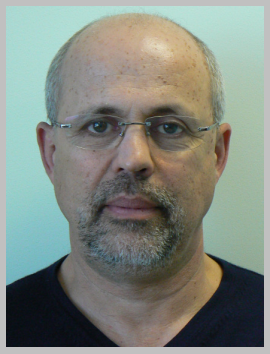
Clinical Bulletin 33/10

Dr. Litvak received his dental degree from the Hadassah Dental School in Israel, where he practices general dentistry using laser since 2000. He completed his Advanced Proficiency in Er:YAG lasers and is founder and co-owner of BED Laser Technologies an R&D company that develops patented Er:YAG laser technology. Dr. Litvak is also founder of the Academy of Laser Dentistry's Israeli chapter.



Er:YAG Laser Apicoectomy

Emil Litvak, DDS

In this clinical case a 48-year-old female visited our office due to swelling of the top right part of the face as a result of acute dentoalveolar abscess on tooth #13. The patient had a six-year old bridge between tooth #13 and tooth #16. Teeth #14 and #15 were missing. Examining the gums we found that the color and structure of the gums were healthy, but general recession was present in all 4 quadrants. Periodontal pockets were up to 3 mm deep. The soft tissue around the problematic tooth #13 showed signs of gingival recession and there was dentin wear on the buccal side of the tooth. A radiograph examination revealed a radiolucent area around the apex of tooth #13. On the X-ray images root canal filings looked healthy.

We decided to selectively cut and remove granulation tissue around the apex of tooth #13 and disinfect the exposed part of the infected root by means of a free running ER:YAG dental laser system.

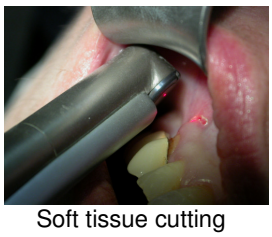
Local anesthetic was infiltrated on the buccal and palatal side of the tooth. A semilunar incision was performed at the apex area on the free gingiva above the tooth. A spot size of 400 micron and a R02 sapphire window handpiece were used without water or air spray. After opening the surgical site we switched to a R14 handpiece and the water was turned on, but without air. That handpiece was used to remove the granulation tissue, disinfect the bone surrounding the apex and, after changing parameters, cut the apex. We removed the apex and sutured the flap. The patient was instructed to take painkillers if needed to ease discomfort and to start rinsing with chlorhexidine after 24 hours.

Parameters

	Soft tissue	Hard tissue
Laser source:	Er:YAG	Er:YAG
Wavelength:	2940 nm	2940 nm
Handpiece:	R02	R14
Spot size:	400 micron	940 micron
Mode:	VLP	SP
Frequency:	15Hz	20 Hz
Energy per pulse:	180mJ	250 mJ

The patient returned for check-ups after one week, one month and three months. After one week we removed the sutures. A mild swelling was still present, which is normal, apart from that, there were no post-operative complications. At the one month check-up no swelling or other symptoms were present. The soft tissue was healing nicely. Both the soft tissue and hard tissue appeared healthy at the 1 and 3 month check-ups, proving that Er:YAG laser technology can be utilized for dental soft, hard and alveolar tissue surgery with excellent results and low risk of complications.

Before



Soft tissue cutting

Apex removal

1 month post-op

Laser&Health ACADEMY