学位論文内容の要旨

博士の専攻分野の名称　　博士（歯学）　　氏　名 リミシャンミンアカター

学　位　論　文　題　名

Effects of remaining dentin thickness, smear layer and aging on the bond strengths of contemporary universal adhesives to dentin.

（　象牙質に対する従来型ユニバーサルアドヒーシブの残存象牙質の厚さ、スミヤー層、長期耐久性による接着強さの影響　）

キーワード Dentin, Smear layer, Aging, Bond strength, Self-etch Adhesive

To evaluate the effects of remaining dentin thickness (RDT) and different smear layers on the microtensile bond strength (μTBS) of universal adhesives to dentin after 24 hours and long-term water storage.

Flat dentin surfaces of ninety-six extracted human third molars were exposed and randomly allocated to 12 groups (n = 8) based on adhesives: Clearfil™ SE Bond 2 (SE), Clearfil™ Universal Bond (CU) and ScotchBond™ Universal (SB); smear layers: prepared either with 600-grit SiC paper (P) or regular diamond bur (B); and water-storage time: stored in distilled water at 37 ºC for 24 hours (24h) or 1 year (1y). Resin-dentin beams were obtained and subjected to μTBS test. Three-way ANOVA was used to determine the effects of adhesives, smear layers, and aging. The correlation between μTBS and RDT was evaluated with Pearson's correlation test ($\alpha = 0.05$). Fractured surfaces were observed by SEM.

μTBS was significantly affected by adhesives, smear layers, and aging ($p < 0.001$). A statistically significant linear relationship was also observed between μTBS and RDT ($p < 0.05$) in all the tested groups, except for SEB1y and CUB24h ($p > 0.05$). The most frequent fracture mode was a mixed failure, but the number of adhesive failures increased after 1y.

Though material dependent, remaining dentin thickness, smear layers, and aging can influence the bonding performances of contemporary self-etch adhesives.