World Academy of Science, Engineering and Technology
International Journal of Medical and Health Sciences
Vol:11, No:10, 2017

Comparison of Microleakage of Composite Restorations Using Fifth and Seventh Generation of Bonding Agents

Authors : Karina Nabilla, Dedi Sumantri, Nurul T. Rizal, Siti H. Yavitha

Abstract : Background: Composite resin is the most frequently used material for restoring teeth, but still failure cases are seen which leading to microleakage. Microleakage might be attributed to various factors, one of them is bonding agent. Various generations of bonding agents have been introduced to overcome the microleakage. The aim of this study was to evaluate the microleakage of composite restorations using the fifth and seventh bonding agent. Methods: Class I cavities (3X2X2 mm) were prepared on the occlusal surfaces of 32 human upper premolars. Teeth were classified into two groups according to the type of bonding agent used (n =16). Group I: Fifth Generation of Bonding Agent-Adper Single Bond2. Group II: Seventh Generation of Bonding Agent-Single Bond Universal. All cavities were restored with Filtek Z250 XT composite resin, stored in sterile aquades water at 370C for 24 h. The root apices were sealed with sticky wax, and all the surfaces, except for 2 mm from the margins, were coated with nail varnish. The teeth were immersed in a 1% methylene blue dye solution for 24 h, and then rinsed in running water, blot-dried and sectioned longitudinally through the center of restorations from the buccal to palatal surface. The sections were blindly assessed for microleakage of dye penetration by using a stereomicroscope. Dye penetration along margin was measured in µm then calculated into the percentage and classified into scoring system 1 to 3. Data were collected and statistically analyzed by Chi-Square test. Result: There was no significant difference ($p > 0,05$) between two groups. Conclusion: Fifth generation of bonding agent revealed less leakage compared to the seventh generation even statistically there was no significant difference.

Keywords : composite restoration, fifth generation of bonding agent, microleakage, seventh generation of bonding agent
Conference Title : ICDDS 2017 : International Conference on Dentistry and Dental Sciences
Conference Location : Osaka, Japan
Conference Dates : October 09-10, 2017