

**THE INFLUENCE OF FLOWABLE COMPOSITE  
LINER ON MICROLEAKAGE OF CLASS II  
PACKABLE COMPOSITE RESIN RESTORATION  
WITH DIFFERENT APPLICATION TECHNIQUES  
(COMPARATIVE STUDY)**

**A thesis  
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# ABSTRACT

This in vitro study was conducted to evaluate and compare the influence of flowable composite and different application techniques of class II packable composite restoration on dentinal leakage.

Thirty human freshly-extracted Maxillary premolars (non-carious and non-restored) were selected for this study. Conventional Class II MOD cavities were prepared in the sample teeth which were then divided into five groups .Each group consist of ten boxes either MO or DO according to the restorative procedure used except group A which consist of twenty boxes (ten teeth with MOD amalgam restoration).

**Group A:** ten teeth where restored by amalgam- (SDI Australia) high strength admix amalgam type.

**Group B:** ten teeth in which the mesio-occlusal (MO) sides were restored by {adhesive + flowable composite + one bulk packable composite (Filtek P60)}.

**Group C:** ten teeth in which the disto-occlusal (DO) sides were restored by {adhesive +one bulk packable composite, (Filtek P60)}.

**Group D:** ten teeth in which the mesio-occlusal (MO) sides were restored by {adhesive + flowable composite + successive build up technique for packable composite, (Filtek P60)}.

**Group E:** ten teeth in which the disto-occlusal (DO) sides were restored by {adhesive+ successive build up technique for packable composite, (Filtek P60)}.

After thermocycling and immersion in 2% methylene blue, the teeth were sectioned longitudinally mesio-occluso-distal and dye penetration was evaluated using a stereomicroscope, microleakage was recorded in mm.

ANOVA test and least significant difference (LSD) test were used to analyze the results, and the results showed that the use of flowable composite resin as a liner with packable composite resin decreases the amount of dentinal microleakage, and the restorative technique of packable composite whether it is bulk build up technique, or incremental successive build up technique has no difference on the improvement of microleakage value, and the packable resin composite restoration whatever applied with different application techniques or restored with or without flowable composite it still had or scored higher microleakage than amalgam restoration.