Original Article

The effect of enamel moisture on tensile bond strength of composite resin using Single bond in total etch technique

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Abstract

Background and Aim: Tooth colored restorations are so common nowadays due to increased esthetic needs. A successful composite restoration demands a strong bonding with lowest microleakage. Close relation between tooth surface and the other adherents is an important factor in bond strength. The purpose of this study is to evaluate the effect of enamel moisture on tensile bond strength of composite resins using Single bond in total etch technique.

Materials and methods: In this in vitro study, 40 premolar teeth were randomly divided into two equal groups. Enamel surface of the teeth were polished using a disk in midbuccal portion. The roots were dissected from 2mm below CEJ and midbuccal portion of the teeth were etched. In one group after rinsing the etchant, tooth surface was dried completely (group I). In the other group the surface moisture was removed using cotton pellet (group II). Single Bond (3M) was applied on desired surfaces and cured. Composite resin was layered over the tooth surface to 4mm height. The teeth were then mounted in the way that they can be placed in the holding device from lingual side. After that the teeth were placed in UTM device under tensile stress with the rate of 0.5 mm/min. the failure surface was examined to detect type and location of the failure. The data were analyzed using T-Test and Fisher's Exact test.

Results: Data showed that although mean bond strength in group I was higher but the difference was not statistically significant. Type of failure in two groups was not statistically significant either.

Conclusion: Considering that there is no significant difference between the two groups and a little moisture is needed for creation of hybrid layer and bonding to dentine, leaving a bit moisture on enamel equal to that of dentine does not interfere with bonding to enamel and produce a good bond strength.

Key words: bond strength, enamel moisture, composite resin, total etch technique

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