Pengaruh Waktu Pelapisan Bahan Adhesif Universal Sistem Self-Etch Terhadap Mikrostruktur Dentin = Effect of Bonding Application Time on Dentin Microstructure Using Universal Adhesive System in Self-Etch

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Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh waktu pelapisan bahan adhesif universal sistem self-etch yang terhadap perubahan morfologis mikrostruktur dentin. Lima gigi premolar manusia yang diekstraksi diabrasi dan dihaluskan dari arah oklusal dan medial menggunakan diamond disc grit #600 dan kertas silikon karbida grit #1000, #1500 dan #2000. Bahan adhesif Single Bond Universal diaplikasikan dalam sistem self-etch pada permukaan oklusal dentin yang terbagi menjadi tiga kelompok berdasarkan waktunya yaitu selama 20 detik (n = 3), 30 detik (n = 3) dan 40 detik (n = 3). Spesimen dipolimerisasi dengan LED curing unit, iradiansi 900mW/cm² selama 10 detik. Satu spesimen yang tidak diaplikasi bahan adhesif digunakan sebagai kontrol. Pengamatan SEM dilakukan dengan perbesaran x850, x1,600 dan x3,000. Hasil menunjukkan bahwa terdapat perbedaan gambaran morfologis mikrostruktur dentin sebelum dan sesudah aplikasi bahan adhesif tetapi tidak ada perbedaan antar kelompok 20 detik, 30 detik dan 40 detik. Disimpulkan bahwa waktu pelapisan bahan adhesif tidak mempengaruhi perubahan morfologis mikrostruktur dentin.

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The aim of this study is to evaluate the effect of bonding application time on dentin microstructure created by a universal adhesive in self-etch mode. Five extracted human premolars were sectioned and polished occlusally and medially using diamond disc grit #600 dan silicone carbide paper grit #1000, #1500 and #2000. One universal adhesive, Single Bond Universal was applied on to the occlusal surface of dentin and was divided into 3 groups based on the time: 20 s (n = 3), 30 s (n = 3) and 40 s (n = 3). Specimens were polimerized using LED curing unit, irradiance 900mW/cm² for 10 s, except for one that was left untreated as control. All specimens were observed using SEM at magnifications x850, x1,600 dan x3,000. The result showed that there were morfological differences in dentin microstructure between before and after application but none between specimen groups. It was concluded that bonding application time does not affect the morfological differences in dentin microstructure.