

Instrument Removal and Endodontic Retreatment of a Maxillary Molar: A Case Report

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Introduction

The management of large periapical lesions associated with failed root canal treatment and separated instruments is clinically challenging.

Aim

To present the successful nonsurgical retreatment of a maxillary molar following removal of a separated instrument.

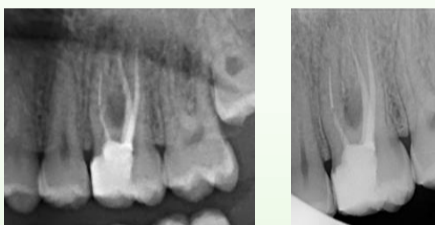


Fig.1: Pre-operative radiographs

Material- Method

An 18-year-old male patient presented with pain and a history of abscess and sinus tract associated with tooth #26. Clinical examination revealed a buccal sinus tract, tenderness to percussion and palpation, and localized periodontal pocketing. Radiographic and CBCT examinations demonstrated a separated instrument in the middle third of the mesiobuccal root with an associated periapical lesion.

Treatment was performed under a dental operating microscope with rubber dam isolation. Previous root canal filling materials were removed using reciprocating systems. Irrigation was performed with 5.25% NaOCl and 17% EDTA, activated using a sonic irrigation system.

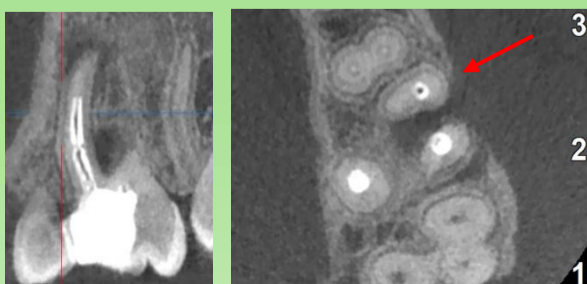
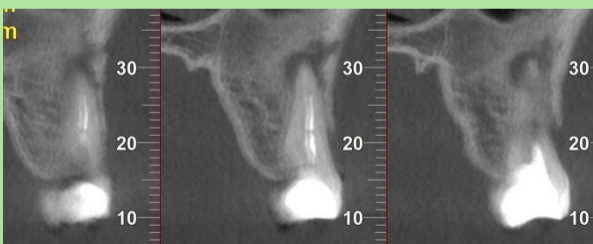


Fig.2: Pre-operative CBCT images



Fig.3: Ultrasonic tip

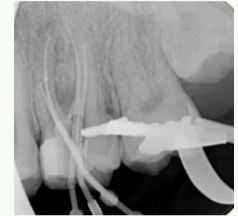


Fig.4: Master Cone Radiography

After coronal flaring with ultrasonic instruments and modified Gates-Glidden drills, the fractured instrument was visualized. Attempts to bypass the fragment with #6, #8, and #10 K-files were unsuccessful. The ultrasonic tip applied in a counterclockwise motion. The broken file has been removed during irrigation.

At the second visit, the patient was asymptomatic and showed no clinical signs of inflammation. The root canals were obturated using gutta-percha and a bioceramic-based sealer. The tooth was restored with composite resin in the same session.

Results

At the 9-month follow-up, the patient remained asymptomatic. Radiographic evaluation demonstrated a significant reduction in the size of the periapical lesion.

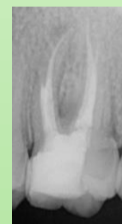


Fig.5: Final Radiography



Fig.6: Post-op 9 Month

Discussion

Removal of separated instruments plays a vital role in the healing of apical periodontitis, despite the potential risk of dentin removal and root perforation(1). Several techniques and devices have been described for instrument retrieval (2).

Conclusion

In the present case despite dentin removal in the mesiobuccal root, nonsurgical endodontic retreatment with ultrasonic instrument retrieval resulted in favorable outcomes.

References:

1. Friedman S.Considerations and concepts of case selection in the management of post-treatment endodontic disease (treatment failure).Endodontic Topics.2002;23(11): 54-78
2. Gencoglu N, Helvadoglu D. Comparison of the different techniques to remove fractured endodontic instruments from root canal systems.Eur J Dent 2009;03(02):90-5.