TwinLight™ Periodontal Treatment

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SUMMARY
INTRODUCTION
For many intraoral soft-tissue surgical procedures the laser has become a dependable and desirable alternative to traditional scalpel surgery, however, the use of dental lasers in periodontal therapy is still considered controversial [1].

New research has suggested that non-surgical periodontal treatments with an Er:YAG laser may be one promising alternative for reducing and controlling the proliferation of microorganisms in persistent periodontitis [2]. The Er:YAG laser ablates periodontopathic bacteria with thermal vaporization, and its bactericidal effect on the diseased root surfaces appears to be superior to that of the ultrasonic scaler [3].

AIM
The aim of this study was to compare the combined TwinLight™ laser therapy (Er:YAG + Nd:YAG) with conventional modified Widman flap surgery in patients with advanced periodontitis.

MATERIALS AND METHODS
Fifteen patients with advanced periodontitis who needed corrective surgical treatment were included in the study. Smokers, patients on antibiotic treatment in the previous 3 months and patients with systemic diseases were excluded from the study. According to split mouth design, half of the patient’s single-rooted teeth were randomly assigned to a modified Widman flap group (MWF) and the other half to a laser group (L). The MWF group was treated with conventional flap surgery while the laser group was treated non-surgically using neodymium (Nd:YAG) and erbium (Er:YAG) lasers. Laser treatment was performed in three steps including decontamination of the periodontal pocket (Nd:YAG; 3-4 W), removal of the pocket epithelium and the content of the periodontal pocket, scaling of the root surfaces (Er:YAG; 50 mJ/p) and stabilization of the blood clot inside the periodontal pocket (Nd:YAG; 4 W).

Clinical parameters of probing depth, recession, clinical attachment level and bleeding on probing were recorded at baseline and 3 months after treatment.

RESULTS
The mean probing pocket depths at baseline were 3.87 mm ± 1.51 mm in the MWF group and 3.56 mm ± 1.63 mm in the laser group. These values decreased to 2.58 mm ± 1.10 mm (p < 0.05) in the MWF group and to 2.63 mm ± 1.15 mm (p < 0.05) in the laser group. Recession increased from 1.62 mm ± 0.77 mm to 2.25 mm ± 1.03 mm (p < 0.05) in the MWF group and from 0.90 mm ± 1.11 mm to 1.28 mm ± 1.29 mm (p < 0.05) in the laser group. Clinical attachment levels decreased from 5.50 mm ± 1.91 mm to 4.83 mm ± 1.52 (p < 0.05) in the MWF group and from 4.46 mm ± 1.98 mm) to 3.91 mm ± 1.68 mm (p < 0.05) in the laser group 3 months after treatment. The bleeding-on-probing score dropped from 16.67% to 8.33% in the MWF group and from 23.81% to 5.95% in the laser group.

CONCLUSION
Combined laser treatment effectively improved the periodontal clinical parameters and might serve as an alternative to conventional flap surgery in single-rooted teeth.

REFERENCES