Clinical Case: Reattachment of a Coronal Fragment in an 11-Year-Old Patient

Case Description

General Information

An 11-year-old male patient presented to the dental clinic following a frontal dental trauma. The patient reported moderate pain and aesthetic discomfort due to a previously treated fissure. Radiographic examination revealed no complications. However, after some time, during self-defense training, the crown of the left maxillary central incisor (tooth 2.1) sustained a traumatic impact from the vestibular toward the palatal direction.

Initial Diagnosis

Clinical examination revealed a complicated coronal fracture of tooth 2.1, with pulp chamber exposure and regular enamel and dentin margins, extending subcrestally on the palatal aspect. The fractured crown fragment was intact and suitable for reattachment. Radiographic evaluation confirmed the integrity of the root and the absence of radicular fractures.

Initial Diagnosis: Complicated coronal fracture of tooth 2.1 with pulp exposure and partial necrosis.

Final Diagnosis

Based on clinical and radiographic findings, the final diagnosis was a complicated coronal fracture of tooth 2.1, with partial pulpal involvement, requiring endodontic treatment followed by reattachment of the original coronal fragment.

Treatment Plan

The entire treatment was performed in a single appointment, with the primary goal of preserving the natural crown and restoring the tooth's aesthetics and function. The stages were as follows:

1. Local anesthesia and localized palatal gingivectomy to provide access and control of the operative field.

2. Direct alveoloplasty in the affected area to regularize the tissues and prepare the working field.

3. Isolation of the tooth with a rubber dam to ensure a dry and aseptic environment.

4. Deep margin elevation on the palatal root to a more coronal position, allowing for a more precise endodontic treatment.

5. Endodontic access, removal of necrotic pulpal tissue, followed by complete endodontic treatment.

6. Irrigation with 2.5% sodium hypochlorite and 17% EDTA, followed by drying of the root canal.

7. Canal obturation with gutta-percha and bioceramic sealer, maintaining coronal space for post placement.

8. Preparation of the post space, adjustment of the glass fiber post, and cementation using dual-cure self-adhesive resin cement (SA).

9. Preparation of the natural coronal fragment by creating an axial perforation corresponding to the post position.

10. Surface conditioning (etching with 37% phosphoric acid, followed by application of primer and bonding agent).

11. Reattachment of the coronal fragment using light-cured composite resin, precisely positioned on the fiber post.

12. Sequential light-curing, finishing, occlusal adjustment, and final polishing.

Materials Used

• Isolation: Rubber dam with adapted metal clamps.

• Irrigation solutions: 2.5% sodium hypochlorite, 17% EDTA, saline solution.

• Endodontic filling material: Gutta-percha and bioceramic sealer (NeoSeal).

• Post: Standardized glass fiber post (size #0), individually adjusted.

• Post cement: Dual-cure resin cement (e.g., Panavia V5 Universal SA Cement).

• Adhesive system: Universal bonding agent (e.g., OptiBond FL).

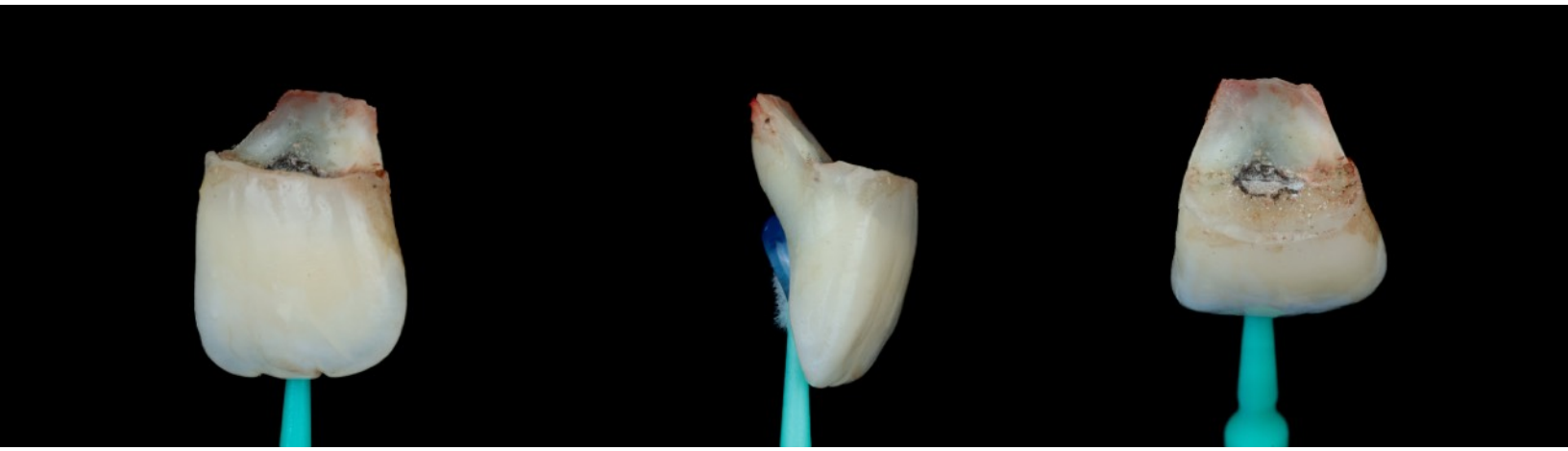
• Restorative material: Nano-hybrid light-cured composite resin (e.g., Tokuyama Estelite).

