

# operator

TECHNIQUES AND TECHNOLOGY FOR CLINICAL SUCCESS



## MY JOURNEY TO LASERS

A Dental Practice Report series

This four-part series chronicles one doctor's efforts to integrate laser technology into his dental practice.

Last month, he described how he overcame his skepticism of lasers. This month, he discusses how laser-assisted techniques improved many of his hard- and soft-tissue cases.

**In My:** What lasers can do for your bottom line.

### LASER-ASSISTED DENTISTRY

# my LASER EXPANDED my PRACTICE

BY JONATHAN A. BREGMAN, DDS, FAGD



‘One reason I purchased my dental laser was to do **needle-free and needle-less dentistry**.’

Since adopting lasers for both hard and soft tissues, I now perform many procedures I previously referred out of my office. Do I still refer to my dental specialist colleagues? You bet. I value their knowledge and skills and have plenty of patients to refer to them. Incorporating laser-assisted dentistry in no way takes the place of these valued professionals. Laser-assisted dentistry does allow me to keep some procedures in house.

**NEEDLE-FREE:** Since he started using laser-assisted techniques, Dr. Bregman has not used a local anesthetic injection in any of soft-tissue procedures. Instead, he uses TAC GEL applied for one minute in conjunction with the laser.

Over the years, I have had patients of record say the words that we all hear, ‘But doctor, can’t you do this for me? I like and trust you. I don’t want to go anywhere else.’ No patient wants to be referred out of a general dental office. The more procedures we can comfortably and competently do, the more we make our patients very happy and, therefore, build our practices.

Let’s take a moment to review some basics of using laser-assisted dentistry for soft-tissue procedures. One of the primary reasons I purchased my dental laser was to do needle-free and needle-less dentistry. I define ‘needle-free’ as not ever needing to use a regular local anesthetic injection for a procedure. I define ‘needle-less’ as needing to use a regular local anesthetic significantly less because the laser technology is at my disposal. This distinction is very important. No laser on the market can totally eliminate the need for a local anesthetic injection for all dental procedures.

### ErCr:YSGG laser

That said, I accomplish the soft tissue procedures in my office needle-free with my ErCr:YSGG laser. Yes, I have not used a local anesthetic injection for any of these procedures since I learned laser-assisted techniques! What do I use? I use TAC GEL (Lidocaine or Benzocaine 20%, Tetracaine 4%, Phenylephrine 2%) applied for one full minute in conjunction with using my laser. That is it.

As I discussed in the first article, unlike any other laser on the market, the ErCr:YSGG works through activated water molecules. These activated water molecules are then attracted to the water in soft tissues. That attraction to water molecules

and the way the laser beam penetrates the gingival tissues causes the tissues to be ablated (cut or vaporized). The ablation results in a minimal (5-25) cell layer of necrosis around the target (ablated) tissue, and literally no damage to the collateral, non-target tissues. Due to the action of these activated water molecules, the blood vessels and lymphatics are sealed and the area sterilized as well. The end result is minimal to no bleeding, little to no swelling, and minimal post-treatment discomfort. Very importantly, the surface temperature of the lased tissue is reduced 2-3 degrees.

All other lasers used in dentistry

tistry help me, now, to be comfortable performing soft-tissue procedures daily that, previously, I had stopped doing? My original reasons for referring out certain soft tissue procedures might be like yours. First, I wanted someone else to be the bad guy. I did not want to be the treating dentist of the person who comes back to work swollen and hurting. Better to let someone else take the rap. Second, I referred out when I was at all unsure that I could perform these procedures as well as the specialist.

Then I discovered two facts. One: Using the ErCr:YSGG laser, I could do certain treatments in a fraction

treatment. Almost without exception, they reported no discomfort at all. Most said that 'it was the easiest dental appointment I have ever had'. I called each patient that evening as well as had each patient return to my office for a one or two week post-treatment evaluation. All of them, without exception, commented that they had little or no post-treatment discomfort or swelling. Many told me that they took 'maybe a Tylenol or Advil' but literally forgot that they had had the procedure done. Now, I was ready to do more-than-basics with my ErCr:YSGG.

### Frenectomies

Let's look at one example of soft-tissue procedures that I no longer refer out: frenectomies. I had stopped doing labial and lingual frenectomy procedures many years ago. With my new skills and dental laser in hand, I began to perform these procedures again with great success. I used TAC GEL topical anesthetic along with my ErCr:YSGG laser. The procedures were all needle-free. I followed my same 'single dentist study' protocol as noted above and found the very same results. Children and adults alike had no discomfort during or after the frenectomies. Adults immediately went back to work or out of town on business. Children immediately went back to school, and their parents, incredulous, went back to work. Our patients accepted appointment times for these procedures at any time of the day because there were so few restrictions and there was so little post-treatment discomfort involved.

