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Effect of air abrasion techniques on marginal adaptation of class V cavity restored with direct esthetic materials

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Objective: The aim of this study was to evaluate the effect of air abrasion on marginal integrity of class V cavity restored with direct esthetic materials.

Methods: A total number of 150 sound human posterior teeth were used. They were divided into two subgroups (n=75) according to the used restorative material (A1: low shrinkable composite resin (P90) and A2: Ketac nano ionomer (N100)). Each group was divided into five groups (n=15) according to the cavity preparation technique (B1: Conventional bur, B2: Small size alumina particles with high pressure, B4: Large size alumina particles, with low pressure and B5: Large size alumina particles with high pressure). Each subgroup was further divided into three subgroups (n=5) according to the storage time (C1: Immediately, C2: Three months and C3: Six months). Marginal integrity was measured using scanning electron microscope. Two-way analysis of variance was used to compare the mean values of marginal gaps for both enamel and dentin margins. Student's t-test was used to compare the mean values of marginal gaps for each group.

Results: It was found that; largest gap was detected for group A2B1C3, while the smallest gap was detected for group A1B5C1.

Conclusion: Using of air a brasion technique with large size a lumina particles under high pressure resulted in better marginal adaptation.

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