



## Orthodontic Crossbite Correction – Mandibular Lingual Frenectomy & Removal of a Bonded RPE

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Introduction:

Bonded rapid palatal expanders (RPE's) are used to fix anterior and posterior crossbites. When the crossbite has been corrected during orthodontic treatment, it is time to remove the bonded composite splint or RPE. Traditionally bonded composite splints are removed with high-speed/low speed diamond burs and polishing disks. This is less of a problem in the mixed dentition as the primary teeth will be followed by permanent teeth. Damage to primary teeth during splint removal is not as critical as damage during the removal of material from permanent teeth. For bonded RPE's in Progressive Orthodontic Seminars (POS) we use Reliance Excel cement. This cement has a relatively easy clean up, leaving little cement tenaciously clinging to teeth. The problem though, comes at the time of removal as these appliances can be difficult to remove.

Laser	Fotona LightWalker	
	RPE debonding (Excel cement)	Md Lingual frenectomy
Wavelength	Er:YAG (2940 nm)	Er:YAG (2940 nm)
Handpiece	H02	H14
Fibertip	/	conical
Energy	275 mJ	120 mJ
Power	2.75 W	2.4 W
Mode	MSP	VLP
Frequency	10 Hz	20 Hz
Water	2	0
Air	1	2



*Dr. Terry Rose received his Bachelor of Science in 1981 and Bachelor of Dentistry degree from the University of Otago, New Zealand in 1984. He is a member of the International Academy of Oral Medicine & Toxicology (IAOMT). He completed the LA&HA Master's Program in Laser Dentistry (2017 -2019). Dr. Rose is the Principal Dentist-Owner of the Smile In Style dental practice, established in 1989 in Moonee Ponds and Sunbury in Victoria, Australia. He has been active as a Lecturer for Progressive Orthodontic Seminars (POS) from 2008- 2018. He has been using Dental Lasers in his dental practice since 2008.*

## CLINICAL CASE:

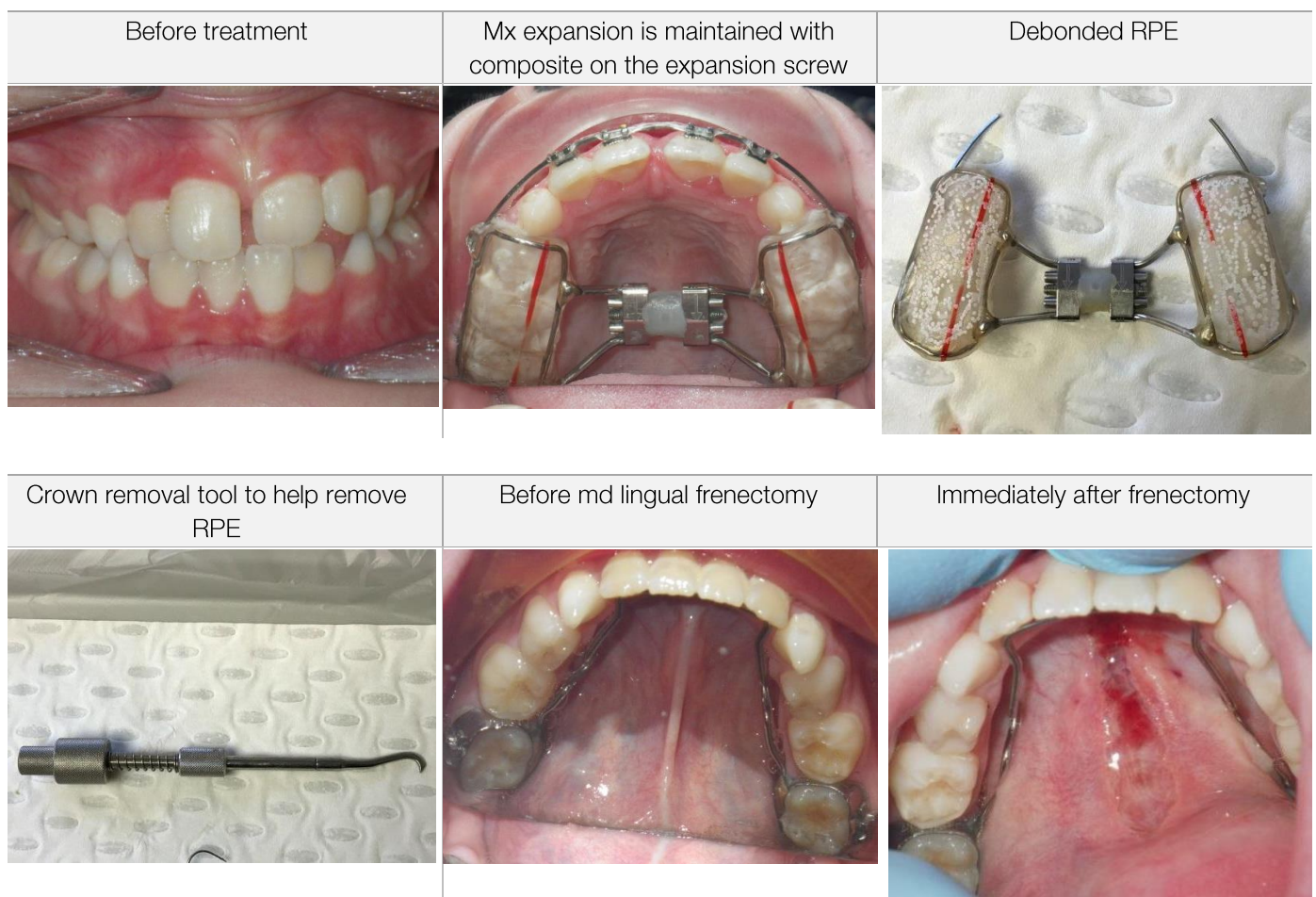
In this clinical case, a bonded RPE was placed in a 10-year-old male patient, for class III unilateral posterior and anterior crossbite correction. (Figure 1). Anterior alignment was achieved by bracketing upper 2-2 with the NiTi wire engaging bracket attachments on the maxillary RPE in the maxillary 4 locations. Expansion was maintained with composite on the expansion screw for 2-3 months after full expansion (Figure 2). Expansion of the maxilla with an RPE also improves the upper airway and enables better nasal breathing.

When the crossbite had been corrected, we used the LightWalker to aid in removal of the bonded RPE (parameters for both in above Table). The same principles have been used for the bonded RPE removal, as are usually used for crown removal. The aim is to penetrate the bonded RPE materials and weaken the composite to tooth bonding interface.

The removal of bonded RPE was successfully completed with the crown removal tool shown in Figures 3 & 4. Much less force and effort than usual was required to debond the appliance.

During the treatment, a laser-assisted mandibular lingual frenectomy was also performed. Typically, class III malocclusions develop where the tongue is restricted with an ankylosed mandibular lingual frenum. This, in time with swallowing patterns, growth and function results in a low tongue position. We saw an expanded and advanced lower arch in relation to a constricted and under-developed upper arch. Therefore, a laser-assisted mandibular lingual frenectomy was performed using the parameters in the above Table, with the aim of improving the tongue position/swallow pattern, which results in a more normal orofacial development (Figures 5 & 6).

The LightWalker is a useful tool in frenectomy and removal of bonded orthodontic RPE appliances. RPE can be removed quickly, with less effort and potential damage to the teeth, as well as more comfort for the patient. These techniques have been used successfully in my practice on a number of other orthodontic cases.



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