Before looking at an example of hard-tissue procedures that I no longer refer out, let's take a moment



**NEEDLE-LESS:** Soft-tissue/caries removal, with bleeding control, using a Watelase MD.

cut soft tissues by 'melting' the tissues with a direct laser beam (either cooled externally or not). For a diode laser, dramatically greater cell layer necrosis (250-300 cell layers) is seen, along with greater damage to non-target tissues. Electrosurgical units, another soft tissue cutting device, are known to produce 500-1500 cell layers of death. Other devices on the market can also perform these soft tissue procedures but, in my hands, none can do it as well, as predictably and always needle-free as the ErCr:YSGG laser.

So, how does laser-assisted den-

of the time it took the non-laser dentist/specialist. Second: In my hands, the laser treated patients had little to no post-treatment pain or swelling versus some greater degree of pain and swelling when treated by the non-laser-using dental specialist.

I discovered these two facts by performing my own single-dentist mini clinical-research study when I first started using my dental laser for basic soft tissue procedures. I questioned all patients I treated, in order to assess their level of comfort during and immediately after

to review some basics of using laser-assisted dentistry for hard-tissue procedures. The ErCr:YSGG laser I use activates water molecules that are then attracted to hydroxyapatite and water. This laser is very effective in ablating hard tissues as well as soft tissues. Once again, the surface is actually cooled (2-3 degrees Fahrenheit). The cooling effect is important when dealing with any oral tissue. As with soft tissues, I can do many hard-tissue procedures quickly and easily with minimal swelling and minimal post-treatment discomfort.

lengthening procedures and for a myriad of other complex periodontal-tissue-related problems.

### Biological width

What it does mean is that I can easily reduce the bone to create the ideal biological width in those few areas around a tooth where that 3mm tooth margin to bony crest is not present. In approaching this bony reduction, I do not raise a flap but, instead, work my laser tip along the root surface to remove the necessary bone. Does it seem hard to believe that this procedure works as it does? Go to a laser-training

hope not. Come to a stopping point and refer the patient to the periodontist for a crown lengthening procedure? How about doing it yourself with a dental laser like the one I use?

What I do quickly and simply is to reduce the bone in those areas that measure less than 3mm from the crown margin to the bony crest, by using my ErCr:YSGG laser. I do this without raising a flap, thus the name 'closed' bony crown lengthening. The procedure is accomplished as follows. As long as I can visualize the crown margin and make an accurate impression, I complete all but the placement of the provisional restoration. I then lower the bone, followed my immediate placement of the provisional restoration. The patient returns for crown/bridge/veneer delivery with the tissues healthy because the ideal biological width was created.

The significance of this closed bony procedure is quite evident. I have eliminated the need for provisionalization followed by the patient going to the periodontist for three or more visits followed by my finalizing the preparation, making the impression, and remaking the provisional followed by the patient then finally returning to me for delivery of his or her dentistry. Using laser-assisted closed bony crown lengthening, I have saved the patient a great deal of time and money and have provided a service for which my patients gladly pay. In the process I have improved my own clinical efficiency and my financial bottom line. ■

**“All [my patients], without exception, commented that they had little or no posttreatment discomfort or swelling.”**

Do I use injectable local anesthetic for laser treatment on hard oral tissues? Yes. I use it always with bone. I use it sometimes with enamel, dentin. That is why I make the distinction that, with enamel and dentin, the laser-assisted dentistry that I perform is done needle-less. To me that means I use the needle much less; many times I accomplish my enamel/dentin/cementum procedures with only the dental laser energy creating the numbing effect.

Now, what about the hard tissue procedures that I have added in my practice beyond the 'bread and butter' general dentistry procedures we all do? The one I am going to highlight is called closed bony crown-lengthening. Does that mean that I do not refer any crown-lengthening procedures to my periodontist friends anymore? No, I refer many patients to them for complex crown

course and do it yourself. Look in the literature. Dr. Bradley Dean, a periodontist and laser dentist has some excellent articles written on the subject. Take a course or read articles written by Dr. Larry Nurin, a practicing periodontist. Yes, it does work; it works very well.

How many times have we all removed a deep restoration, deep caries or an old crown with a very deep margin where the biological width is compromised? If my experience of over 30 years of clinical practice is any gauge, 'often' is the answer. What decision are we then faced with at that moment? Leave the area, knowing that the ultimate long-term health of the area will forever be compromised? No, I

**DISCLOSURE:** Dr. Bregman uses a Waterlase MD by Biolase Technologies Inc. He is not an employee of Biolase but has received honoraria for delivering programs for the company, as well as laser organizations. This series is an exploration of his personal experience and has not been influenced in any way by any dental laser manufacturers.