated Crown Fracture: A case report

Fatemeh Nian, DMD; Loo C.Y., BDS, PhD, MPH, DMD, FAAPD; Laskou M. DDS, DMD, FAAPD (Tufts University School of Dental Medicine, Boston, MA)



## Background

Uncomplicated crown fractures—fractures of enamel or enamel and dentin without pulp exposure—account for **up to 26–28%** of all traumatic dental injuries in the permanent dentition, making them the most common type of dental trauma in children. These injuries often result from falls, sports, or accidents and primarily affect the maxillary central incisors. Initial assessment should include clinical and radiographic examination of the teeth and surrounding soft tissues. Even in cases with minor visible damage, it's important to evaluate for lacerations and embedded tooth fragments. Prompt restoration with adhesive composite resin is the standard treatment, offering excellent esthetic and functional outcomes. Risk factors such as increased overjet and insufficient lip coverage should be identified and addressed to prevent recurrence.

## Clinical Presentation

### Patient MF:

- An 8-year-old male patient presented to Tufts University School of Dental Medicine Pediatric Dentistry department as an emergency with trauma to maxillary incisors sustained during wrestling with his cousin for the second time
- Medical History: No medical conditions, NKDA
- Vaccinations are up to date
- Patient reported no loss of consciousness, dizziness, nausea, vomiting, tinnitus, confusion, or blurred vision.
- Patient reported mild sensitivity on traumatized #8 and #9

## Management

### Extraoral Exam

- No facial bone fractures and no mandibular fracture
- TMJ intact, normal range of motion
- Swelling of the lower lip and lip laceration approximately 5 mm in length was noted
- No other soft tissue injuries were noted

### Intraoral Exam

- No intraoral soft tissue injuries were noted
- Teeth #8, #9 presented enamel and dentin crown fractures without pulp involvement
- No displacement or mobility was noted on any of his teeth.
- His occlusion was intact

### During initial trauma:

Pulp vitality and diagnostic tests revealed that both #8 and #9 were vital

Three periapical radiographs were taken and confirmed uncomplicated crown fractures on #8 and #9.

Composite restorations were completed on #8 (MIDFL) and #9 (MIDFL)

During the 6-week follow up, restorations on both #8 and #9 were intact and patient presented no signs or symptoms. Patient continued his dental care with external private dentist

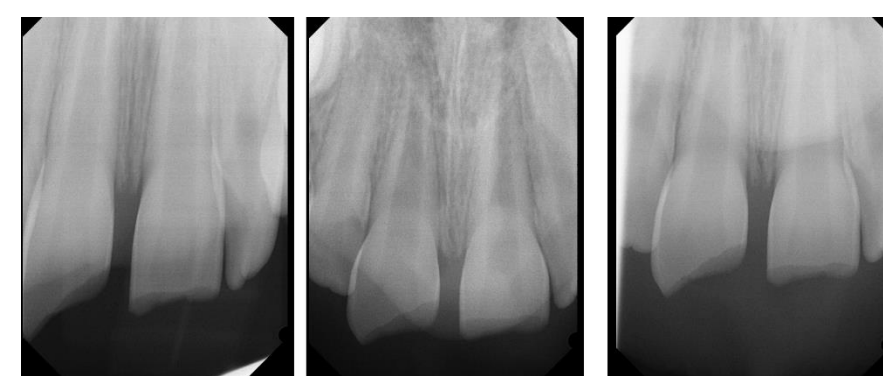


Figure 1 – PA of teeth #8, #9 3/22/23 – initial trauma



Facial front picture

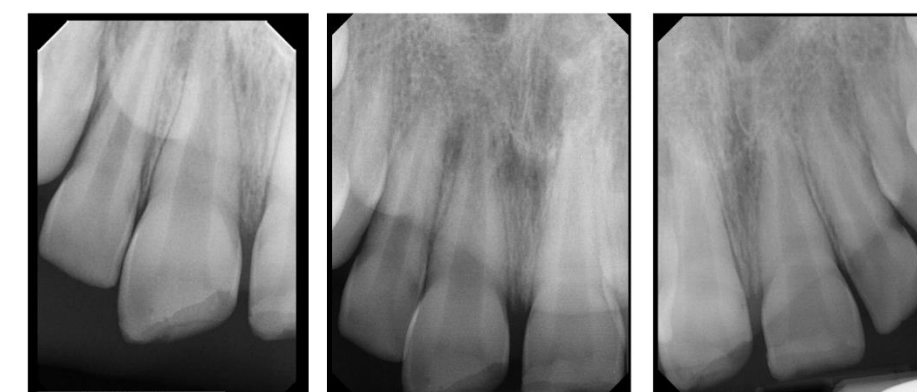


Figure 2.A



Figure 2.B



Figure 2.B



Figure 2.C

Figure 2 – 2nd trauma incident

A: PA of traumatized teeth B: lower lip laceration and traumatized teeth C: PA of lower lip soft tissue

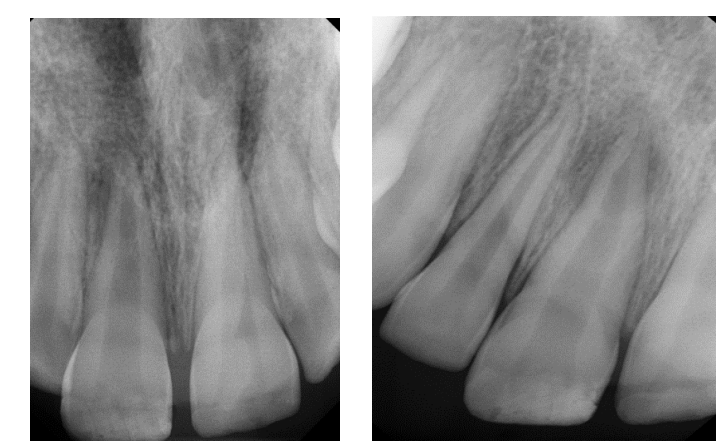


Figure 3.A



Figure 3.B

Figure 3 – 8 week follow up 1/27/25

A: PA of traumatized teeth B: Healed lower lip laceration

### During second trauma incident:

Pulp vitality and diagnostic tests revealed that both #8 and #9 were vital

Three periapical radiographs were taken and confirmed uncomplicated crown fractures on #8 and #9. A soft tissue radiograph was taken on the lower lip and ruled out the presence of any tooth fragment

- Lower lip laceration was rinsed with saline and chlorhexidine and sutured with 5-0 chromic gut
- Composite restorations were completed on #8 (MIDFL) and #9 (MIDFL)
- **8-week follow up:**
- Pulp vitality testing on #8 showed negative response to cold test, periapical radiolucency (PARL) was noted slightly more coronally than a typical PARL presentation
- Consultation with the department of Endodontics advised to monitor for continued maturity of the root of #8 by evaluating the dentinal thickness inside the root canal as a favorable outcome
- If dentinal thickness remains unchanged, or PARL lesion enlarges RCT must be initiated

## Conclusion

- Prompt evaluation and restoration of uncomplicated crown fractures typically leads to favorable outcomes.
- Endodontic intervention is recommended only if signs of pulp necrosis or infection develop during follow-up assessments.
- Recurrent trauma underscores the importance of identifying contributing factors, such as increased overjet.
- Preventive measures, including the use of a mouthguard and orthodontic evaluation, are advisable.

## References

1. 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.
2. Nowak, AJ, Casamassimo, PS. The Handbook : Pediatric Dentistry. 5th ed., American Academy of Pediatric Dentistry, 2018.