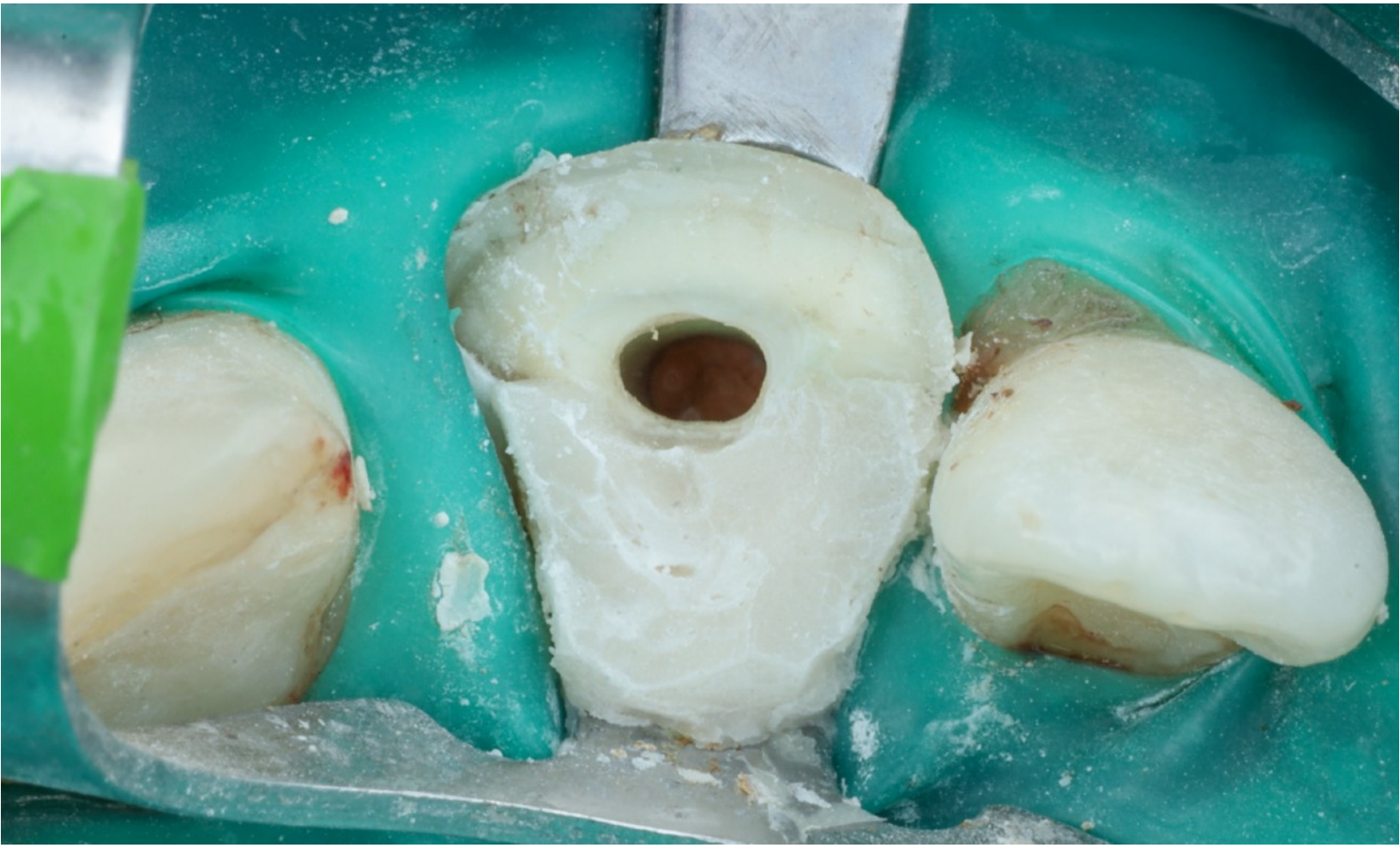
• Auxiliary instruments: Endodontic brushes, microbrush applicators, LED curing light, and Sof-Lex finishing discs.

