**Effect of Aging on Coronal Microleakage in Access Cavities through Metal Ceramic Crowns Restored with Resin Composites**

Type:

Article

Abstract:

Purpose: The purpose of this in vitro study was to determine if packable resin composite with/without flowable resin composite has the ability to prevent coronal leakage in restored endodontic access openings following aging. Materials and Methods: Eighty simulated standardized access cavities of metal-ceramic crowns were fabricated and fixed on Vitrebond cavities filled with an epoxy resin. The specimens were randomly divided into two main groups: (1) Group A-Access cavities filled with only packable composite (Filtek P60); (2) Group B-Access cavities filled with Filtek P60 and a flowable composite (Filtek Z350) as liner. Each main group was further subdivided randomly into four subgroups according to water storage and thermocycling periods. All specimens were immersed in blue ink solution for 24 hours and then sectioned into quadrants. The extension of blue ink along the metal-ceramic crown/composite resin interface was measured linearly using image analyzer and then analyzed by three-way ANOVA and independent t-test with a Mann-Whitney test. The level of significance was set at p < 0.05. Results: All tested subgroups demonstrated different levels of microleakage. There was no significant difference related to restorative technique; however, there was a significant difference related to water storage and thermocycling. Conclusions: All tested techniques and materials in this study showed microleakage. Packable composite while a flowable liner showed a marginally better result than packable composite alone. Excessive thermocycling resulted in significant differences among the test groups.

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class-ii cavities,flowable,composite,filling materials,existing crowns,micro-leakage

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