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Using Er:YAG laser for Effective Adhesion in Prosthetics

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Parameters:

Laser source:	Er:YAG, 2940 nm
Pulse duration:	MSP
Energy:	100 mJ
Frequency:	10 Hz
Handpiece:	H02-C

Treatment procedure:

Recent technological advances in dental prosthetics have enabled substantially higher levels of success in term of aesthetic results, as well as more minimally invasive procedures. This has been made possible with the introduction of new materials such as metal-free crowns and bridges as well as new kinds of fixed prosthetics (inlays, onlays, Maryland bridges, California bridges, etc.). Also, the use of an Er:YAG laser combined with orthophosphoric acid provides a highly effective adhesive cementation.

This case report regards a female patient of 45 years with her upper left canine missing. For financial reasons it was decided to bond a composite-resin Maryland bridge to the neighboring teeth. In such cases it is extremely important to assure the highest possible bond strength, so a combination of Er:YAG laser conditioning and acid etching was the treatment of choice for enamel conditioning. Classically, there is no alternative method for composite conditioning. Er:YAG laser makes the composite surface rough and consequently the bond stronger.

To prepare the enamel and prosthetics surfaces, the LightWalker AT dental laser was used, and 37% orthophosphoric acid was subsequently applied to the enamel for 15 seconds. Finally, the bridge was bonded with dual cement. The patient was satisfied with the aesthetic results.



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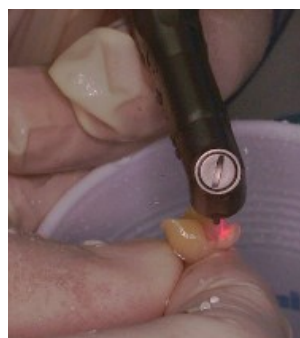
Before treatment



The prosthetic bridge



Er:YAG enamel conditioning



Prosthetic surface conditioning



After treatment



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