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Comparison of microleakage in high copper spherical amalgam restorations using three different dentin bonding systems

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Abstract:

Background and Aim: Amalgam is one of the mostly used restorative materials, but has some disadvantages. Microleakage is one of the short comings of amalgam which may lead to sensitivity and recurrent caries. The aim of this study was to evaluate the effect of three dentin bonding systems on reduction of microleakage in amalgam restorations.

Materials and Methods: Class II amalgam restorations were made in 40 noncarious molar and premolar teeth. Then the specimens were divided into four equal groups. Scotch Bond Multi Purpose, Single bond, iBond, were used as liner in groups one to three respectively and in group four no liner was used. The teeth were restored with high copper spherical amalgam. After thermocycling for 500 cycles at 5⁰C and 55⁰C, the specimens were immersed in basic fuchsin for 24 hours, bisectioned mesiodistally and evaluated under stereomicroscope at X25 for dye penetration. The data were analyzed by Kruskal-wallis and Scheffe. P<0.05 was considered as the level of significance.

Results: The groups showed significant difference (p=0.003). The group four had significantly less microleakage than the first and second groups (p<0.05). The second and third groups showed significantly different microleakage (p=0.038).

Conclusion: Based on the results of this investigation applying dentin bonding agents has no effect on reducing microleakage in amalgam restorations, however more studies are recommended.

Keywords:

Microleakage , Dentin Bonding , Amalgam

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