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Effect of Er: YAG laser etching on shear bond strength of orthodontic bracket

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Laser induced caries resistance is advantageous in orthodontics. This study was designed to evaluate and compare the shear bond strength (SBS) of Erbium laser etched enamel to acid etched. Moreover, to detect morphological changes on laser etched enamel surface using scanning electron microscope (SEM). A total of fifty human premolars extracted for orthodontic purpose were used in this study. The samples were randomly divided into two groups of 25 each. The first group was etched using 37% phosphoric for 30 seconds. As for the second group, enamel was treated by Er: YAG laser operating at wavelength 2.94 µm, power 1.8W and repetition rate15Hz. Five teeth from each group were selected for scanning electron microscope (SEM) evaluation and the study was continued on 20 teeth from each group which were subjected to shear bond strength test. The results of this study showed, no-significant difference between the mean of shear bond strength of the etched groups (p=0.435). Based on the results of this study, it was concluded that laser etched group (1.8W/15Hz) resulted in clinically accepted bond strength and could be an alternative to conventional acid etching.

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New treatment modalities using TADs: Long-term follow up

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The control of anchorage is one of the most critical factors in orthodontic treatment. Extra-oral anchorage, such as head gear, is traditionally used to reinforce anchorage. However, the use of extra-oral anchorage demands full cooperation of patient as well as 24 hours of continues wear which cannot be done. Recently Temporary Anchorage Device System (TADs) has been used for absolute anchorage in various types of procedures involving tooth movement. Their advantages including reduced treatment time, simplified and effectiveness treatment with sliding or loop mechanics. It's an easy of insertion and removal, low cost, immediate loading and the ability to place TADs in any area of alveolar bone. The most often used self drilling screw in diameters from 1, 2mm to 1.6 mm insertion inter-radicular bone between second premolars and first molars in the upper and lower arch. For using self drilling TADs no needs surgical intervention and special equipment. TADs offer easy solutions for Extraction or Non-extraction cases of treatment class II, III. Intrusion or up-righting, groups of teeth without necessity for patients' cooperation and without side effects on neighboring teeth.

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