

ABSTRACT

INTRODUCTION:

Obtaining a durable bond between composite resin and dentin substrate often poses a challenge for the clinician. Open sandwich technique has been advocated in the past to negate the effect of shrinkage stresses at the gingival margin. Development of light cured glass ionomer gave the clinician a control over its setting time and allowed its use as dentin substitute in open sandwich restorations. Flowable composite is characterized by low viscosity unfilled resin which can reduce the polymerization shrinkage stress under composite restoration. Biodentine has been promoted as a dentin substitute material.

AIM AND OBJECTIVES:

To evaluate the marginal adaptation of Biodentine, RMGIC (Resin Modified Glass Ionomer Cement) & Flowable composite as cavity liners under large Class II composite restoration using open sandwich technique.

To compare the marginal adaptation of Biodentine, RMGIC and Flowable composite using dye penetration.

To select a suitable cavity liner that can act as a dentin substitute, in large Class II composite restorations by Open sandwich technique.

METHODOLOGY:

60 human mandibular molars were collected and proximal slot preparations were made on the mesial side of all the samples. The teeth were divided in to 4 groups - Group I – Biodentine, Group II– RMGIC, Group III – Flowable composite, Group IV – Direct composite without cavity liner (CONTROL).

The samples were restored with Nano-hybrid composite with self-etch adhesive and subjected to thermocycling regimen. The restored samples were immersed in 2% methylene blue dye for 48 hours under vacuum, sectioned mesio-distally and viewed under stereomicroscope at 40x magnification for dye penetration and the scores of marginal adaptation were evaluated. The data were statistically analysed using SPSS and subjected to One way ANOVA and Post- hoc tests.

RESULTS:

While comparing the marginal adaptation in large class II cavities using various liners such as RMGIC, Flowable composite and Biodentine, the better marginal adaptation was achieved by the groups where biodentine was placed as a liner.

CONCLUSION:

Biodentine, when used as a 1 mm thick liner under the composite at the gingival margins, showed overall better marginal adaptation than the other groups.

KEY WORDS:

Open sandwich, RMGIC, Flowable Composite, Biodentine, Thermocycling