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Microleakage comparison of resin modified glass ionomer and OrthoMTA used as a coronal barrier in nonvital teeth bleaching

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Abstract

Background and Aim: Common causes of dental discoloration include trauma, drugs, genetic defects, decay, and age. In order to correct discoloration of pulpless teeth, internal bleaching is recommended. The aim of this study was to compare microleakage of resin modified glass ionomer and OrthoMTA used as an intraorifice barrier in non-vital bleaching.

Methods: In this experimental study, 36 extracted mandibular premolars were selected and randomly divided into two experimental (n = 16) and two control groups (n = 2). 2mm of OrthoMTA and RMGI cements were placed as intraorifice barriers in the experimental groups. Subsequently, we placed a mixture of sodium perborate and 30% hydrogen peroxide as internal bleaching material into the canal and replaced it every three days. Leakage was measured using pH diffusion method by a digital PH meter. Data were statistically analyzed by using T- independent test and repeated measures and variance analysis ($P<0.05$).

Results: The pH value of the negative control group was as same as the PH of normal saline while the PH value of positive control group was significantly higher than those of other groups. PH values of Ortho MTA and RMGI at the baseline and on the first, sixth and ninth day did not show significant differences with one another, while microleakage of OrthoMTA group was significantly lower on the third day.

Conclusions: In general, OrthoMTA had less leakage than RMGI but both materials can be used as suitable barriers for internal tooth bleaching

Keywords: Tooth bleaching, OrthoMTA, Glass ionomer, leakage