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Effect of flowable composite on microleakage of condensable composite restorations

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Abstract:

Background and Aim: Because of polymerization shrinkage and high viscosity of posterior composites, there are some difficulties in using them in posterior restorations. Several methods have been represented to reduce the effect of shrinkage. The aim of this study was to investigate the effect of curing flowable composites under condensable ones in adaptation and microleakage reduction of posterior composite restorations.

Materials and Methods: In this experimental in vitro study, forty class II MO cavities were prepared on extracted intact molar and premolar human teeth. Gingival margins were placed 1 mm apical to CEJ. The teeth were divided into two groups. In group 1, flowable composite (Filek Flow, 3M, ESPE, USA) with 0.5-1 mm thickness was applied and cured following application of bonding agent (Single Bond, 3M, ESPE, USA). The rest of the cavity was filled by condensable composite (p60, 3M, ESPE, USA). In group 2 the flowable composite was not cured, and the condensable composite was applied in two increments. After light curing of composites, all the specimens were thermocycled and then immersed in 0.3% basic fuschin. Specimens were sectioned and evaluated for degree of dye penetration under a stereomicroscope. Data were analyzed by Mann-Whitney test with $p<0.05$ as the level of significance.

Results:. There was no significant difference between the two studied groups regarding microleakage.

Conclusion: Based on the results of this study, neither cured nor uncured flowable composite under condensable composite can omit microleakage in posterior composite restorations.

Keywords:

Flowable composite ، Microleakage ، Condensable composite

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