The techniques effect evaluation of resin coating and decoupling with time on immediate dentin bond strength.

Abstract

Introduction: The increase in demand for cosmetic dental materials has caused efforts to improve bonding systems with the aim of increasing bond strength. In clinical conditions, restoration de-bonding may occur due to stress. In studies, various methods have been introduced to increase bond strength, one of which is resin coating the surface of bonding without fillers with composite of flow resins, another method is delaying the placement of composite resin, which causes the polymerization stress of bonding to go through its upward trend. With the rapid placement of composite resin during the rising stress of bonding polymerization, the probability of de-bonding will be higher. The aim of the present study is to investigate the effect of bonding resin coating with different flow composite resins and also the rapid or delayed placement of composite resin on the strength of the dentine bond.

Materials and methods: After conducting a pilot study, the number of samples of human third molar teeth in each group was selected. The enamel of the occlusal surface of each tooth was cut perpendicular to the longitudinal axis. After preparing the dentin, SE Bond was applied on its surface. In this study, there were 2 main groups based on resin coating. We considered the thickness of the resin coating to be 0.5 mm. After preparation, the samples were tested for micro-tensile bond strength. Finally, the data were evaluated using SPSS version 21 software and the measure ANOVA method.

Results: There was a statistically significant difference between the variable average of the bond strength in the control group and its average in all other three groups under investigation, and the variable average of the bond strength in the control group was lower than its average in all the groups under investigation (P-value < 0.001) between the variable average of the bond strength in the group "without resin coating, placing resin composite after 5 minutes" with its average in both groups "with resin coating, immediate placement of resin composite" and "with resin coating , placing resin composite after 5 minutes ", there was a statistically significant difference. And the variable average of bond strength in the group "without resin coating, placing resin composite after 5 minutes " was lower than the average in both mentioned groups (P-value < 0.05).

Conclusion: Using Flo composite as a resin coating increases the dentine bond strength of direct composite restorations, and delaying the placement of resin composite for 5 minutes increases the bond strength.

Key words: resin coating, dentine bond strength, flow resin composite