Efficacy of curing flowable composite lining on microleakage in class II composite restorations: An in vitro study

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Abstract

Background and Aim: : Polymerization shrinkage and microleakage would be the noteable concern in dentistry. Several methods have been proposed to overcome the negative effects of the polymerization shrinkage such as using a thin layer of flowable composite beneath composite restorations. The aim of this study was to evaluate the effect of curing flowable composite lining on microleakage in class II hybride composite restorations.

Materials and Methods: In this in vitro study, 60 class II cavities were prepared on 30 extracted human third molars. The teeth were randomly assigned to 3 groups. Group1: cavity preparation were lined with flowable composite (Filtek flow, 3M ESPE, USA) to about 1 mm occlusogingival thickness and cured for 20 seconds. Remaining cavity was filled with hybrid composite incrementally. Group 2: flowable and hybrid composite were cured simultaneously. Group3: cavity preparations were restored with hybrid composite alone without any application of flowable composite. All samples were subsequently immersed in 2% fuschin solution and sectioned and observed under a stereomicroscope. The significance of data between the groups was determined using kruskal wallis and mann-whitney tests ($p< 0.05$).

Result: There was no significant difference between the samples with separate curing of flowable composite and control group . The microleakage significantly decreased in the group which flowable composite and hybrid composite were cured simultaneously ($P< 0.05$). No significant differences were seen between the samples which flowable composite was cured seperately and control group($p=0.43$).

Conclusion: According to this study, curing the flowable and hybrid composite together can decrease the microleakage in class II composite restorations.

Keywords: *Flowable Composit, Dental Leakage, Dental restorations*

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