

INTISARI

Semen ionomer kaca modifikasi resin (SIKMR) coating *glass hybrid* dan SIKMR bioaktif merupakan material restorasi gigi yang relatif baru. Keawetan material dapat ditentukan melalui sifat adaptasi tepi restorasi, atau seberapa baik bahan restorasi menempel dengan gigi. Kebocoran tepi restorasi dapat menyebabkan bahan restorasi terpapar dengan lingkungan rongga mulut yang kompleks, sehingga dapat menyebabkan bahan restorasi lebih mudah rusak. Penelitian ini bertujuan untuk mengetahui perbandingan kebocoran tepi bahan restorasi SIK : konvensional, modifikasi resin *coating glass hybrid*, dan modifikasi resin bioaktif.

Subjek penelitian adalah 18 gigi premolar pertama rahang atas yang telah dipreparasi kelas V dengan panjang 3 mm, lebar 2 mm, dan kedalaman 2 mm. Kemudian dibagi menjadi tiga kelompok dan direstorasi menggunakan SIK konvensional, SIKMR *coating glass hybrid*, dan SIKMR bioaktif. Seluruh subjek direndam dalam PBS selama 14 hari, kemudian direndam dalam *methylene blue* 2% selama 24 jam dan dipotong dengan arah bukalatal. Kebocoran tepi diukur menggunakan mikroskop stereo dan aplikasi *Image Raster*. Data diuji statistik menggunakan *one-way-ANOVA* dan *post-hoc LSD* (0,05).

Hasil penelitian menunjukkan bahwa kebocoran tepi SIK konvensional, SIKMR *coating glass hybrid*, dan SIKMR bioaktif secara berturut-turut adalah $1,59 \pm 0,20$ mm, $1,10 \pm 0,42$ mm, dan $0,34 \pm 0,16$ mm. Uji *one-way-ANOVA* menunjukkan adanya pengaruh yang signifikan dari jenis bahan restorasi. Uji *post-hoc LSD* menunjukkan terdapat perbedaan rerata yang signifikan ($p < 0,05$) antar kelompok SIK konvensional, SIKMR *coating glass hybrid*, SIKMR bioaktif. Kesimpulan dari penelitian ini adalah bahan SIKMR bioaktif memiliki tingkat kebocoran tepi yang lebih rendah dibandingkan dengan SIK konvensional dan SIKMR *coating glass hybrid*.

Kata kunci : SIK konvensional, SIKMR *coating glass hybrid*, SIKMR bioaktif,
kebocoran tepi

ABSTRACT

Glass hybrid coating resin modified glass ionomer cement (RMGIC) and bioactive RMGIC are relatively new dental restorative materials. The durability of the material can be determined by the adaptability of the restoration edges, or how well the restorative material adheres to the tooth. Marginal gap of the restorative can expose the restorative material to the complex oral environment, which can cause the restorative material to be more easily damaged. This study aims to determine the comparison of the marginal gap of GIC: conventional, modified glass hybrid coating resin, and modified bioactive resin.

The research subjects were 18 maxillary first premolars that had been prepared in class V with a length of 3 mm, width of 2 mm, and a depth of 2 mm. Then they were divided into three groups and restored using conventional GIC, glass hybrid coating RMGIC, and bioactive RMGIC. All subjects were immersed in PBS for 14 days, then immersed in 2% methylene blue for 24 hours and cut in buccopalatal direction. Marginal gap was measured using a stereo microscope and Image Raster application. The data were statistically tested using one-way-ANOVA and post-hoc LSD (0.05).

The result showed that the marginal gap of conventional GIC, glass hybrid coating RMGIC, and bioactive RMGIC were 1.59 ± 0.20 mm, 1.10 ± 0.42 mm, and 0.34 ± 0.16 mm respectively. The one-way-ANOVA test showed a significant effect of the type of restorative material. The post-hoc LSD test showed that there was a significant mean ($p < 0.05$) between the conventional GIC, glass hybrid coating RMGIC, and bioactive RMGIC groups. The conclusion of this study is that the bioactive RMGIC material has a lower marginal gap compared to conventional GIC and glass hybrid coating RMGIC

Keywords : *conventional GIC, glass hybrid coating RMGIC, bioactive RMGIC, marginal gap*