

IN VITRO EVALUATION OF THE INTERFACE OF A RESIN COMPOSITE BONDED TO TOOTH STRUCTURE WITH A FLUORIDE RELEASING SELF ETCHING DENTAL ADHESIVE

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Abstract

Aim of the study: This study aimed to evaluate the interface between teeth and resin composite restoration bonded with a fluoride releasing self etching adhesive through dye penetration and SEM.

Materials and Methods: Eighty intact caries free anterior teeth were selected and randomly divided into two groups. The first group received class V cavities in the gingival one third of facial and palatal surfaces. In the second group enamel was first removed then class V cavities were prepared directly in the dentin. Each group was divided into two subgroups according to the adhesive type. Two adhesive systems were used; a fluoride releasing adhesive (AdheSE-One F) and a non fluoride releasing one (AdheSE). The adhesives were applied to the prepared cavities and cured then resin composite restorations were applied and cured. Dye penetration test as well as SEM evaluation for gaps and percentage contact were performed to evaluate the adhesive junctions.

Results: For dye penetration test, the fluoride releasing adhesive showed no significant higher penetration than with the non fluoride releasing one. The SEM evaluation revealed that the fluoride releasing adhesive resulted in significantly lower percentage contact and significantly higher gap values than with the non fluoride releasing one. Existence of enamel reduced the penetration of the dye and improved the percentage contact and minimized the gap values at the adhesive junction.

Conclusions: Both adhesives showed Leakage but it was higher with the fluoride releasing one.

KEY WORDS: Dye penetration; SEM; Adhesive.

Egyptian Dental Journal 2013, October