



SWEEPS Protocol with Fotona LightWalker, a Game Changer for Root Canal Treatment

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Introduction:

The Fotona LightWalker laser with its SWEEPS mode improves the quality of root canal treatment (RCT) and makes RCT a single-appointment procedure in most cases. SWEEPS works by creating a shockwave effect in the tooth, which pushes irrigation liquid into every space of the canal system.

The advantages of Dr. Olivi's protocol using SWEEPS include:

1. Minimally invasive root canal preparation,
2. The flat SWEEPS fiber tip is easily and safely positioned in the pulp chamber,
3. Sub-ablative laser energy has no thermal damage,
4. The ability to irrigate multiple canals at the same time, and effective on apical ramification and lateral canals.

The new concept of laser-assisted RTC utilizes SWEEPS technology combined with minimal shaping and more effective disinfection. "One visit root canal treatment" with this protocol is routinely successful at my practice.

Laser	Fotona LightWalker		
	EDTA cycle	NaOCl cycle	Distilled water cycle
Wavelength	Er:YAG (2940 nm)	Er:YAG (2940 nm)	Er:YAG (2940 nm)
Handpiece	HC 14-N	HC 14-N	HC 14-N
Fibertip	Flat SWEEPS400/9	Flat SWEEPS400/9	Flat SWEEPS400/9
Energy	20 mJ	20 mJ	20 mJ
Power	0.6 W	0.3 W	0.6 W
Mode	AutoSWEEPS	SSP	AutoSWEEPS
Frequency	15 Hz	15 Hz	15 Hz
Water/Air	0/0	0/0	0/0



