

Expanding your practice with diode lasers

Dr. Larry Emmott covers the benefits of diode lasers and shares his clinical experiences. The article also looks at soft-tissue laser usage trends and lists diode laser manufacturers.

By Dr. Larry Emmott

This column is a departure for me because it is not about a computer-related product. Instead, it's about a high-tech device that I am asked about all the time—lasers, and in particular, soft-tissue diode lasers.

Although I am not a real expert on laser technology, I have been using a diode laser clinically since 1999, and it has changed the way I do dentistry in many positive ways. I can't imagine trying to practice today without it.

Here are some of my observations about the laser revolution, patient care and lasers, and the growing number of procedures for which we can use diode lasers.

The laser revolution

Many changes in dental products simply are improvements on existing methods. Other changes are revolutionary. There are many examples of revolutionary changes in dentistry, but one of the easiest to describe is digital radiography.

For almost 100 years, we essentially used the same method to capture an x-ray image: film radiography. The films, x-ray heads, and developers we used to take the x-rays kept getting better, but the film-method we used stayed the same.

With the introduction of digital radiography sensors, however, everything about radiography has changed.

Lasers represent a similar revolutionary leap. For example, for years we have used a scalpel or electrosurgery for many soft-tissue procedures that we can now perform with lasers. You really can't compare laser-tissue removal to using a scalpel or an electrosurgery unit. For me, the diode laser is better than these traditional methods, much better. What follows are my experiences with diode lasers. (Incidentally, I have not used a hard-tissue in my practice, so I can't speak from personal experience. This technology, however, has also been a significant force in the laser dentistry revolution.)

Patient care and lasers

As I've expanded my uses for the diode laser, I've been amazed by the fact that patients never complain of post-operative discomfort. Most of the time they say they feel nothing the next day. Occasionally, they say their gum tissue feels like it has been scratched.

The other amazing result of my diode-laser use is that, because lasers are very precise, the tissue I cut heals exactly where I cut it. In addition, I compare contouring gingiva with a laser to an artist sculpting a model—the doctor uses short,

small strokes, almost like a painter, to remove layers of epithelia.

And, there is no swelling or shrinkage during the healing process. As a result, I can contour the gingiva with a laser, and on the same day, I can prep the tooth with a handpiece and then take an impression. And I can accomplish all of these tasks in one appointment.

The reason the diode is so gentle on patients is that its energy is directed to the tissue practically on the cellular level, according to Dr. Clara Munera, High-Tech Marketing Manager for Ivoclar Vivadent, which manufactures the Odyssey diode laser. As a result, there is little inflammation, edema, or cell damage when using a diode laser.

What procedures can you do?

Originally, I started using a soft-tissue diode laser to recontour gingival margins for cosmetic purposes.

Since that time, I have expanded my use of diode lasers to include troughing for impressions, frenectomies, minor tissue removal, and periodontal therapy.

Troughing with a laser takes the place of packing cord to control bleeding and expose subgingival margins. Troughing with a laser is faster, more predictable, and less traumatic than cord techniques. And, I discovered I could control bleeding and expose margins by using my diode laser, which I never could have done so easily with conventional techniques.

According to a Dental Products Report survey, the five most popular uses of soft-tissue lasers are, as follows: gingival contouring, excisional/incisional surgery (e.g., fibroma removal), troughing, non-contact procedures (e.g., hemostasis), and sulcular debridement. The next largest category was "other soft-tissue procedures" and frequently mentioned (by write-in) in this group were second-stage implant surgery (implant exposure) and gingivectomy.

The percentages of doctors responding to each of these uses are shown in the sidebar, "Soft-tissue lasers" on the previous page.

We still are learning new ways to use the laser. Many dentists are using it to treat aphthous ulcers. Lasers also are being used endodontically to treat inflamed pulp, and there is widespread use of diode lasers for periodontal therapy. Meanwhile, research continues into the effectiveness of lasers for these and other treatments.

Lasers and the public

Patient acceptance of the laser has been overwhelmingly positive. While the general public may not really understand how a laser works, many patients have seen and heard about how the technology is used in medicine, especially in eye surgery. The general perception is that lasers are quick, safe, easy, and painless. And, in fact, the public is right.

My experiences with lasers

When I purchased my first laser in 1999, I was caught in the classic new-technology

trap. Almost immediately after I had purchased the laser, the company I had bought it from went out of business. I found it harder and harder to get parts and service. Nevertheless, I loved using the laser, and I wouldn't give it up.

So last year I purchased a new diode laser, and I am pleasantly surprised at how much better the new unit is than the old one. Newer diode lasers are smaller, much simpler to set up and operate, easier to use, and less expensive than the models being sold just a few years ago.

Here's a positive experience I had using a laser to treat perio disease. (Much of the evidence for using lasers for periodontal therapy is anecdotal, although there is new research coming out about this topic. To review the latest studies, go to PubMed (www.pubmed.gov), a service of the National Library of Medicine, and type in "periodontal disease and lasers" in PubMed's search engine.)

One of my long-term patients with extensive crown-and-bridge work suffered from chronic periodontitis. She developed an acute suppurating periodontal infection around tooth #8, which did not respond to conventional treatment either from me or from her periodontist.

Three factors impacted the treatment plan—If the tooth were lost, she would be forced to consider complete dentures due to the nature of her remaining teeth; the periodontist felt the case was hopeless and recommended extraction; the patient wanted to avoid a denture.

As a last resort, we treated the area with the laser. After the laser treatment the infection resolved, the tissue health improved, and the tooth remained in stable condition for several more years.

Is there a laser in your future?

According to Dr. Munera, the number of dentists using lasers has doubled in the last year. According to a 2003 Dental Products Report survey of GPs, only 6% of responding GPs own a laser for soft-tissue use, but 5% of respondents said they plan to purchase one for that purpose in the next 12 months.

"Five to 10 years from now, everyone will have some kind of laser," predicted Dr. Stuart H. Coleton, who spoke at a Hands-on Introductory Course given by the Academy of Laser Dentistry (ALD) at the Greater New York Dental Meeting in November 2004. Dr. Coleton is a private practitioner in White Plains, N.Y., in a practice limited to periodontics, including cosmetic surgery, implantology, and laser surgery.

"A diode laser is a good entry level laser," said Dr. David M. Roshkind, past ALD president of and its Scientific Sessions Chair. "It's a way for dentists to get into laser usage."

Editor's note: For a list of companies and their latest diode-laser offerings, see the sidebar, "Diode laser manufacturers" on the facing page.

Lasers are expensive and intimidating. However, I could no longer practice without one. In my opinion, every dentist would become a better dentist if he/she

understood and used lasers. Don't let the future scare you, the future is coming and it will be amazing!

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