Er:YAG and Nd:YAG dual wavelength-optimized periodontal therapy protocol

Combination dramatically improves outcome of laser-assisted treatments

By Harvey S. Shiffman, DDS

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Cases varied from single pockets to full-mouth treatments. Patients had pocketing ranging from 2 to 10 mm with moderate to severe horizontal and angular bone loss. Pockets 6 mm deep had collagen placed while those more than 6 mm had Novabone™ (Novabone Products) placed with a liquid Atrisorb™ (Zib); membrane and sealed with Periary™ (Glustitch). Occlusal discrepancies were addressed in all cases, and full-mouth cases had restorations and orthotic appliances fabricated (Gladwell Comfort hard/soft). Patients were instructed to avoid brushing or flossing the area treated and avoid granular foods such as strawberries, poppy seeds and sesame seeds, etc., for one week. Patients were given Peridex™ (3M ESPE) rinse and doxycycline 100 mg one week. Patients were given Peridyex™ (3M ESPE) rinse and doxycycline 100 mg

Fig. 1: Case 1 during treatment. Photos/Provided by Dr. Harvey S. Shiffman

Fig. 2: Case 1 pre-operative X-ray at five months.

Fig. 3: Case 1 post-operative X-ray.

Fig. 4: Case 2 pre-operative probings.

Fig. 5: Case 2 post-operative probings at 22 months.

Two-year postoperative probings and radiographs showed significant pocket reduction, reattachment and osseous fill in defects. Unfortunately, Dentrix periodontal charting only goes to 9 mm so the charts were modified for 10 mm pockets as needed. Pre-operative pocketing (Fig. 4) was as high as 10 mm in two locations. Figure 5 shows significant improvement at the 22-month post-operative follow up.

Case No. 1

A 74-year-old female presented with no known allergies. The patient had no history of significant medical conditions or habits and was taking no medications at the time of treatment. The patient had a Class I occlusion with significant crowding. Her chief complaint was her swollen and bleeding gums. She presented with a 7 mm pocket on the mesial bucal of #7, 6 mm on the direct lingual and 6 mm on the distal lingual. Pre-operative radiographs showed a significant osseous defect.

Eight months after “wavelength optimized periodontal therapy” (WPT) treatment, probings were 2 mm in the previous locations and 6 mm on the adjacent tooth. There were consistent at 2 mm, which was a gain of 4 to 5 mm of attachment. Post-operative radiographs showed significant bone fill of the previous defect.

Fig. 5: Case 2 post-operative probings at 22 months.

Fig. 3: Case 1 post-operative X-ray.

Fig. 2: Case 1 pre-operative X-ray at five months.

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The upper right 7 to 10 mm pockets regained 5 mm of attachment and bone fill; the upper left segments regained 4 to 7 mm; the lower left regained 5 to 6 mm; the lower right regained 3 to 5 mm.

Conclusion
Clinical, radiographic and probing evidence suggest that when followed correctly, WPT protocol is a strong and reliable tool for restoring periodontal health. However, it should be noted that occlusal considerations and orthotic appliances in full-mouth cases can have a great impact on outcomes. Patient maintenance and re-care can also dramatically affect the success of therapy.

The Lightwalker dual-wavelength laser has been proven to have strong benefits in periodontal therapy. Having the ability to offer patients a minimally invasive laser treatment with minimal bleeding, swelling and discomfort increases patient compliance and case acceptance versus traditional periodontal surgery. This seems to be especially true in patients who have had a history of traditional invasive periodontal surgery.

References

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