

عنوان مقاله:

CO₂ Laser Effects on Shear Bond Strength of Orthodontic Brackets and Enamel Demineralization

محل انتشار:

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خلاصه مقاله:

Aim: of this in vitro study was to evaluate the effects of Co₂ laser irradiation on demineralization adjacent to orthodontic brackets and their shear bond strength in human premolar teeth. Enamel demineralization adjacent to orthodontic brackets is a major problem that requires new professional method independent to patient cooperation. **Materials and methods** Sixty human premolars were randomly divided to two groups (n=30). Group₁, enamel surface irradiated with Co₂ laser. Group₂ without any enamel surface treatment. In both groups, a bracket at buccal surface was bonded with Transbond XT and cured with conventional light cure. Demineralization in all sample induced with artificial caries solutions. A universal testing machine was used to determine shear bond strengths. The teeth were sectioned bucco-lingually and were evaluated under polarized light microscope. Average lesion depths were calculated from three depth measurements. The Two independent sample T- tests were used to compare the study type group in detail. **Results:** The mean of shear bond strengths in the group₁ and ₂ were 13.90 ± 5.01 and 15.84 ± 3.68 Mpa respectively, but not statistically significant ($P=0.102$). The mean lesion depth in group₁ and ₂ was 72.29 ± 58.09 μ m 120.01 ± 76.49 μ m respectively, which was significant ($P=0.018$) **Conclusion:** Co₂ laser irradiation can reduce enamel demineralization while not affecting the shear bond strengths significantly.

کلمات کلیدی:

CO₂ Laser, Shear Bond Strength, Enamel Demineralization

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