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

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Combination dramatically improves outcome of laser-assisted treatments

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™ (Zöll) membrane and sealed with Periacyr™ (Glustitch). Oculusal discrepancies were addressed in all cases, and full-mouth cases had root coverages and after one retreat they fabricated (Glidewell 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 for seven days.

Follow-up appointments occurred at one and two weeks post-treatment for removal of Periacyr™ and boostimila. In addition, de-epithelializing the pockets was completed based on the initial pocket depth during these one- and/or two-week follow-up appointments. Patients were brought back for periodontal maintenance after two months. At all follow-up appointments, there were limitations on sub-gingival scaling. No probing was permitted for a minimum of six months to avoid damage to the new attachment.

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 buccal 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, probing depths were 2 mm in the previous locations. The probing depths 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.

Case No. 2

This 62-year-old male patient had a full-mouth case with pocketing ranging from 2 to 10 mm in multiple locations. The patient reported no known allergies and was taking prescription medications that included Metropolol, Crestor, Ramipril and HCTZ. The patient’s chief complaint was his bleeding and painful gums. The diagnosis was moderate to severe periodontal disease in all four quadrants and he consented to treatment.

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.

*See DUAL, page A8
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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Fig. 6: Case 2 pre-operative full-mouth X-ray.
Fig. 7: Case 2 post-operative full-mouth X-ray.