

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

Marjan Bolbolian¹, Mostafa Ghandi², Farnaz Ghorbani³, Baharan Ranjbar Omid⁴, Monirsadat Mirzadeh⁵

1. Assistant Professor, Department of Endodontics, Dental Caries Prevention Research Center, Qazvin University of Medical Sciences, Qazvin, Iran. ORCID ID: 0000-0002-9064-5122

2. General Dentist, Student Research Committee, Qazvin University of Medical Sciences, Qazvin, Iran. (Corresponding Author), Tel: +98-28-33353064, mostafa1372@yahoo.com. ORCID ID: 0000-0002-9687-5295

3. Post-graduate Student, Department of Pediatric Dentistry, Student Research Committee, Qazvin University of Medical Sciences, Qazvin, Iran. ORCID ID: 0000-0002-8051-003X

4. Assistant Professor, Department of Operative Dentistry, Faculty of Dentistry, Qazvin University of Medical Sciences, Qazvin, Iran. ORCID ID: 0000-0002-3711-8841

5. Assistant Professor, Department of Community Medicine, Metabolic Disease Research Center, Qazvin University of Medical Sciences, Qazvin, Iran. ORCID ID: 0000-0002-3594-8278

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.

Materials and 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.

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

Key words: Tooth bleaching, OrthoMTA, Glass ionomer, leakage

Received: Jan 6,2019

Accept: Nov 3,2019

How to cite the article: Marjan Bolbolian, Mostafa Ghandi, Farnaz Ghorbani, Baharan Ranjbar Omid, Monirsadat Mirzadeh. Microleakage comparison of resin modified glass ionomer and MTA used as a coronal barrier in nonvital teeth bleaching. SJKU 2020; 24 (6): 1-11

Copyright © 2018 the Author (s). Published by Kurdistan University of Medical Sciences. This is an open access article distributed under the terms of the Creative Commons Attribution-Non Commercial License 4.0 (CCBY-NC), where it is permissible to download, share, remix, transform, and buildup the work provided it is properly cited. The work cannot be used commercially without permission from the journal.