

ABSTRAK

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PERBANDINGAN RESIN BIS-GMA DAN RMGIC FISSURE SEALANT PADA GIGI PREMOLAR PASCA EKSTRAKSI TERHADAP TIMBULNYA MICROLEAKAGE PADA PERUBAHAN SUHU RONGGA MULUT

Abstrak

Latar Belakang: Anatomi *pit* dan *fissure* yang terlalu dalam dapat meningkatkan retensi makanan yang sulit dibersihkan dan dijangkau dengan sikat gigi, sehingga *pit* dan *fissure* sering menjadi tempat awal terjadinya karies. *Fissure sealant* merupakan alternatif pencegahan karies pada oklusal gigi posterior. Masing-masing bahan *fissure sealant* memiliki koefisien ekspansi termal yang berbeda. Perbedaan koefisien ekspansi termal dapat menyebabkan perbedaan muai bahan *fissure sealant* dengan jaringan gigi saat terjadi perubahan suhu. Akibatnya terjadi *microleakage* antara bahan *fissure sealant* dengan jaringan gigi. Penelitian ini bertujuan untuk mengetahui perbandingan besar *microleakage* antara Resin Bis-GMA dan RMGIC *sealant* berdasarkan pada perbedaan koefisien ekspansi termal material *fissure sealant*.

Metode: Penelitian yang digunakan eksperimental laboratoris menggunakan sampel gigi premolar pasca ekstraksi yang dilakukan *fissure sealant* dengan Resin Bis-GMA (grup 1) dan RMGIC (grup 2). Gigi yang telah di *fissure sealant* disimpan dalam saliva buatan selama 24 jam pada suhu 37°C dalam inkubator. *Thermocycling* dilakukan pada suhu 6°C dan 60°C selama 250 putaran dengan jarak 30 detik. Gigi diolesi *varnish* kuku dan direndam dalam *methylene blue* 5% selama 4 jam. Gigi dicuci lalu dibelah dengan arah bukopalatal dan *microleakage* diuji dengan mikroskop digital dengan perbesaran 100x.

Hasil: Rerata skor penetrasi pada Resin Bis-GMA sebesar 14.00 dan RMGIC sebesar 19.00. Hal tersebut menunjukkan bahwa *microleakage* pada resin Bis-GMA lebih kecil dibandingkan RMGIC. Uji statistik *Mann-Whitney* menunjukkan nilai sig. sebesar 0,080 ($p > 0,05$).

Simpulan: *Microleakage* pada resin Bis-GMA lebih kecil dibandingkan RMGIC karena dipengaruhi oleh sifat absorpsi, rasio TEGDMA dibanding Bis-GMA, dan kelarutan bahan *fissure sealant*.

Kata kunci : Resin Bis-GMA, RMGIC, *microleakage*, perubahan suhu

ABSTRACT

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COMPARISON OF GMA BIS-GMA AND RMGIC FISSURE SEALANT IN POST-EXTRACT PREMOLAR ON MICROLEAKAGE INCIDENCE OF MOUTH ORAL TEMPERATURE CHANGES

Abstract

Background: The deep pit and fissure anatomy can increase the retention of foods giving effect difficult to clean with toothbrushes so that the pit and fissure often become the starting place for caries. Fissure sealant is an alternative prevention of caries on the occlusal of posterior teeth. Each fissure sealant material has a different thermal expansion coefficient. Differences in the coefficient of thermal expansion can cause the differences in the expansion of fissure sealant material with dental tissue when the temperature changes occur. As a result, there will be a microleakage between the fissure sealant and dental tissue. The purpose of this research is to know the ratio of microleakage between Resin Bis-GMA sealant and RMGIC sealant based on the differences of thermal expansion coefficient on fissure sealant material.

Method: The type of research used was the experimental study. Samples were divided into two groups, namely group 1 (Resin Bis-GMA), and group 2 (RMGIC). There were four steps in doing this research, which were applying each fissure sealant material then the tooth was stored in artificial saliva for 24 hours at 37°C in incubator, and then performing the thermocycling at 6°C and 60°C for 250 rounds spaced 30 seconds. After that, the teeth were smeared with varnish nails and soaked in 5% methylene blue for four hours. The last, the teeth were washed and split in a buccopalatal direction, and the microleakage was tested with a digital microscope. The Mann-Whitney test showed that sig. value 0.080 ($p > 0.05$).

Result: The average penetration score on the Resin Bis-GMA fissure sealant was 14.00, while RMGIC fissure sealant was 19.00. This indicates that the microleakage in the Resin Bis-GMA was smaller than the RMGIC fissure sealant.

Conclusion: There was no significant difference microleakage between Resin Bis-GMA and RMGIC fissure sealant.

Keywords: Resin Bis-GMA, RMGIC, microleakage, temperature changes