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Ceramic Bridge Debonding

Dr. Dmitri Malev

Parameters:

Laser source:	Er:YAG, 2940 nm
Pulse mode:	SSP
Energy:	200-280 mJ
Power:	3-4.2W
Frequency:	15 Hz
Handpiece:	H02 (non-contact)
Water/Air:	3/3

Treatment procedure:

A 28-year-old female patient with four zirconia-based porcelain layered crowns (connected to each other) in the frontal area (teeth 12-11-21-22) came to the office. She was generally healthy, her gingival tissue was healthy, and plaque control and oral health were good. The patient was sent from another dental clinic for laser debonding of the ceramic bridge due to a fracture of the incisal edge of one of the restorations (tooth 11).

Starting on the facial gingival margin surface with low energy (200 mJ), Er:YAG laser (LightWalker) with a H02 handpiece was used with a slow painting motion, moving from bottom to top, back and forth on the mesial and distal side. On the facial, palatal, mesial and distal surfaces energy was increased up to 280 mJ. The crowns were successfully removed after several downward pulls with a curette.

No complications were observed during or after the treatment. The clinician should extend care when using mechanical means of removing restorations after the laser is used. Ideally, a small overhang in one area will help provide a "catch" of the crown edge whereby the clinician may remove the loosened restoration via a controlled downward pull.

Clinicians with access to Er:YAG in their practices have the ability to quickly and safely remove all porcelain restorations (glass ceramics, lithium disilicate restorations, zirconia) without fear of creating iatrogenic damage to the underlying tooth structure. The role of the Er:YAG in removing bonded porcelain restorations is promising, not only for the dentist but for the patient and laboratory as well.

In some situations, restorations might be salvageable, even after bonding, if they require alterations in their position, shape, size, re-treatment or color. There is no doubt that the use of Er:YAG laser for removal of ceramic veneers and crowns is an exciting alternative to the traditional methods using a high-speed handpiece drill.

Before

Immediately after