

**PENGARUH KONSENTRASI HIDROGEN PEROKSIDA TERHADAP
KEBOCORAN TEPI RESTORASI *ENHANCED RESIN-MODIFIED*
GLASS IONOMER KAVITAS KELAS V (Kajian *in vitro*)**

INTISARI

Enhanced resin modified glass ionomer (ERMGI) merupakan material bioaktif yang digunakan untuk menumpat kavitas kelas V. Untuk keperluan estetik, kavitas kelas V pada gigi anterior seringkali harus terpapar bahan *bleaching* ekstrakoronal berupa hidrogen peroksida (H_2O_2) 35% atau 40%, sementara di sisi lain H_2O_2 terbukti dapat menurunkan sifat fisik bahan restorasi. Perlu dilakukan penelitian untuk mengukur pengaruh H_2O_2 terhadap kebocoran tepi restorasi ERMGI kavitas kelas V.

Penelitian dilakukan pada 30 gigi premolar maksila dengan kavitas kelas V yang direstorasi menggunakan dua ERMGI yang berbeda (kelompok A & B). H_2O_2 35% dan 40% diaplikasikan pada sampel sebanyak 0,64 ml, selama 20 menit dengan total 3x aplikasi (60 menit). Sampel kemudian direndam dalam *methylene blue* 2% selama 24 jam. Sampel kemudian dibelah dan diamati kebocoran tepinya oleh 3 pengamat menggunakan mikroskop stereo dengan perbesaran 20x. Data pengaruh perbedaan konsentrasi bahan *bleaching* pada skor kebocoran tepi dianalisis menggunakan Kruskal Wallis. Data skor kebocoran tepi antara 2 restorasi yang berbeda dianalisis dengan Uji Mann Whitney U.

Hasil analisis Kruskal Wallis menunjukkan bahwa tidak terdapat pengaruh konsentrasi bahan *bleaching* terhadap kebocoran tepi restorasi. Uji Mann Whitney U menunjukkan terdapat perbedaan rerata yang signifikan antara kedua jenis bahan restorasi terhadap kebocoran tepi. Skor kebocoran tertinggi ditemukan pada kelompok A dengan aplikasi H_2O_2 35%, sedangkan skor kebocoran terendah pada kelompok B tanpa aplikasi H_2O_2 . Konsentrasi hidrogen peroksida tidak berpengaruh terhadap kebocoran tepi. Pada penelitian ini, jenis bahan restorasi merupakan faktor utama yang berpengaruh terhadap kebocoran tepi.

Kata kunci: Hidrogen peroksida, kebocoran tepi, ERMGI

THE EFFECT OF HYDROGEN PEROXIDE CONCENTRATION ON THE LEAKAGE OF ENHANCED RESIN-MODIFIED GLASS IONOMER RESTORATION OF CLASS V CAVITY (*In Vitro*)

ABSTRACT

Enhanced resin-modified glass ionomer (ERMGI) is a bioactive material that is used for class V cavity restoration. However, anterior teeth often undergo an aesthetic procedure such as extra-coronal bleaching using hydrogen peroxide (H_2O_2) 35% and 40%. Whereas, H_2O_2 is known to cause an alteration on restorative materials. Therefore, it is important to understand the effect of H_2O_2 on the leakage of ERMGI restoration of class V cavity.

Thirty samples were prepared with class V restoration using two different ERMGI (group A & B). These samples were then divided into three groups according to the H_2O_2 concentration (0%, 35%, and 40%). H_2O_2 35% and 40% then applied (0,64 ml) three times, with each application was performed for 20 minutes (60 minutes in total). All of the samples were then immersed in 2% methylene blue for 24 hours. Each tooth is then split into two. A stereomicroscope with 20x magnification was used to calculate the score for the microleakage. All the samples were observed by three independent observer. The effect of bleaching concentration on marginal leakage data then was analyzed using Kruskal Wallis. Furthermore, the correlation between the type of materials and marginal leakage data were analyzed using Mann Whitney U

It is shown that there was no correlation between bleaching concentration and marginal leakage. On the other hand, it is found that there is a significant difference between two types of ERMGI towards marginal leakage. The highest marginal leakage score was found on group A with a 35% H_2O_2 group. Meanwhile, the lowest score was found on group B without H_2O_2 . Within the limitation of this study, it is found that the hydrogen peroxide concentration did not affect marginal leakage. Meanwhile, the type of the restorative material was found to be the main factor that affects marginal leakage.

Keywords: Hydrogen peroxide, marginal leakage, ERMGI

