CLINICAL USES OF THE ERBIUM LASER

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Dentistry has a new weapon in the fight against tooth decay. This “light saber” of dentistry is the Erbium laser. The dental laser is the latest in modern innovations for the 21st Century. The Erbium lasers have proven safe and effective for the removal of tooth decay and cavity preparation in addition to many soft tissue and hard tissue surgical procedures. The FDA has approved the Erbium laser for marketing in the United States as of 1997. The Erbium laser offers an alternative to the high-speed drill, eliminating fear and patient discomfort, for both adults and children. The laser is revolutionizing dental care-just as it has in so many other areas of our lives. With the Erbium laser, the dentist can provide a new method of dental care, which can often be performed, in many cases, without local anesthesia.

Most patients find laser procedures remarkably comfortable. So comfortable, in fact, that in many cases, no anesthesia is required. Patients who have experienced laser treatment for cavity preparation report feeling nothing more than the touch of the handpiece and an occasional slight sensation of warmth. Teenage patients report a “tingling” feeling. Unfortunately, conventional drilling must still be used for the removal of previous metal restorations. The Waterlase™ has been used to prepare crowns and veneers without the aid of conventional rotary instruments. (1).

The dental laser often eliminates the unpleasant after-effects associated with many dental procedures-soreness, bleeding, inflammation, sutures, and numbness. It also creates no known after-effects of its own. "The advantage of laser surgery is the minimization of intraoperative hemorrhage and decrease in postoperative pain symptoms. (2) The carbon dioxide and Nd:YAG lasers have been used effectively for soft tissue oral surgery procedures. Argon lasers have also been used in oral surgical procedures. One of the main advantages of laser surgery conventional excision with scalpel is the reported lessening of postoperative pain and the ability to excise or ablate with less bleeding. (2)

Clinical uses for the Erbium Laser

The Erbium laser has various uses which can be divided into hard and soft tissue procedures for dentistry.

The *hard tissue laser dentistry* includes the use of the laser for Class I through Class VI preparation of carious teeth. The main advantages of the Erbium laser for this use are the following:

1) No anesthesia in the majority of patients due to the numbing effect of the laser

2) No waiting for the patient to be anesthetized in the majority of patients

3) No concern about the patient biting their lip, cheek, or tongue

4) **More pleasant experience due to not being anesthetized**

5) **Multiple quadrant dentistry**

The Erbium laser can be used for *soft tissue surgery* in many ways. These include:

1) **Gingivectomy**
2) **Frenectomy (Labial and Lingual)**
3) **Gingivoplasty**
4) **Exposure of teeth to aid tooth eruption**
5) **Operculectomy**
6) **Gingival removal to expose areas for restorations**
7) **Apthous ulcers**
8) **Pulp therapy**
9) **Abnormal gingival architecture associated with orthodontic movement**
10) **Excision of soft tissue tumors, including fibromas, lipomas, etc.**

The author has incorporated the Erbium laser into his practice and uses the laser on almost every patient. The laser has increased the practice's revenue, increased the number of new patients referred by dentists and patients because of the laser, and has decreased both the patients' and the dentist's stress. Dentistry is fun with the Waterlase ™ laser!

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Clinical Cases

Case 1: This 5 year old patient had caries on the distal of the mandibular first primary molar and the mesial of the mandibular second primary molar. Utilizing the Waterlase MD ™ the preparations were performed without local anesthesia and without dental handpieces. (Figs. 1 A, 1 B) The final restorations are shown in Figure 1 C.

Figure 1 A

Figure 1 B

Figure 1 C

Case 2: A twenty year old patient had caries on the interproximal surfaces of her maxillary central incisors. The Waterlase MD was used to remove the previous composite restoration and remove the caries from the teeth. (Figures 2 A, 2B) A dental handpiece was utilized to complete the preparations. (Figure 2 C) Composite restorations were placed. (Figure 2 D) The patient required no anesthesia to perform the procedures.

Figure 2 A

Figure 2 B

Figure 2 C

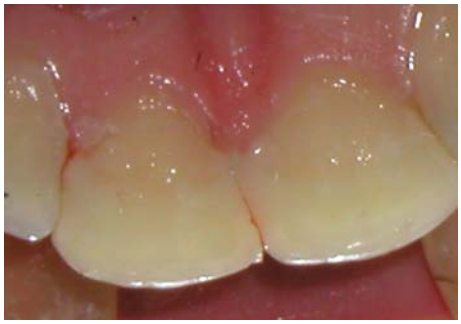

Figure 2 D

Case 3: This orthodontic patient was 12 years old and had severe gingival hyperplasia. (Figure 3 A) A gingivectomy was performed with the Waterlase MD ™. (Figure 3 B) The patient had local anesthesia but took no pain medication following surgery. Periodontal probing decrease 3-4 millimeters in one month following surgery. (Figure 3 C)

Figure 3 A

Figure 3 B

Figure 3 C

Case 4: A six year old patient had a periapical abscess requiring extraction or pulp therapy. (Figure 4 A) After informed consent, a pulpotomy procedure was performed utilizing the Waterlase MD ™ on this non-vital tooth. (Figures 4 B, C) No anesthesia was used.

Figure 4 A

Figure 4 B

Figure 4 C