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**INTRAORIFICE SEALING ABILITY OF THREE DENTAL MATERIALS
IN ENDODONTICALLY TREATED TEETH**

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Relevance. Coronal microleakage holds importance among various causes of failure after endodontic treatment leading to infection in the periradicular, periodontal ligament, or supporting osseous structures. Loss of coronal seal may occur due to leakage of temporary filling material or fracture of the permanent restoration. The placement of an intraorifice barrier (IOB) has been proposed for preventing this event in cases that the restoration is in an inadequate condition, enhancing the possibilities for predictable long-term success in endodontic therapy. Endodontic success depends on complete sealing of the root canal orifice to prevent re-infection of the treated teeth through microleakage. Intra-orifice barrier material provides a seal against micro-organisms, its by-products thus, preventing microleakage and subsequent endodontic failure.

Aim: The present study was conducted to evaluate and compare the intra-orifice sealing ability of three experimental materials after obturation of the root canal system.

Materials and methods. Forty single rooted teeth were decoronated, cleaned, shaped and obturated. Gutta-percha was removed to the depth of 3.5 mm from the orifice with using Gates.

Glidden Drills in all the teeth except control groups. Ten specimens each were sealed with Light Cure Glass Ionomer Cement, Flowable Composite, and Chemical Glass Ionomer Cement with a positive control respectively. All these samples were kept in humidior for 10 days. The three experimental groups and one positive control group were coated with two layers of nail varnish except at 2 mm area around access restoration. The teeth in negative control group were coated with nail varnish completely. Samples were then submerged in methylene blue dye for 7 days. The samples were then rinsed with running water to remove dye from the external surface. The samples were subsequently longitudinally sectioned with the help of a diamond disc and observed under leakage measured using a 10X stereomicroscope and graded for depth of leakage. by measuring by measuring the distance from the coronal extent of the orifice material to the greatest depth of penetration of the dye. The dye penetration in the teeth was analyzed using ANOVA and post hoc bonferroni tests.

Results and their discussion. The ANOVA showed that there was a significant difference among the groups. A Bonferroni Post hoc test was used to compare the groups in pairs to find out which was significantly different. The Bonferroni Post hoc test showed that there wasn't any significant difference among groups G1 (1.85 ± 1), G2 (1.58 ± 1.2) and G3 (2.4 ± 0.91) except the pairwise group G4 (4.51 ± 0.91) with other groups comparison of Group G4 - Groups G1, G2, G3 with an p-value of less than 0.05.

Conclusions. According to the results mostly all the intraorifice barriers possess a perfect sealing ability and report that placement of an IOB material significantly reduces microleakage as compared to control groups. However, in this study Flow composite and Chemical Glass Ionomer Cement have respectively the highest and least sealing ability, there aren't any significant differences with adhesion capabilities among the groups of IOB.