Adaptasi Siler Berbahan Dasar Kalsium Silikat dan Resin Epoksi pada Sepertiga Tengah Dinding Saluran Akar = Adaptation of Calcium Silicate and Epoxy Resin Sealers in Middle Third of Root Canal Wall

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Abstrak

Latar Belakang: Siler kalsium silikat bersifat hidrofilik, berikatan secara kimia ke dentin, membentuk hidroksiapatit, memiliki waktu kerja dan settingideal, dan tidak terjadi penyusutan. Siler resin epoksi yang banyak digunakan saat ini memiliki kekurangan berupa adanya penyusutan saat mengeras. Evaluasi adaptasi siler dapat menentukan kemampuan kerapatan suatu siler. Salah satu metode untuk mengevaluasi kemampuan kerapatan siler adalah dengan Scanning Electron Microscopy (SEM). Tujuan: Menganalisis perbedaan adaptasi siler pada sepertiga tengah dinding saluran akar antara siler berbahan dasar kalsium silikat dengan resin epoksi.Metode: Tiga puluh dua sampel gigi premolar mandibula dibagi menjadi dua kelompok, yaitu kelompok 1: siler resin epoksi dan kelompok 2: siler kalsium silikat. Sampel dipreparasi dan diobturasi dengan siler berbahan dasar kalsium silikat dan resin epoksi. Selanjutnya, gigi dipotong vertikal dan disiapkan untuk analisis adaptasi siler menggunakan SEM. Data tersebut dianalisis secara statistik dengan uji Chi-square. Hasil Penelitian: Tidak terdapat perbedaan bermakna antara adaptasi siler kalsium silikat dan resin epoksi secara statistik (p>0.05). Partikel resin epoksi secara keseluruhan tampak berukuran lebih besar dibandingkan dengan kalsium silikat. Kesimpulan: Tidak terdapat perbedaan adaptasi siler secara statistik antara siler berbahan dasar kalsium silikat dengan resin epoksi pada sepertiga tengah dinding saluran akar, namun secara klinis sampel siler kalsium silikat lebih sedikit menunjukkan gap/ celah dan lebih banyak yang berpenetrasi ke dalam tubuli dentin dinding saluran akar. <hr /> Background: Calcium silicate sealer is hydrophilic, chemically bonded to dentin, forms hydroxyapatite, has an ideal working and setting time, and does not shrink. The epoxy resin sealer that is widely used today has the disadvantage of shrinkage when hardening. Evaluation of the adaptation of the sealer can determine the sealing ability of a sealer. One of the method for evaluating the sealing ability of a sealer is Scanning Electron Microscopy (SEM). Objective: To analyze differences in the adaptation of sealers in middle third of root canal wall between the calcium silicate and epoxy resin based sealer. Methods: Thirty-two mandibular premolar teeth samples were divided into two groups, that are group 1: epoxy resin sealer and group 2: calcium silicate sealer. Samples were prepared and obturated with calcium silicate and epoxy resin based sealer. Next, the teeth were cut vertically and prepared for analysis of the sealer adaptation using SEM. The data was analyzed statistically by Chi-square test. Results: There was no significant difference between the adaptation of calcium silicate and epoxy resin sealer statistically (p> 0.05). Overall epoxy resin’s particles appear larger than calcium silicate. Conclusion: There was no statistical difference in the adaptation of sealers between calcium silicate and epoxy resin based sealer in middle third of root canal wall, but clinically fewer calcium silicate sealer samples showed gaps and more penetrated into dentinal tubules of root canal wall.