Efficient and excellent endodontic treatment for your patients is most rewarding with the recent advances in endodontic technology. However, endodontic treatment requires a high level of technical skills and an understanding of the biological process. The following seven tips will allow you to improve your root canal treatment.
Gather the correct information

There are 15 steps of endodontic diagnosis, which will help you gather information facilitating a proper diagnosis and treatment plan. Medical history, dental history, radiograph with digital imaging, percussion, biting pressure, palpation, CO2 ice, Endo ice, H2O ice, digital electric pulp test, periodontal probing, transillumination, heat test, hot/cold water rinses, and anesthetic test, are progressive steps towards a correct diagnosis. It is not necessary for you to do all 15 steps, but rather progress through each step until you have gathered enough information for you to make the definitive diagnosis.

Case selection

The Canadian Academy of Endodontics and the American Association of Endodontists collaborated together to publish the “case difficulty assessment form”.1 This will allow the clinician to evaluate each case for minimal difficulty, moderate difficulty, or high difficulty. Root canal treatment should be comfortable for the patient and FUN for you the clinician.

Many endodontists have invested in 3D radiograph technology. If you have doubts about a cases’ diagnosis and don’t have access to CBCT, consider seeking assistance from your local endodontist. However, the American Association of Endodontists and the American Academy of Oral and Maxillofacial Radiology recently issued a joint position statement on the use of cone beam computed tomography in endodontics. “CBCT should not be used routinely for diagnosis or for screening purposes in the absence of clinical signs and symptoms. Clinicians should use CBCT only when the need for imaging cannot be met by lower dose two dimensional radiography.”

Anesthesia, isolation, & access

Once you have achieved anesthesia, then it is critical to have proper isolation. Rubber dam should always be utilized in endodontic treatment. The 2AT rubber dam clamp can be utilized to help isolate most molars. Occasionally a large molar will require a 14T, and a small premolar will require a 1T. The 9T rubber dam clamp is most helpful to isolate anterior teeth. There are only six burs that are necessary to help you make access.

Working length determination

It is essential for the clinician to have correct working length before utilizing rotary/reciprocation instrumentation. The first way to determine working length is with the pre-op radiographic image and utilizing the “ruler” so that you can use the rotary instruments. The second way to determine working length is placing a size 15 or larger hand file in each canal and then taking a periapical radiograph. A third way to determine working length is utilizing the apex locators. The combination of all three techniques will help the clinician determine the most accurate working length.
Rotary/reciprocation instrumentation

The instrumentation phase of endodontic treatment can be categorized with locating the canal orifices, negotiating the canals, opening the orifice, reconfirming working length, and utilizing rotary/reciprocation instruments. Ultrasonics with a medium diamond tip is most helpful in locating small orifices, and in particular the MB2 in maxillary first molars. Hand files size 08, 10, and 15 are most helpful with negotiating small canals and determining a glidepath. The orifice can then be opened in the coronal 4 mm utilizing Gates Glidden drills, Piezo drills, or the safe LA Axxess bur. The new metallurgical properties of the next-generation NiTi instruments have improved instrument flexibility and the resistance to cyclic fatigue and torsional stress.

Biochemical irrigation

Recent improvements in the delivery of irrigation solutions have enhanced the reduction of bacteria and debris in the root canal system. Sodium hypochlorite full strength for as long as possible, followed up with EDTA 17%, and then Chlorhexidine 2%, all help reduce bacteria and debris, remove the smear layer, open up dentinal tubules, and provide the continuation of resistance to bacteria in the dentinal tubules. Negative apical pressure irrigation is one of the most effective and safest ways to deliver and remove irrigation solutions.

Continuous wave obturation

Warm vertical condensation of gutta-percha has improved with the technological advances of introducing heat into the canal and backfilling with gutta-percha. This continuous wave obturation technique allows the clinician to "push" with heated gutta-percha and sealer into lateral canals, around curves, surrounding isthmus, and into dentinal tubules most effectively and efficiently.

About the Author

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Dr. John Olmsted is a paid consultant for Kerr Endodontics. The opinions expressed here are those of Dr. Olmstead.