

## Microleakage of Sonic Activated Nanohybrid Composite Restorations as Affected by Cavity Configuration and Placement Technique

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**Objective:** This study was conducted to evaluate the effect of different cervical cavity configurations (Dish, U and Wedge shape) and placement techniques (Bulk and Incremental packing) and Inlay fabrication of class V composite resin restorations on microleakage.

**Material and Method:** A total of 90 upper single rooted premolar teeth were randomly divided into three main groups of 30 teeth each, according to the cavity shapes (Dish, U and Wedge shape) prepared in the cervical area of the teeth. Each group was further subdivided into three subgroups of 10 teeth each, according to the placement technique of the composite resin, Bulkfill (SonicFill), Incremental packing (TetricEvoCeram) and Inlay fabrication. Teeth were immersed in a freshly prepared aqueous methylene blue solution for 4 hours at room temperature, and then they were vertically sectioned through the centre of the restoration in a buccolingual direction. The sectioned specimens were examined under stereomicroscope at 45 x magnification interface.

**Results:** Regardless to cavity design, totally it was found that SonicFillgroup recorded statistically significant highest leakage % mean value followed by TetricEvoCeramgroup mean while Inlay group recorded statistically significant lowest leakage % mean value.

Regardless to restorative material, totally it was found that Wedge design group recorded statistically significant highest leakage % mean value followed by U shape design group meanwhile Dish design group recorded statistically significant lowest leakage % mean value.

**Conclusions:** Cavity configuration is a crucial factor in microleakage formation being more pronounced in wedge shaped cavities and microleakage varied with the placement technique of the resin composite restoration and the sonication did not improve microleakage while the inlay placement seemed beneficial.

**Keywords:** class V cavities, microleakage, nanohybrid composite, placement technique

### Biography:

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