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### Effect of Light Conducting Cylindrical Inserts on Gingival Microleakage

SM. Moazzami, H. Alaghehmand

#### Abstract:

**Objective:** Microleakage in the gingival floor of class II composite restorations can compromise the marginal adaptation of the filling material to the cavity edges. The aim of this study was to evaluate the effect of light conducting cylindrical inserts in decreasing the microleakage of the gingival floor in cavities 1mm below the CEJ.

**Materials and Methods:** Eighty maxillary first molars were randomly divided into eight groups according to use of glass inserts, type of resin (Coltene unfilled resin versus Scotchbond multi purpose) and filling technique (one-unit versus incremental). Proximal class II cavities were prepared in all samples with the gingival floor one millimeter below the CEJ. Etched and silan-treated glass inserts were made from 2mm cylindrical bioglass material and cavities were restored according to research protocol. The samples were subjected to 2500 thermal cycles (5-55°C), immersed in 0.5% basic fuchsin solution, embedded in epoxy resin and cut centrally and laterally (buccally or lingually) in a mesiodistal direction. Microleakage was scored and collected data were statistically analyzed using Chi-Square, Kruskal-Wallis and Mann-Whitney tests.

**Results:** Minimal dye penetration was observed in the group that employed the incremental technique along with Scotchbond, with or without glass inserts. A significant difference was observed between the eight groups. In addition the use of the incremental technique and glass inserts had a significant effect on the microleakage of lateral and central sections, respectively. Application of dentin bonding agent significantly affected both sections.

**Conclusion:** Glass inserts were effective in decreasing cervical microleakage of class II cavities restored with composite resin.

#### Keywords:

"Posterior composite resin restoration . Incremental placement technique . One bulk technique . Insert "

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