

PERBANDINGAN KEBOCORAN MIKRO ANTARA *ENHANCED RESIN MODIFIED GLASS IONOMER* DAN *BIOACTIVE CALCIUM SILICATE CEMENT* SEBAGAI BAHAN PENUTUP PERFORASI AKAR GIGI PADA AREA SEPERTIGA APIKAL

INTISARI

Kegagalan memperoleh akses saluran akar yang lurus menjadi salah satu penyebab utama terjadinya perforasi saat melakukan perawatan saluran akar. Kebocoran mikro merupakan salah satu indikasi kegagalan penutupan perforasi. Terjadinya perforasi dapat diperbaiki dengan berbagai macam bahan yang bersifat reparatif seperti *enhanced resin modified glass ionomer* atau bahan aktif *calcium silicate cement*. Penelitian ini bertujuan untuk membandingkan kemampuan *enhanced resin modified glass ionomer* dan *bioactive calcium silicate cement* sebagai bahan penutupan perforasi pada area sepertiga apikal gigi.

Spesimen penelitian sebanyak 30 gigi premolar mandibula dilakukan simulasi perforasi sedalam 2mm pada daerah sepertiga apikal yaitu 2mm dari apeks gigi. Spesimen dipisah ke dalam dua kelompok, masing-masing berisi 15 spesimen gigi. kelompok satu ditutup dengan bahan *bioactive calcium silicate cement*, kelompok dua ditutup dengan bahan *enhanced resin modified glass ionomer*. Spesimen direndam cairan *stimulated body fluid (SBF)* dan dimasukkan ke dalam inkubator selama 7 hari dengan suhu 37°C. Spesimen direndam dalam larutan *methylene blue* 1% selama 24 jam. Seluruh spesimen dipotong mahkotanya dari arah buko lingual dengan menggunakan *diamond disc* dan dibelah menjadi 2. Pengamatan kebocoran dilakukan dengan menggunakan *compound microscope digital* dengan perbesaran 50 kali dan dilakukan skoring.

Hasil uji statistik menggunakan uji *Mann-Whitney* menunjukkan perbedaan nilai kebocoran mikro yang signifikan ($p < 0,05$) terhadap kemampuan penutupan perforasi pada area sepertiga apikal. Material penutup perforasi pada area sepertiga apikal gigi yaitu bahan *bioactive calcium silicate cement* memiliki kemampuan penutupan yang lebih baik dibandingkan bahan *enhanced resin modified glass ionomer*.

Kata kunci: kebocoran mikro, *enhanced resin modified glass ionomer*, *bioactive calcium silicate cement*, perforasi

**COMPARISON OF MICROLEAKAGE BETWEEN ENHANCED RESIN
MODIFIED GLASS IONOMER AND BIOACTIVE CALCIUM SILICATE
CEMENT FOR COVERING ROOT PERFORATION OF TEETH IN THE ONE
THIRD AREA OF THE APICAL**

ABSTRACT

Failure to obtain straight root canal access is one of the main causes of perforation during root canal treatment. Microleakage is an indication of failure to close perforations. Perforations can be repaired with a variety of reparative materials, such as enhanced resin modified glass ionomer or calcium silicate cement as the active ingredient. This study aims to compare the ability of enhanced resin modified glass ionomer and bioactive calcium silicate cement as perforation closure materials in the apical third of the tooth.

The research subjects consisted of 30 mandibular premolar teeth, simulated perforations as deep as 2mm in the apical third, which is 2mm from the apex of the tooth. Specimens were separated into two groups, each containing 15 tooth specimens. group one was covered with bioactive calcium silicate cement, group two was covered with enhanced resin modified glass ionomer. Specimens were immersed in stimulated body fluid (SBF) and placed in an incubator for 7 days at 37°C. Specimens were immersed in 1% methylene blue solution for 24 hours. All specimens were crowned from the buko lingual direction using a diamond disc and split into 2. Leakage was observed using a digital compound microscope with 50 times magnification and scoring was carried out.

Statistical test results using the Mann-Whitney test showed a significant ($p < 0.05$) difference in the value of microleakage on the ability to close perforations in the apical third area. The perforation covering material in the apical third of the tooth, namely bioactive calcium ciliate cement, has a better sealing ability than the enhanced resin modified glass ionomer material.

Keyword : microleakage, enhanced resin modified glass ionomer, bioactive calcium cilicate cement, perforation



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Universitas Gadjah Mada, 2023 | Diunduh dari <http://etd.repository.ugm.ac.id/>