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A comparison of thermoplasticized injectable gutta-percha technique in ribbon-shaped canals: Adaptation to canal walls

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The aim of this study is to compare the adaptability of thermoplasticized injectable gutta-percha technique to the canal walls in ribbon-shaped canals.

Thirty resin models simulated ribbon-shaped canals were instrumented to #40 using .06 taper Profile systems. Three groups of 10 resin models were obturated by the lateral condensation technique(LC) and the two thermoplasticized injectable gutta-percha technique; Ultrafil Endoset+Obtura II(EO) and Ultrafil Firmset(UF), respectively. After resin model were kept at room temperature for 4 days, they were resected horizontally with microtome at 1, 2, 3, 4 and 5mm levels from apex. At each levels, image of resected surface were taken using CCD camera under a stereomicroscope at ×40 magnification and stored. Ratio of the area of gutta-percha was obtained by calculating area of gutta-percha cone to the total area of canal using digitized image-analyzing program. The data were collected then analyzed statistically using One-way ANOVA.

The results were as followed.

1. At 1mm levels, there was no statistically significant difference in the mean ratio of gutta-percha among the groups.
2. At 2mm level, EO showed the highest mean ratio of gutta-percha($p<0.05$) and there was no significant difference between LC and UF.
3. At 3, 4, 5mm levels, EO and UF had significantly greater mean ratio of gutta-percha than LC($p<0.05$) and there was no significant difference between EO and UF.

In conclusion, the thermoplasticized injectable gutta-percha techniques demonstrated relatively favorable adaptability to canal walls than lateral condensation technique in ribbon-shaped canals except for 1mm level.

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The influence of moisture control on bond strength of self-etching primer

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The purpose of this study is to evaluate influence of moisture control on bond strength of self-etching primer by measuring enamel and dentin shear bond strengths.

96 extracted human molars were divided into 8 groups. Group 1 (Enamel 30min Dry), Group 2 (E. 5s air dry), Group 3 (E. 1s air dry), Group 4 (E. blot dry), Group 5 (Dentin 30min Dry), Group 6 (D. 5s air dry), Group 7 (D. 1s air dry), Group 8 (D. blot dry) were divided.

The teeth were embedded in clear resin and ground to exposure flat enamel or dentin surface. Clearfil SE Bond primer and bonding were applied to the teeth surface following the manufacturer's recommendations.

A resin composite (Clearfil AP-X, Kuraray Co., Ltd., Osaka, Japan) was inserted into the mold (Ultradent Product Inc., Salt Lake city, Utah, USA) and light-cured for 40 seconds. After twenty-four hours storage in 100% humidity, shear bond strength were measured with cross head speed 1.0mm/min. The results were statistically analyzed by ANOVA test.

The results were as follows:

In enamel, group 1,2 showed significantly higher bond strengths than group 3,4.

In dentin, group 5,6 showed significantly higher bond strengths than group 7,8.

Using self-etching primer system, dry condition was recommended for both enamel and dentin.