Case Summary

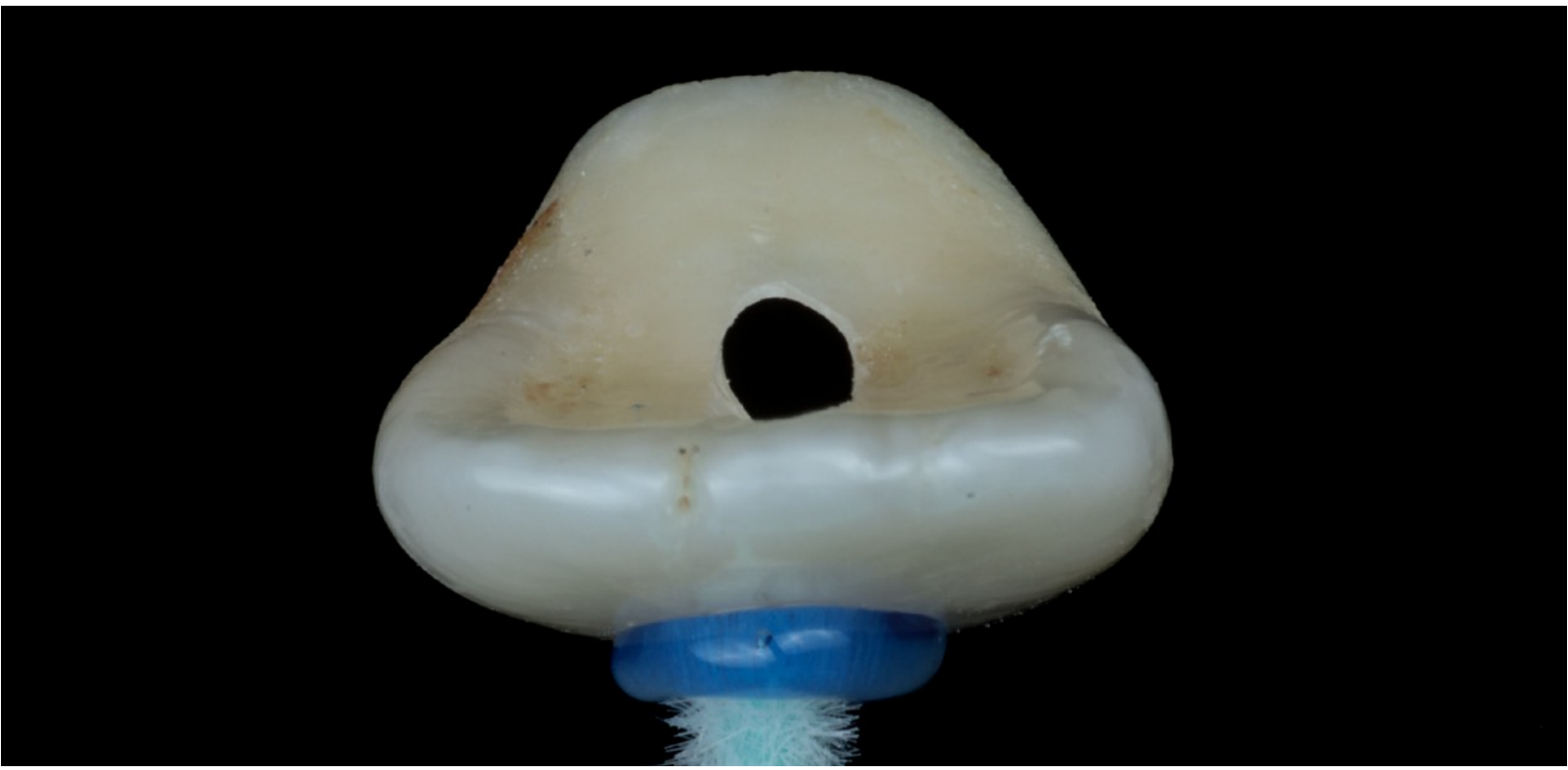
This clinical case illustrates a conservative and effective approach to managing complicated coronal fractures in young patients. By reattaching the natural crown, an aesthetic, functional, and biologically compatible restoration was achieved. The comprehensive procedure, performed in a single session, included palatal gingivectomy, localized alveoloplasty, endodontic treatment, insertion of a glass fiber post, and reattachment of the original coronal fragment. This minimally invasive technique preserved the structural integrity of the tooth while achieving a highly aesthetic outcome that blended seamlessly with the surrounding dentition.

At the postoperative follow-up, the fragment remained stable, with healthy gingival tissues and no signs of inflammation or resorption. Both the patient and his parents expressed high satisfaction with the outcome. The patient is scheduled to begin orthodontic treatment in the near future.





Pe această poză clema încă nici așa nu a reușit să intră până în profunzime. După care s-a poziționat corect clema apoi a urmat reconstituirea



Se poate observa gutapercha în profunzime.

Radiografie retroalveolară imediat după tratament.

Se poate observa sealerul de bioceramică uşor peste apexul dintelui.

Recall 1 la 2 săptămâni.

Recall 2 la 6 luni

CBCT de control după 7 luni de la intervenție