

Sealing ability of SDR flowable composite when used as an intra-orifice barrier: An in vitro study

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Abstract

Aim: To compare the coronal sealing ability of SDR flowable composite with other materials (Ei111Ds, Z350 XT and GIC Fuji type II) and investigate the influence of different adhesive systems (V and Prime and Bond NT) on the sealing performance of SDR flowable composite when used as an intra-orifice barrier after root canal treatment.

Method: 54 freshly extracted human mandibular first premolar teeth with single canal were selected for the experiment and root canal was treated. After completion of RCT the teeth were divided into two groups: Experimental and control. The experimental group was further divided into four sub-groups as XT group, SX group, SP group and GC group and the control group was divided into two groups as PC group and NC group. The coronal 3.5 mm of gutta percha were removed from all the samples in the experimental group and the prepared cavity is restored with the different restorative materials used in the experiment like XT, SDR flow and GIC Fuji type II. The samples in the control group are simply left as it is with gutta percha till the coronal orifice. All the samples were then incubated

for one week in hot and cold baths simultaneously for 500 cycles and finally stained in 1% Methylene blue solution for another one week in the incubator. The samples were then split longitudinally and the depth of dye penetration was measured under a stereomicroscope.

Result: The index of the SX group was significantly lower than the other groups ($P < 0.05$) while the coronal sealing ability of GC group was significantly lower than that of the other groups ($P < 0.05$) and was not significantly different than the control group ($P < 0.05$).

Conclusion: GIC Fuji Type II can be considered unsuitable as an intra-orifice barrier while SDR flowable composite in combination with V can be used as an ideal intra-orifice barrier after the completion of root canal treatment.

Biography:

Meera Acharya has completed her graduation in Conservative and Endodontics from Guangxi Medical University, Nanning, China. She is currently working in a Private Hospital in Nepal.