Effect of flowable composite lining on microleakage and internal voids in Class II composite restorations.

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Abstract

PURPOSE: The aim of this study was to determine the influence of four flowable composite linings on marginal microleakage and internal voids in Class II composite restorations with the margins above the cementoenamel junction (CEJ).

MATERIALS AND METHODS: Class II cavities were randomly divided into 8 groups (n = 10). Group 1: One Step Plus/Aelite LS Packable; group 2: One Step Plus/Aelite Flow/Aelite LS Packable; group 3: Comfort Bond/Solitaire 2; group 4: Comfort Bond/Flowline/Solitaire 2; group 5: Solobond M/Grandio; group 6: Solobond M/Grandio Flow/Grandio; group 7: Admira Bond/Admira; Group 8: Admira bond/Admira Flow/Admira. After restoration, all teeth were stored for 24 h, thermocycled (at 5 degrees C to 55 degrees C) 500 times, and soaked in 0.5% basic fuchsin dye for 24 h. After soaking, the teeth were sectioned and observed under a stereomicroscope. Gingival marginal microleakage and internal voids (at the gingival wall interface and in the cervical and the occlusal parts) were recorded. Data were analyzed with the Mann-Whitney U- and Kruskal-Wallis tests (p < 0.05).

RESULTS: Statistical analyses indicated that the use of flowable resin composites provided a reduction in microleakage in groups 6 and 8. Groups 2 and 4 showed fewer voids in the cervical area than without flowable composites.

CONCLUSION: It was concluded that none of the materials tested was able to eliminate the marginal microleakage on the cervical wall. Flowable resin composites under nanohybrid (group 6) and ormocer (group 8) composites
provided a significantly different reduction in microleakage compared to restorations without flowable liners. Fewer cervia voids were observed in packable composites with flowable liner (groups 2 and 4) than without flowable liner (groups 1 and 3s).

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