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Comparing the microleakage of Equia Fort Glass ionomer, Amalgam and composite resin in class II restorations of Pulpotomized Primary molars

Original Article

Abstract

Background: The aesthetic aspect of crown restorations is currently a major challenge for dentists and parents. Given the different results in this area and the technical problems with the use of composite resins, a variety of resin-modified glass ionomers (RMGIs) have been proposed by manufacturers for the restoration of primary teeth. This study was conducted to compare the microleakage of Equia Forte RMGI, simple amalgam restorations and composite resin restorations in class II cavities in pulpotomized primary molars.

Materials and methods: Based on the inclusion criteria, 60 extracted first and second primary molars were collected and then cleaned and disinfected. The occlusoproximal class II cavities and the pulp chamber access cavity were prepared and a base made of ZOE cement was inserted. The teeth were then divided into three main groups through simple randomization; first group: self-cured glass ionomer cement base, etching, bonding and composite; second group: conditioner and Equia Forte RMGI; third group: amalgam. The samples underwent thermal cycles, and after sealing the apex, coating the dental surfaces with nail polish and staining with fuchsin solution, they were embedded into self-cure acrylic resin and cut mesiodistally. The edges of the restoration were examined in terms of dye penetration using a stereomicroscope, and the results obtained in the three groups were analyzed using the Kruskal Wallis test.

Results: The degree of microleakage was lower in the cervical edge of the samples in the amalgam group compared to in the composite and glass ionomer groups, although the difference was not statistically significant (P=0.781). The degree of occlusal microleakage was significantly lower in the samples in the composite group compared to in the glass ionomer and amalgam groups (P<0.001).

Conclusion: The Equia Forte RMGIs did not show any supremacy over the composite resins under in-vitro conditions, and they appear useful in extremely difficult clinical conditions and for uncooperative children.

Keywords: Resin Modified Glass Ionomers, primary molars, pulpotomy, microleakage

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