

# Principles of diagnosis and treatment

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**Fig. 1** \_Pre-op X-ray.

**Fig. 2** \_Immediate post-op X-ray.

**Fig. 3** \_Immediate post-op X-ray.

**Fig. 4** \_X-ray at 16-month control.



\_Endodontic anatomy varies greatly and single-canal teeth provide an opportunity to illustrate principles of diagnosis and treatment. In the following case, a patient presented with a toothache (Fig. 1). The medical history was non-contributory. Diagnostic testing revealed a necrotic maxillary central incisor with symptomatic peri-radicular periodontitis. Even in cases with obvious pathology, thorough endodontic diagnosis is completed to determine the proper pulpal and peri-radicular status of teeth in the affected area, including examination of the affected sextant and the opposing arch.

Based on these findings, I decided to treat the tooth in two visits. Emphasising debridement in a crown-down fashion, the canal system was entered and flared coronally. A variety of instruments can be used for this purpose, including Gates-Glidden drills as used in this case, followed by tapered rotary NiTi instruments. No attempt is to be made to instrument to full length until coronal flaring and preliminary disinfection are completed. The goal is to minimise the risk of pushing

debris through the apical foramen. A preliminary canal length is established, followed by a definitive working length as treatment progresses.

## \_Apical preparation

The apical preparation was sized and finalised with non-tapered rotary instruments (LSX, Discus Dental).



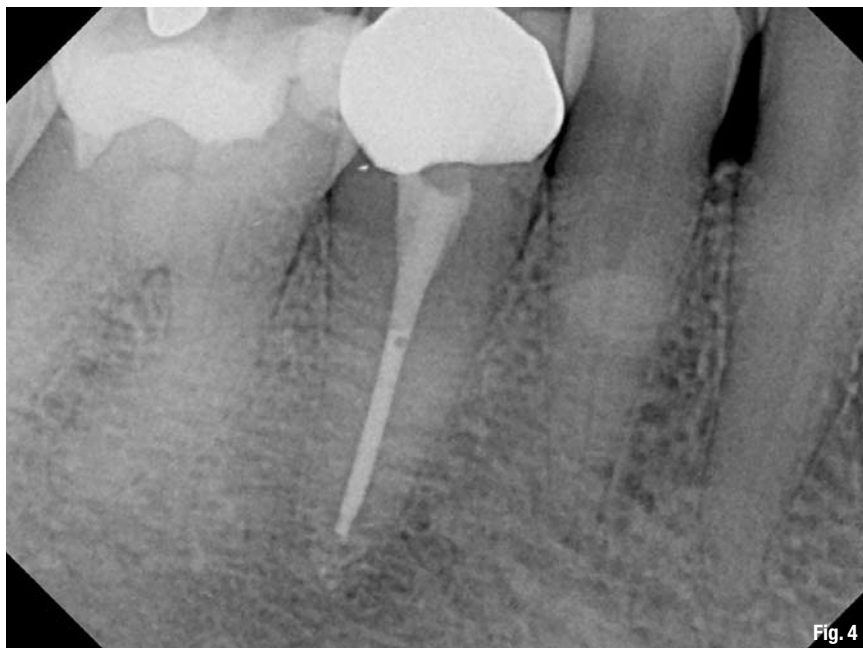


Fig. 4

Again, a variety of instruments can be used for this purpose. The goal is to thoroughly debride the apical extent of canal system and prepare the tooth for obturation. Irrigation was accomplished with NaOCl and aqueous EDTA. Irrigants were activated with sonic agitation and copious irrigant exchange was encouraged with small K-files used in an exploratory fashion.

After drying, a non-setting calcium-hydroxide paste was delivered to length in the canal and a secure interim restoration was placed. Calcium hydroxide aids in tissue digestion, disinfection, and neutralisation of LPS. Other agents may also be used, both as irrigants or dressings, to help optimise microbial control.

The patient returned in two weeks to complete treatment. Symptoms resolved within a day or two of the initial visit. Use of aqueous EDTA, with sonic activation and instrumentation, assisted removal of the dressing. The apical preparation was again verified prior to obturation. Since the tooth was prepared with LSX, a corresponding Simplifill (Discus Dental) gutta-percha obturator was used. This allows for excellent apical control and compaction of gutta-percha. Following this, a backfill using a heated gutta-percha delivery injection device was performed. Composite resin was then used to complete access closure. Several lateral canals were noted after obturation, demonstrating hydraulic pressure

and thorough obturation of the canal system (Fig. 2).

### Predictable healing

The second case (Figs. 3 & 4) that was previously treated with similar presentation and preparation philosophy demonstrates that by adhering to biologically based treatment philosophies that flow from a thorough diagnosis, our patients can expect predictable healing and disease prevention.

### about the author

### roots



**Dr Kendel Garretson** is a 1989 graduate of the Dental School at the University of Texas Health Science Center at San Antonio. Since 2004, he

has limited his practice to endodontics and lectures on a regular basis to Advanced Education in General Dentistry residents on a variety of endodontic topics. He is a member of the American Dental Association and an associate member of the American Association of Endodontists. He maintains a private practice in San Antonio. Questions and comments are welcomed at [onlyendo@gmail.com](mailto:onlyendo@gmail.com).

# The MAP System

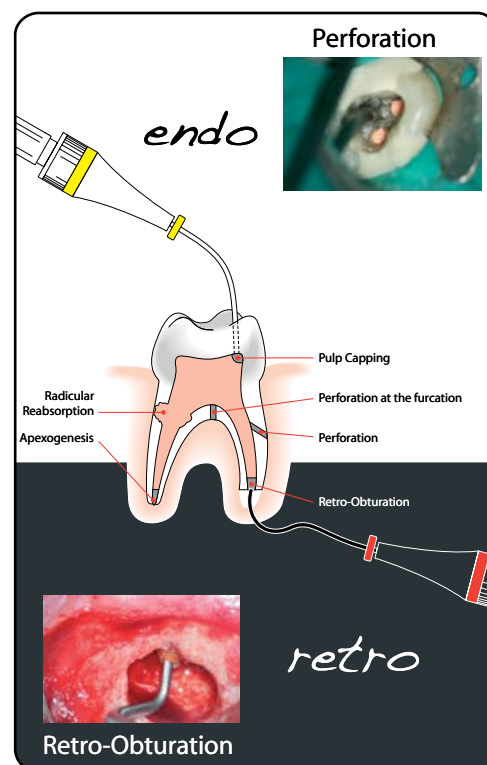
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