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## Debonding of Orthodontic Brackets with Er:YAG laser

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### Parameters:

Laser source:	Er:YAG, 2940 nm
Pulse duration:	MSP
Fluence:	80 mJ
Frequency:	10 Hz
Handpiece:	H14-C with chiseled fiber tip
Spray:	4 water / 6 air

### Treatment procedure:

During bracket debonding, enamel fracture can occur in areas where force is exerted. There are different possible bracket removal techniques known, with varying degrees of enamel loss or damage and with different times needed for bracket removal.

In this clinical case, laser energy was used to soften the adhesive thermally, leading to reduced pain and less force required for debonding, as well as a reduction of the treatment time and protection of the enamel from fracture and loss. The H14-C handpiece with a chiseled fiber tip was used for debonding the brackets.

The fiber tip was placed tangentially to the crown surface and inserted between the bracket and enamel so that the laser energy was directed to the adhesive. Ten laser pulses were delivered at each side of the bracket, after which the metal bracket was removed with the help of a spatula (normally used to mix the cement) with very low force. There were no complications during the debonding procedure and no damage to the enamel surface. As the energy was set relatively low at MSP mode, there was also no danger of intrapulpal temperature rise. The patient reported no stress during the procedure.



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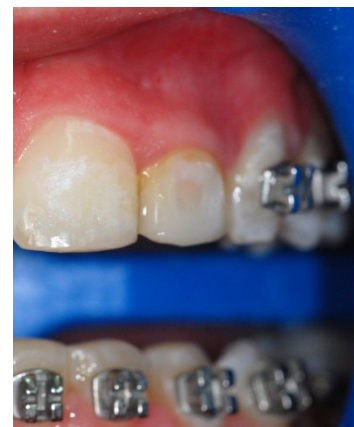
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During debonding with Er:YAG



Easy bracket removal



Intact enamel surface