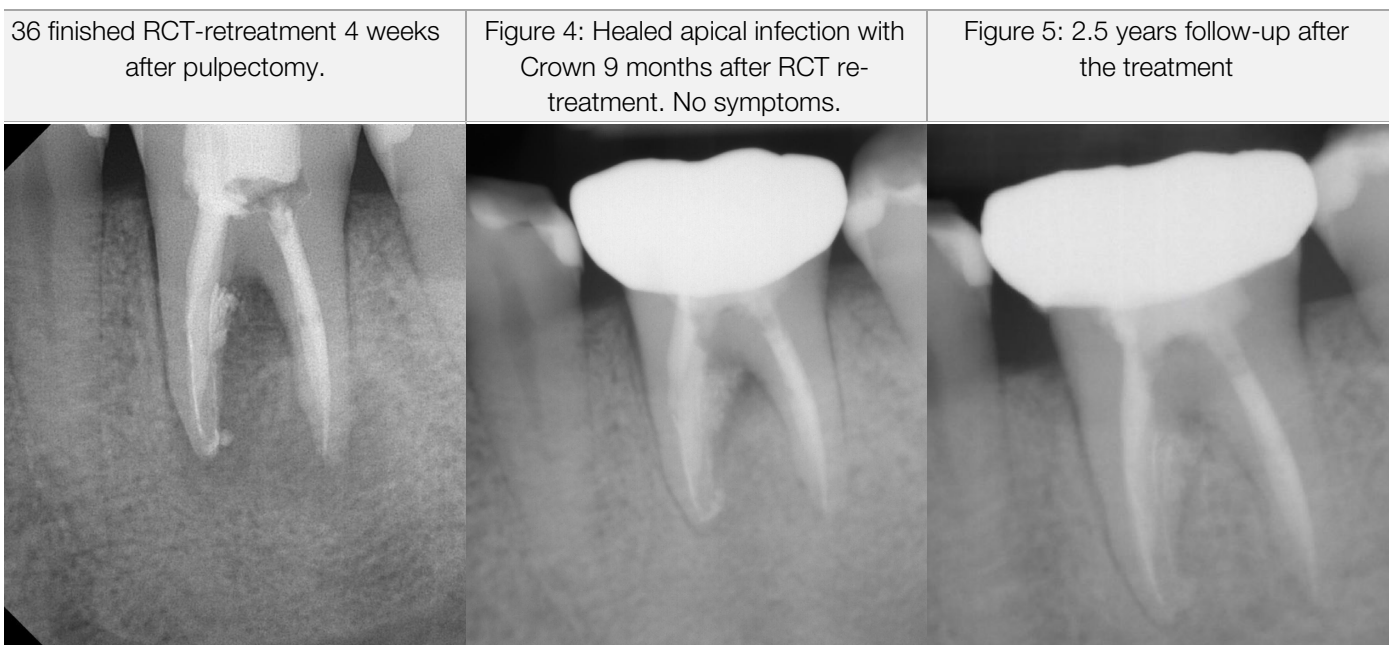
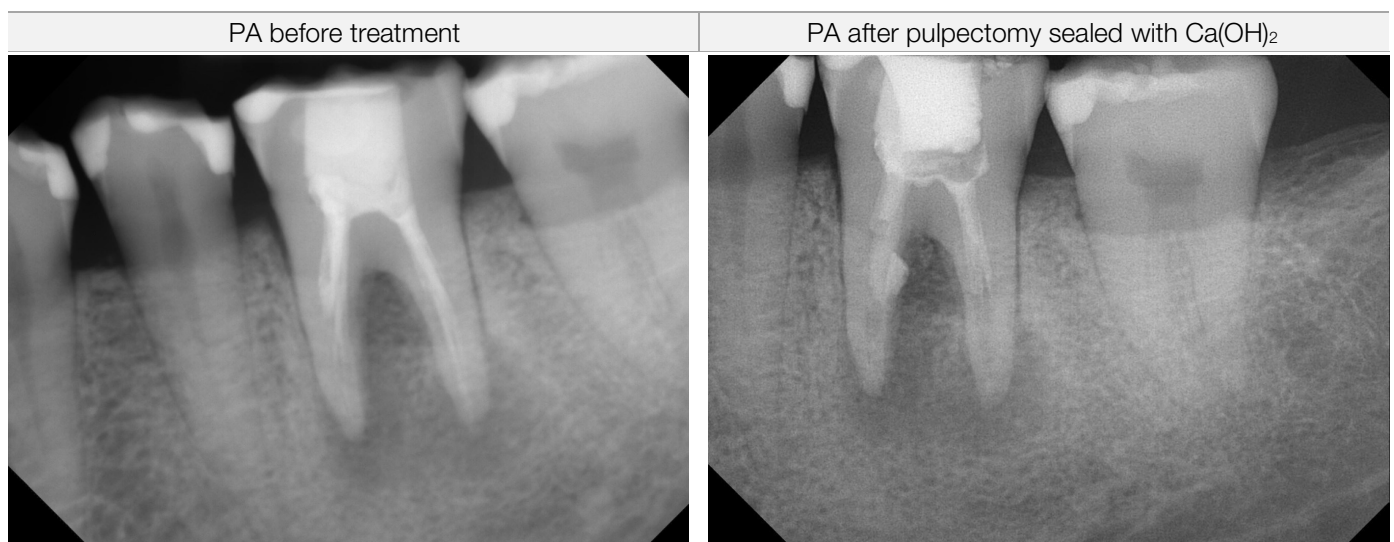
Dr. Yanbin Xu graduated from the College of Stomatology of West China University of Medical Sciences (WCUMS) in 1989. He was a staff member at the Department of Preventive Dentistry at the Dental hospital of WCUMS until 1995, when he was a visiting scholar at Asahi University of Japan. Dr. Xu obtained a PhD on the TMD research at the prosthodontics Department in 2000. From 2000-2013, he was an associate professor at the West China Implant Center affiliated with the China Ministry of Health. In 2010, Dr. Xu obtained his DMD from the University of British Columbia, Canada. He is a co-owner of The Dentists at Metrotown in Burnaby. He opened a dental clinic False Creek Pure Dental in Vancouver. He incorporated LightWalker into his private practice in 2018.

CLINICAL CASE:

A 37-year-old female patient came for RCT re-treatment due to swelling and pain on the lower molar area. PA showed apical translucency on tooth 3.6, which had been RCT treated 5 years ago. Suspected over-preparation done in the previous RTC had likely caused a possible mesial root crack. After reviewing the pros and cons with the patient, the patient decided to do RCT re-treatment. The SWEEPS protocol was used on this patient.

According to Dr. Olivi's protocol, after a minimally invasive instrumentation (only #20-30 ISO, 0.4 taper), a continuous flow of 17% EDTA is used two times under AutoSWEEPS mode: 30 seconds for each activation period, with 30 seconds resting time in between. After that, a continuous flow of sterile distilled water is applied under AutoSWEEPS mode. It is then followed by 3 times continuous flow of 5% NaOCl under SSP pulse as an activation period, while a 30-second resting period is needed between those activation periods. Lastly, a 30-second flow of continuous sterile distilled water is used under AutoSWEEPS mode as the final step before obturation.

During the activation phase, EDTA or NaOCl solution applies physical or mechanical reaction through photoacoustic effects. EDTA as a chemical reaction removes inorganic particles in the dentin. NaOCl functions by dissolving organic tissue and killing bacteria.



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