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Evaluation of Microleakage of a New Generation Nano-Ionomer in Class II Restoration of Primary Molars

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Abstract : Objective: This in vitro study was carried out to assess the microleakage properties of nano-filled glass ionomer in comparison to resin-reinforced glass ionomers. Material and Methods: 40 deciduous molar teeth were included in this study. Class-II cavity was prepared in a standard form for all the specimens. The teeth were randomly distributed into two groups (20 per group) according to the restorative material used either nano-glass ionomer or Photac Fill glass ionomer restoration. All specimens were thermocycled for 1000 cycles between 5 and 55 °C. After that, the teeth were immersed in 2% methylene blue dye then sectioned and evaluated under a stereomicroscope. Microleakage was assessed using linear dye penetration and on a scale from zero to five. Results: Two way ANOVA test revealed a statistically significant lower degree of microleakage in both occlusal and gingival restorations (0.4±0.2), (0.9±0.1) for nano-filled glass ionomer group in comparison to resin modified glass ionomer (2.3±0.7), (2.4±0.5). No statistical difference was found between gingival and occlusal leakage regarding the effect of the measured site. Conclusion: Nano-filled glass ionomer shows superior sealing ability which enables this type of restoration to be used in minimum invasive treatment.

Keywords : microleakage, nanoionomer, resin-reinforced glass ionomer, proximal cavity preparation
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