Navigation of Complex Anatomy in Endodontics

Combining EdgeFile X7 with EdgeTaper Platinum to deliver outstanding endodontics along with EdgeUtopia RRM

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Case Presentation

A 33-year-old female patient presented with fractured restoration of tooth #3, tender to touch and biting and lingering hot/cold sensitivity on the upper right-side maxillary first molar (Fig. 1). A clinical examination revealed a severely fractured restoration. The patient had slight tenderness on percussion and sharp lingering cold sensitivity on endo-ice testing that lasted more than 10 seconds. No swelling noted extra/intra orally and the patient didn't have any discomfort upon palpation. Clinical and radiographic findings confirmed a diagnosis of symptomatic irreversible pulpitis with normal apical tissues. Nonsurgical root canal therapy was recommended.

Step-by-step procedure

Anesthesia and isolation

The patient was anesthetized with three carpules of 2% lidocaine with 1:100k epinephrine via buccal and palatal infiltrations, along with PDL injections. A rubber dam was placed to ensure proper isolation.

Access

First step was to reduce occlusion as well as smoothing off fractured enamel with a high-speed handpiece using Edge Barrel Bur diamond extra course (Fig. 2). An endodontic access cavity was prepared by a surgical 557 burr (Fig 3.) The pulp chamber was found to have four canals (mesiobuccal, mesiobuccal 2, distobuccal and palatal) with help of an endodontic explorer DG-16 probe.

Glidepath file with EdgeFile X7 17.04 followed by shaping and cleaning with EdgeTaper Platinum (ETP)

Working lengths of all four canals were obtained using an electronic apex locator. Using multiple #8 and #10 K-files helped to achieve patency and establish a safe glide path before using the 17.04 EdgeFile X7 down to working length.

- **File sequence.** X7 17.04, ETP S1, S2, F1 for the MB1, MB2, DB and increased to the F2 for the palatal canal
- **Torque and speed.** 350 RPM, 3.5 Ncm
- **Irrigation.** EdgeEndo 5% NaOCl, followed by EdgeMix to disinfect the root canal system.
- **Recapitulation.** Used with size #10 file to maintain patency

Advantages of EdgeFile X7 NiTI and ETP Rotary Files:

- **Enhanced flexibility:** The EdgeFile X7's and ETP flexible design allows it to follow the natural contours of the canal, minimizing the risk of damaging the tooth.
- **FireWire heat treatment:** The proprietary heat treatment enhances the cyclic fatigue resistance and torsional resistance of the file, making it durable and able to withstand demanding conditions.
- **Safety:** The flexibility reduces the chances of instrument fracture and perforation, making it a safer option for endodontic procedures.

EdgeUtopia Root Repair Material (RRM)

Placement of the RRM (Fig. 4) was placed in the chamber to seal up a defect near the distobuccal canal,

Fig. 1: Initial radiograph

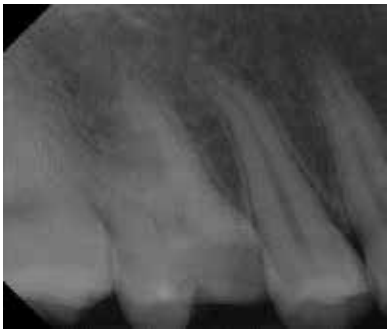


Fig. 2: EdgeBarrel Burr 039037XC

Fig. 3: Operative Carbide Burr FG 557L

Fig. 4: EdgeUtopia RRM

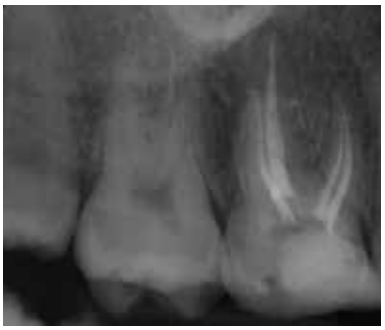
Fig. 5: RRM Dispensing Gun

Fig. 6: EdgeSeal

Fig. 7: EdgePack

Fig. 8: EdgeTemp Plus

Fig. 9: Final radiograph



using the dispensing gun (Fig. 5.) and the 0.15 monodose capsule. I applied directly into the defect to promote hard tissue formation and prevent bacterial microleakage.

Advantages of EdgeUtopia RRM:

- Ensures hygienic, mess-free delivery with no risk of contamination between patients due to its single dose application.
- Proven track record with over five years of clinical cases showing tissue healing and regeneration outcomes.
- Wide range uses in clinical and regenerative endodontics from apexification to perforation seal as well as retrograde filling.

Final Irrigation

Final irrigation was performed using 5% NaOCl followed by saline flush. Sterile paper points were used to dry the canals before obturation.

Obturation

Single cone obturation technique was used with EdgeSeal (Fig. 6.) and gutta-percha was cut at orifices using the EdgePack WP4504 Tip (Fig. 7). Tooth was temporized with EdgeTemp (Fig. 8) and final radiograph shows completed endodontic treatment (Fig. 9) with canals filled properly. MB1 and MB2 converged together, and the distobuccal canal shows a sharp 90 degree apical turn by apex.

Conclusion

The combination and enhancement of FireWire with the use of the EdgeFile X7 and EdgeTaper Platinum rotary files make endodontic therapy efficient, seamless and predictable. This combined approach utilizing minimally invasive files makes the removal and disinfection of the root canal system increase stability of the tooth and improves prognosis of endodontics. Incorporating these advances in endodontic therapy will make you, the clinician, achieve more efficient and consistent endodontics for your patients and practice.

Dr. Steven Kale is a general dentist with advanced training in endodontics. A graduate of NYU College of Dentistry, and an active associate member of the American Association of Endodontists. He practices in New York City where he is committed to patient care, education and clinical excellence. He actively shares his work and passion on endodontics on Instagram @dr.kale_endo.