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KEY TAKEAWAYS

The free-running pulsed Nd:YAG laser-based LAPIP protocol (laser-assisted peri-implantitis protocol) enables effective treatment for peri-implantitis in a single visit.*

The minimally invasive LAPIP protocol reduces the bacterial load and thus controls the localized infection.

LAPIP therapy elicits minimal postoperative discomfort, minimizes postoperative recession, and is preferred over conventional treatment by patients. Return to gingival health and significant bone fill are typical long-term outcomes. This case included post-treatment visits every 2 to 3 weeks for prophylaxes with a hygienist and review of plaque control measures until 3 months post-procedure, followed by a 3-month periodontal maintenance protocol.

*See author's note at the end of the case presentation regarding cases with resin cements.

Restoring Long-Term Peri-Implant Health With the LAPIP™ Protocol

A 63-year-old male patient was referred in 2015 after a routine cleaning at his restorative dentist revealed pocketing and heavy bleeding on probing (BOP) around an implant in site No. 4. The implant (Straumann RN TE) had been placed in 2003 under the author's care due to a previous root fracture of the endodontically treated tooth No. 4, which had been extracted 6 months prior to presentation. The final implant crown was cemented with a polycarboxylate cement in 2003. The patient was highly compliant under his general dentist's care with regular 6-month prophylaxes. In 2015, the patient presented as a healthy non-smoker with a controlled medical history of atrial fibrillation and high cholesterol. Parafunctional habits were contributory to the failed tooth. The patient was diagnosed with site-specific beginning-to-moderate peri-implantitis around No. 4. LAPIP treatment using the PerioLase® MVP-7™ Nd:YAG laser (Millennium Dental Technologies, lanap.com) was performed. At 2 weeks' follow-up, the patient reported 0 out of 10 on a discomfort scale. He maintained good plaque control and returned to his restorative dentist's care after 6 months of healing for alternating periodontal maintenance visits every 3 months. At 7 years' postoperative, the peri-implant tissues associated with No. 4 were healthy with ≤4 mm probing depths and light BOP.

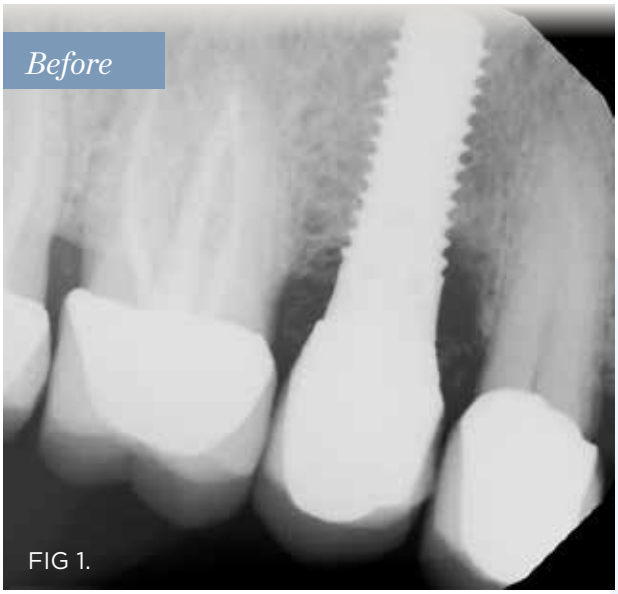

FIG 1.

FIG 2.

FIG 3.

Fig 1. Preoperative radiograph of implant No. 4 with peri-implantitis upon presentation in January 2015. The implant was not mobile, but bone loss was evident to the third thread on the mesial aspect. Fig 2. Pretreatment clinical view. Probing depths around implant No. 4 were 7 mm, 7 mm, and 9 mm buccally, from distal to mesial, and 9 mm, 7 mm, and 7 mm lingually, from mesial to distal. Heavy bleeding occurred circumferentially upon probing. No visible facial recession was observed. Fig 3. Immediate post-treatment in 2015. The LAPIP procedure was completed for implant No. 4 and the laser-assisted regeneration procedure was performed on adjacent teeth Nos. 2, 3, and 5. A total of 542 joules of laser energy was administered via insertion of an optical fiber into the sulcus in the maxillary right sextant. Following the treatment, discussion with the patient included re-evaluation in 6 months for soft- and hard-tissue healing and determination of whether there would be a subsequent need to re-enter the area surgically for a guided bone regeneration procedure. No surgical re-entry would be needed for this patient, because clinical healing was evident with significant pocket depth reduction and elimination of BOP. A maxillary nightguard appliance was recommended to control the patient's parafunctional habits.

FIG 4.

FIG 5.

Fig 4. In 2016 (1.5 years postoperative), radiograph showed significant bone fill had occurred over the preceding 17 months. Clinically, probing depths were significantly decreased. No bleeding or suppuration were noted during postoperative examinations. Fig 5. A 7-year post-treatment clinical examination was completed in May 2022, indicating continued improved health of implant No. 4. Probing depths were 4 mm, 2 mm, and 4 mm buccally, from distal to mesial, and 4 mm, 2 mm, and 4 mm lingually, from mesial to distal. Light bleeding was noted on the mesial aspect upon probing. Fig 6 and Fig 7. Post-treatment digital radiography at 7 years showed increased bone density and complete fill on the mesial and distal aspects of implant No. 4.

Author's note: Cases with resin cements are more likely to require flap entry for direct visualization to be evaluated 6 to 12 weeks post-treatment. The author's opinion, supported by literature, is that resin cements cannot be visualized radiographically and are extremely difficult to remove. The author recommends the use of zinc-based cements (ZOE or ZnPO4) using teflon-tape technique to reduce cement intrusion into the peri-implant sulcus.

FIG 6.

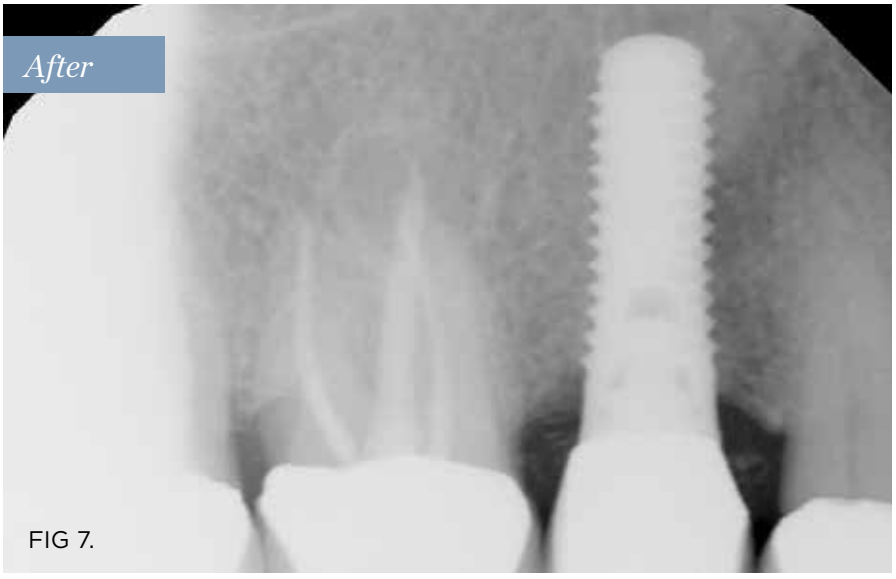

FIG 7.

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