

Perbedaan Metode Total-Etch dan Self-Etch dalam Sistem Universal Adhesive terhadap Push-Out Bond Strength dan Failure Mode pada Sementasi Pasak Fiber = Differences in Total-Etch and Self-Etch Methods in Universal Adhesive Systems to Push-Out Bond Strength and Failure Modes in Fiber Post Cementation

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Abstrak

Latar Belakang: Penggunaan adhesif universal sebagai sementasi pasak fiber dalam restorasi pasca endodontik populer digunakan karena sifatnya yang serbaguna sehingga dapat diaplikasikan dengan metode total-etch maupun self-etch. Namun, penelitian mengenai perbedaan push-out bond strength (PBS) antara kedua metode tersebut masih terbatas. Tujuan: Mengetahui perbedaan PBS dan failure mode antara metode total-etch dan self-etch sistem adhesif universal pada sementasi pasak fiber. Metode: Tiga puluh gigi premolar rahang bawah yang baru diekstraksi disimpan di dalam air terdeionisasi yang kemudian dilakukan pemotongan mahkota sebelum dilakukan perawatan saluran akar dan preparasi ruang pasak. Pasak kemudian disementasi dengan semen resin dualcure self-adhesive dan bahan adhesif Prime&Bond Universal (PBU). Uji PBS dilakukan untuk mengukur kekuatan ikat geser masing-masing kelompok uji. Kegagalan ikatan kemudian diobservasi menggunakan Scanning Electron Microscopy (SEM). Hasil: Kelompok self-etch memiliki kekuatan ikat yang lebih tinggi dibandingkan dengan kelompok lainnya dengan perbedaan yang bermakna ($p < 0.05$). Tidak terdapat perbedaan kegagalan adhesif yang signifikan di antara kelompok. Kesimpulan: Metode self-etch memiliki kekuatan ikat paling baik dibandingkan dengan kelompok uji lainnya, namun tidak terdapat perbedaan failure mode pada setiap kelompok.

.....Background: Universal adhesives for fiber post cementation in endodontically treated teeth have become popular in clinical dentistry as they can be applied in either total-etch or self-etch mode, due to their reduced number of application steps and versatility. However, studies regarding comparison between the two modes are limited and insufficient. Aim/Objective: The aim of the study is to analyze and compare the pushout bond strength and failure mode of the multimode universal adhesive system. Materials and Methods: Thirty freshly extracted mandibular premolars were decoronated prior to a root canal treatment (RCT) and prepared for post placement and bonded using Prime&Bond Universal (PBU). Post was then cemented using dual-cure self-adhesive resin cement. The push-out bond strength (PBS) test was performed to measure the shear bond strength using a universal testing machine (UTM). Failure mode was then observed using scanning electron microscope (SEM). Results: One-way ANOVA followed by a post-hoc Bonferroni and Independent T-Test indicated that there is significant difference ($p < 0.05$) between the bond strength of the total- and self-etch mode of the universal adhesive system. However, no differences in failure mode are observed between groups. Conclusion: Self-etch mode is more preferable due to its higher bond strength dominated with cohesive failure indicating its success in bonding with the root canal