Oral Presentation Ⅵ

Chairman: Chan-Young Lee (Yonsei University) 13:30-14:30 Seminar Room I

♦029

Effects of Cavity Configuration on Bond Strength and Microleakage of Composite Restoration.

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The purpose of this study was to evaluate the effects of various cavity configuration on bond strength and microleakage of composite restoration. The specimens were prepared as followed; For control group(C=1), bovine teeth were wet-ground to expose flat dentin surface and in experimental groups, cylindrical cavities, same all 2mm deep and 6mm in diameter(C=2.3), 4mm(C=3.0), and 3mm(C=3.7) were prepared. After specimens were prepared, a self-etching primer system(Clearfil SE Bond) was applied and composite resins that are a hybrid(Clearfil AP-X) and a microhybrid(Esthet-X) were placed in the cavities. All specimens were stored in water at 37℃ for 24hrs and tested on a universal testing machine(EZ test, Shimadzu, Japan). In microleakage test, teeth were stained by silver nitrate and examined under a stereomicroscope at ×40 magnification by two examiners. The result of micro-tensile bond strength(Mpa±SD) are as follow;

Groups (code)	Hybrid composite	Microhybrid composite
C=1 (C)	36.88 ± 4.70^{a}	25.68 ± 7.98
C=2.3 (C2)	23.65 ± 2.42^{b}	23.72 ± 6.19
C=3.0 (C3)	25.01 ± 9.04^{b}	22.48 ± 7.96
C=3.7 (C4)	18.03 ± 10.93^{b}	21.03 ± 6.08

The result of this study show that micro-tensile bond strength of hybrid composites was significantly higher than that of microhybrid type and mean micro-tensile bond strength was decreased with increasing C-factor, also microleakage scores were increased in the higher C-factors. These result suggest that the adequate selection of materials as well as the control of polymerization contraction stress are so important factors for successful composite restoration.

♦030

The comparison of microleakage on intracoronal restoration after non-vital bleaching

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The purpose of the present study were to evaluate microleakage of a fourth generation dentin-bonding agent following a walking bleaching treatment, to determine the effect of temporary postbleaching dressing with calcium hydroxide on microleakage and to investigate the effect of delayed intracoronal restoration on microleakage.

Forty extracted non-carious incisors were selected and conventional root canal treatment was performed. The teeth were randomly divided into 4 groups of 10 specimens each. In group Ⅰ, access cavity were restored with fourth generation dentin-bonding agent, and incrementally restored with composite resin. In group Ⅱ, a paste composed of sodium perborate and hydrogen peroxide was placed into the pulp chamber and sealed with hydraulic filling material for 7 days, teeth were then restored in the same manner as group Ⅰ. In group Ⅲ, the pulp chamber was filled with bleaching paste for 7 days and then after removal of the bleaching paste, the cavity was sealed with Caviton for 1 week. After then the cavities were restored with composite. In group Ⅳ, the teeth were bleached for 7 days, and then bleaching paste was substituted by calcium hydroxide for 1 week. After removal of the calcium hydroxide paste, the cavities were restored with composite.

The teeth were subjected to thermocycling and immersed in basic fuchsin solution for 6 hours. The teeth were sectioned longitudinally through the center of the restoration using a low speed diamond disc. The dye penetrations at the tooth-restoration interface were examined by steromicroscope. The data were submitted to statistical analysis using nonparametric Kruskal-Wallis and Mann-Whitney U test.

The results of this study were as follows:

1. Bleached groups showed more microleakage than unbleached group.
2. Immediately restored group following bleaching procedure showed the highest microleakage score.
3. One-week delayed restorations showed less microleakage but there were no statistically significant difference between group Ⅱ and Ⅲ.
4. Provisional dressing with calcium hydroxide had no influence on microleakage.

It is necessary to know the time that has elapsed from the bleaching treatment to the restoration procedure to achieve optimal seal, as well as to reduce the risk of microleakage in adhesive restoration.