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The effect of rebonding and liner type on microleakage of Class V amalgam restorations

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Abstract:

Background and Aim: Application of varnish and dentin bonding agents can effectively reduce microleakage under amalgam restorations. Also rebonding may show some effects on microleakage and its complications. The aim of this study was to evaluate the effect of liner/ adhesives on microleakage of Class V amalgam restoration with or without rebonding.

Materials and Methods: In this in vitro study Class V cavities were prepared on sixty sound human maxillary premolars with the gingival floor 1mm below the CEJ. Cases were divided into six groups of ten teeth each. Specimens in group 1 and 2 were lined with Copalite and Scotchbond Multi-Purpose (SBMP) respectively. In the third group (control) no liner was applied. The teeth were then restored with spherical amalgam. Specimens in group 4 to 6 received the same treatments but after filling, the interfaces of restorations and teeth were etched with 37% phosphoric acid gel, rinsed and dried. Adhesive resin of SBMP was applied over amalgam and tooth margins and polymerized (rebonding). Specimens were thermocycled, exposed to dye and sectioned. Microleakage was graded (0-3) using a stereomicroscope at X40 magnification. Data were analyzed with Kruskal-Wallis, Mann-Whitney and Wilcoxon pair wise statistical tests. P<0.05 was considered as the limit of significance.

Results: The groups lined with SBMP showed the lowest and the groups without liner the highest microleakage (p= 0.001). Significant difference was observed in microleakage mean rank of enamel and dentin margins (p=0.048). Rebonding with resin did not improve the seal (p> 0.05).

Conclusion: Based on the results of this study, total etch adhesive system had significant effect on microleakage of Class V amalgam restorations especially in cervical margin. Rebonding did not show a significant effect on microleakage.

Keywords:

Rebonding ، Amalgam restorations ، Microleakage

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