O-21 An electrochemical study of the sealing ability of different retrofilling materials.

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Ⅰ. Objectives

Apicoectomy with retrograde filling is a well-established technique to treat with persistent periapical infections in which conventional root treatment is not accessible. The purpose of this in vitro study was to assess and compare the apical seal obtained with Super-EBA, MTA, and compomer when used as retrofilling materials.

Ⅱ. Materials and Methods

Forty-eight extracted human teeth, with fully developed apices, straight and single root canals were used in this study. To facilitate instrumentation, the crown portion of each tooth was removed using a high speed fissure bur under water spray. The root canal was prepared to a #40 apical canal size with Profile by crown down pressureless technique. The teeth were dried thoroughly with absorbent points and obturated with Gutta-Percha using a continuous wave technique. Apicoectomies were performed by sectioning the apical 3mm using a high speed fissure bur under water spray. A root end cavity was prepared to a depth of 3mm using an ultrasonic device. Roots were divided into 3 groups of 14 roots each and filled with Super-EBA, MTA, Dyract-flow. Six roots were used as control and randomly divided into two group. (positive, negative)

Leakage was measured using an electrochemical technique for 28 days. The data were statistically analysed using Repeated measures of ANOVA.

Ⅲ. Results

1. Increasing leakage with time was observed in all groups. The leakage increased markedly within the first four days. ($p<0.0001$)
2. No significant difference was noted among the 3 groups with time. ($p=0.216$)
3. No apical leakage was observed in the negative control group.
4. The positive control group showed leakage immediately after the measurement.

Ⅳ. Conclusions

The results of this study suggest that the sealing ability of Dyract-flow are comparable with the Super-EBA and MTA.