Abstract

Introduction: the main problem of composites is polymerization shrinkage and micro leakage. Various ways to fix this problem have been suggested. The aim of this study was to asses the amount of micro leakage in cavities filled with bulkfill composite and conventional composite in different dimensions of cavity.

Method and materials: In this in vitro study, 48 posterior extracted molar teeth were randomly divided into 6 groups. Three groups were repaired with Opus Bulk Fill APS and three groups with conventional composite (Llis). In each type of composite, three cavities with dimensions of 2, 4 and 6 mm (under groups) were filled. All cavities were prepared as ClV and in the form of circles with diameters of 2, 4 and 6 mm and a fixed depth of 4 mm. 37% phosphoric acid (MORVABON, Iran) was used for etching the samples by etch and rinse technique according to the manufacturer's instructions, and Ambar Universal APS (FGM, Brazil) was used for bonding. Then, for the cure, the DENTMATE LEDEX WL-070 light cure (Dentmate, Italy) with a power of 1000 watts was used for 40 seconds for groups filled with bulkFill composite and 40 seconds for each layer of conventional composite with incremental technique. The method of examining the microleakage was dye of fuschin 0.5%. Samples were observed by stereo microscope and the amount of microleakage in occlusal and cervical walls was examined according to ISO / TS1145: 2003 rating.

Results: There was no significant difference in micro leakage between the two types of composites (P<.05). In both composites, the amount of micro leakage based on margin type was similar in different cavity dimensions (P<.05). In both composites, micro leakage levels were not significantly different based on the size of cavities at both occlusal and gingival edges (P<.05).

Conclusion: The performance of balkfill composite was similar to conventional composite in terms of micro leakage and in different dimensions of cavity.

Keywords: Bulkfill composite - Polymerization - shrinkage – polymerization shrinkage