



Complete root canal therapy using the Waterlase YSGG all-tissue dental laser

By Dr. James Jesse. Information provided by Biolase Technology Inc.

Following are step-by-step procedures for using the Waterlase YSGG all-tissue dental laser with flexible endo fiber tips (Fig. 1) to complete EndoLase root canal therapy. EndoLase therapy is a basic method of precisely and cleanly removing necrotic and infected tissue from root canals and for enlarging and tapering the canal to prepare for obturation. There are varying approaches to completing an EndoLase procedure, depending on personal technique.

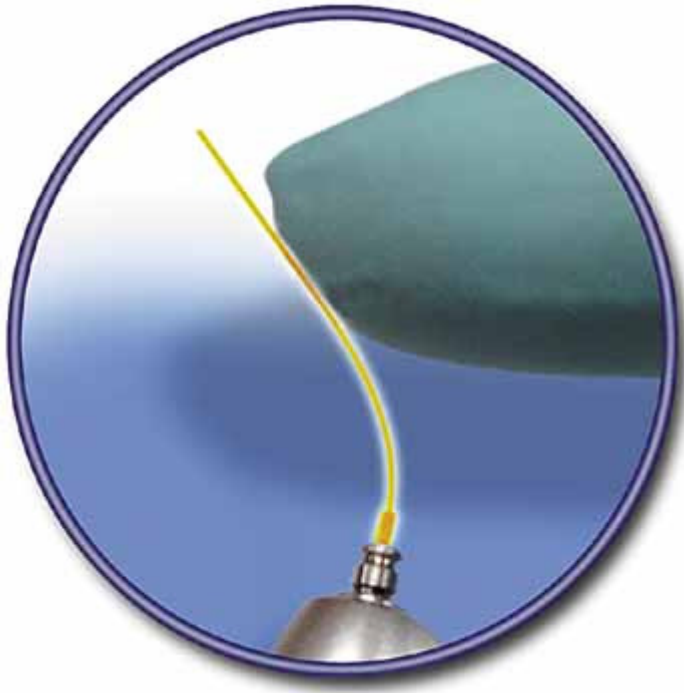


Fig. 1 A thin, flexible endo fiber tip eliminates infected tissue from a canal.

Generally, using the laser to complete an EndoLase procedure provides very conservative treatment of the anatomy of the inside of the tooth. The existing anatomy can easily be followed, and there is no need to enlarge the canal any more than necessary.

Preparing access to the pulp chamber for pulpotomy and pulp removal



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In most cases, there is no need to anesthetize the patient prior to conducting the procedure. (There are occasional circumstances where anesthetic is necessary.) Figure 2 is a pre-op view of the infected tooth.



Fig. 2 The pre-op view of the infected tooth.

1. Initially, use the 600- μ m endo laser tip with very little laser energy to desensitize the tooth and to condition the enamel for removal (Fig. 3)



Fig. 3 Use the 600- μ m tip for desensitizing and conditioning.

2. Next, increase the laser energy slightly, together with the air and water spray, to start ablating the enamel and dentin until the pulp of the infected tooth is exposed (Fig. 4)



Fig. 4 Ablate enamel and dentin until pulp is exposed.

3. Once the pulp is exposed, perform a traditional pulpotomy using the laser. Note: Typically, this is a good point to ask the patients if they have felt any pain or discomfort. Usually, the patient is very comfortable. (If they feel anything at this point, injecting anesthetic directly into the pulp may be necessary.)

4. Continue with the procedure using the thinnest endodontic fiber tip and gradually add laser energy. Desensitize and ablate the infected pulpal tissue and dentin until there is clear access to the canal (Fig. 5).



Fig. 5 The thinnest tip is used to clear infected tissue from the canal.

Cleaning and shaping the canal

1. Once access to the canal is gained, continue with the thinnest endodontic fiber tip and work to about two-thirds of the length of the diseased canal.

2. Determine the working length of the root with a #15 K-file (Fig. 6) and either a digital or traditional periapical x-ray before proceeding Note: Usually, the patient still has not expressed any discomfort or pain.



Fig. 6 Determine the working length using a #15 K-file.

3. Continue the procedure by cleaning and enlarging the middle third and apical end of the canal. Using a sequence of highly flexible fiber tips (from thinnest to thickest), gradually increase the laser energy and continue to clean and shape the canal to achieve final preparation.

4. Use a series of measurements, starting with the #30 K-file, to determine if the canal is ready for obturation. Note: If the #30 K-file can easily reach the working length of the canal, and no debris or material impedes the insertion of the file, the canal is ready for obturation.

Canal obturation

1. The gutta-percha master cone should fit into the entire working length of the canal. If so, the canal is ready for sealing.

2. Use paper absorbing points to thoroughly swab the canal of any moisture, as a precautionary step.

3. Use Ultradent's EndoRez (or a comparable sealant material) to seal the canal.

4. Insert one gutta-percha cone to allow for a pathway for a post or re-treatment. nDPR

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