

Managing Delayed Treatment of Dental Trauma: A Case Report

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Introduction

Research indicates that dental trauma accounts for approximately 13–40% of all sports-related injuries. Skateboarding is a high-risk activity for dental injuries, as collisions often result in trauma to the face and teeth. Tooth fractures range from minor enamel cracks (Ellis Class 1) to severe fractures (Ellis Class 3) exposing the pulp, causing pain and infection risk. Severe fractures or infections often require root canal treatment to remove damaged tissue, disinfect the canals, and preserve the tooth. In certain cases, the impact disrupts the tooth's vascular supply, which results in pulpal necrosis, rendering the tooth non-vital. Thus, expeditious dental treatment after trauma is crucial for more successful results.

Case Report

Patient Background

Bio: 10y, 7m Male patient

Chief Concern: “My front tooth is chipped from a skating accident 1 year ago and I want it fixed”

Medical Conditions: none

Medications: none

Allergies: None

Birth: Normal-full term birth

Intraoral Evaluation(see Figure 1): Tooth #8: Ellis class 3 fracture with pulp exposure, tooth is grayish in color. Probing depths WNL of 3-4mm, mobility of 0.5mm.

Pulp Testing: Tooth #8 did not respond to cold test, rendering tooth necrotic

Radiographic Evaluation (see Figure 2): Internal resorption seen in initial PA radiograph with PARL. Open apex on tooth #8.

CBCT Analysis

- Internal resorption detected during clinical and radiographic evaluation.
- CBCT was taken due to the high risk of perforation associated with internal resorption, allowing for more precise assessment of root integrity.
- Figures 2+3: CBCT confirms no evidence of perforation following internal root resorption, ensuring structural viability for restoration.
- Thin dentinal walls observed, which influenced the treatment decision to proceed with composite buildup post-endodontic therapy for reinforcement and structural integrity.
- Long-term prognosis: Guarded prognosis. Close monitoring is recommended for signs of further resorption, fracture, or periapical pathology.

Procedure

Diagnosis: Ellis Class III fracture, pulpal necrosis, asymptomatic apical periodontitis, and internal resorption due to delayed treatment. Treatment: Root canal therapy with an apical barrier.

1st Appointment (Open & Med)

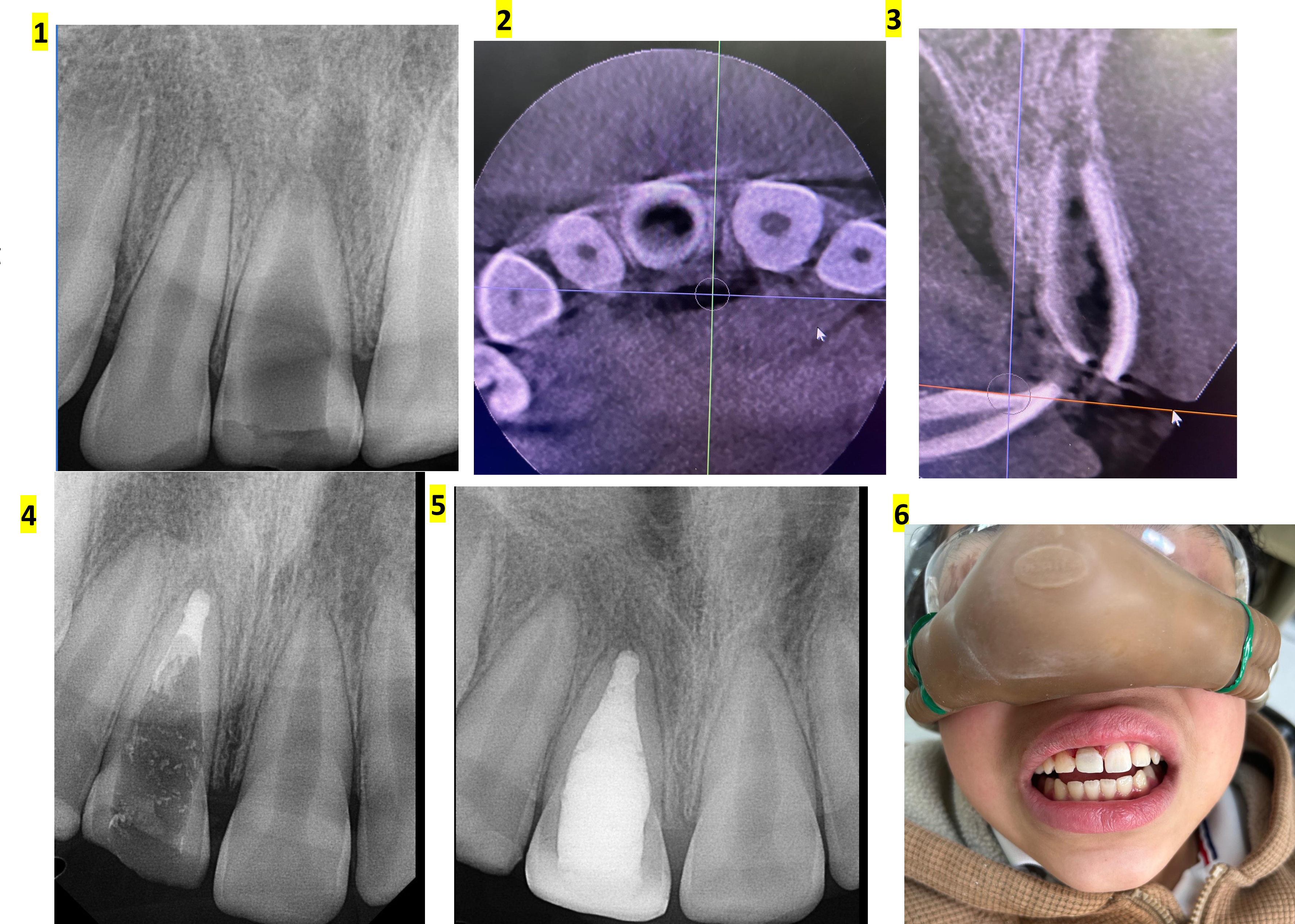
- Tooth #8 isolated with a rubber dam, accessed, and instrumented to a #80 hand file.
- Irrigated with 4% NaOCl, dried, and medicated with Ca(OH)_2 + cotton pellet, sealed with Tempit.

2nd Appointment (RCT & Restoration)

- Tempit and cotton removed; **MTA barrier** placed and confirmed radiographically (Fig. 4).
- SureFil One™, Dentsply Sirona Inc.** One used to cover MTA.
- Tooth etched, primed, bonded, and restored with **A1 packable composite** (Figs. 5+6). Patient and parent advised that an implant will likely be needed in the future.

Discussion

This case highlights the consequences of delayed treatment in dental trauma, leading to pulpal necrosis, internal resorption, and the need for endodontic intervention. CBCT imaging played a crucial role in assessing structural integrity and guiding treatment. While root canal therapy with an apical barrier successfully stabilized the tooth, its thin dentinal walls pose long-term challenges, with a guarded prognosis and potential need for future extraction and implant placement. This case reinforces the importance of early intervention and preventive measures—such as mouthguards—to reduce the risk of dental trauma and improve treatment outcomes.



References

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