In vitro Microleakage Comparison of Two Fissure Sealants and two Flowable Composite Resins

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Abstract

Statement of Problem: Nowadays, fissure sealants are commonly used for sealing the occlusal pit and fissures. However, flowable composites which are more resistance to wear and have a lower amount of shrinkage might be a good substitute for sealants.

Purpose: The aim of this study was to compare the amount of micro-leakage between two types of fissure sealants, clinpro and embrace, and two kinds of flowable composites, Filtek flow and Flows-Rite.

Materials and Method: 60 intact extracted maxillary permolars were selected and divided into 4 groups. In each group, occlusal fissures of the samples were sealed with fissures sealants (clinpro or Embrace) or flowable composites (Filtek flow or Flows-Rite). The apex and furcation of all the teeth were sealed by sealing wax and then the root and crown of the samples were covered by two layers of nail varnish to 1 mm next to the sealant margin. The teeth were immersed in 0.5% fuchsin for 24 hours; then, the teeth were washed and cut off parallel to the linear axis. The microleakage of the samples was studied under the stereomicroscope with a magnification of 16x. Finally, data were analyzed using the Kruskal-Wallis test.

Results: There was no significant difference between the amount of microleakage of fissure sealants (clinpro and embrace) and flowable composites (Filtek flow and Flows-Rite).

Conclusion: Under the circumstances of this study and with respect to the clinical situation, it seems that both flowable composite and fissure sealants are suitable materials for pit and fissure sealing.

Key words: Microleakage, Fissure sealant, Flowable composite