Perbedaan Kemampuan Adhesi Siler Berbasis Kalsium Silikat Dan Resin Epoksi Terhadap Permukaan Dentin Saluran Akar = A Comparative Analysis of Adhesion Abilities between Calcium Silicate and Epoxy Resin based Sealers on Root Canal Dentine Surfaces

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Abstrak

Latar Belakang: Kemampuan adhesi siler terhadap dentin merupakan faktor penting dalam kesuksesan perawatan endodontik. Siler resin epoksi sebagai gold standart memiliki kemampuan adhesi yang superior, tetapi tidak memiliki sifat bioaktif sehingga berkembang siler kalsium silikat. Tujuan: Membandingkan kekuatan push-out bond strength dan failure mode siler AH Plus® Bioceramic dan Ceraseal dengan siler AH Plus®. Metode: Tiga puluh gigi premolar dibagi menjadi tiga kelompok untuk preparasi dan pengisian saluran akar menggunakan siler AH Plus® Bioceramic (kelompok 1), Ceraseal (kelompok 2) dan siler AH Plus® (kelompok 3). Sampel diinkubasi selama tujuh hari pada suhu 37oC, kemudian dipotong pada area sepertiga apikal dan medial. Nilai push-out bond strength dan failure mode dianalisis. Hasil: AH Plus® Bioceramic memiliki perbedaan nilai push-out bond strength dan failure mode yang signifikan dibanding AH Plus® dan Ceraseal. Ceraseal dan AH Plus® tidak memiliki perbedaan nilai secara signifikan. Analisis gambaran failure mode oleh dua orang observer menunjukkan reliabilitas data yang tinggi. AH Plus® Bioceramic memiliki dominasi kegagalan campuran, sedangkan Ceraseal dan AH Plus® memiliki persentasi kegagalan campuran dan kohesif yang seimbang. Kesimpulan: Seluruh kelompok siler menunjukkan kemampuan adhesi yang baik terhadap permukaan dentin, meskipun nilai push-out bond strength siler AH Plus® Bioceramic paling rendah diantara seluruh kelompok.

.....Background: The adhesion of sealers to dentin is important for successful endodontic treatment. As the gold standard, epoxy resin sealers have superior adhesion, but lack bioactive properties, hence the development of calcium silicate sealers. Objective: To compare the push-out bond strength and failure mode of AH Plus® Bioceramic and Ceraseal sealers with AH Plus® Sealer. Methods: Thirty premolars were divided into three groups for root canal preparation and obturation with AH Plus® Bioceramic (group 1), Ceraseal (group 2), and AH Plus® (group 3). The samples were incubated at 37°C for seven days, then cut at the apical and medial third. Push-out bond strength and failure mode were analyzed. Results: AH Plus® Bioceramic demonstrated significant differences in push-out bond strength and failure mode values compared to AH Plus® and Ceraseal. Ceraseal and AH Plus® were not significantly different. Analysis of failure mode descriptions by two observers showed high data reliability. AH Plus® Bioceramic had a predominance of mixed failures, whereas Ceraseal and AH Plus® had equal percentages of mixed and cohesive failures. Conclusion: All sealer groups showed good adhesion to the dentin surface, although the push-out bond strength value of AH Plus® Bioceramic sealer was the lowest among the groups.