Role of Etching Mode on Bonding Longevity of a Universal Adhesive to Eroded Dentin.

PURPOSE: To assess the immediate and six-month microshear bond strength (μSBS) of a universal adhesive applied using different etching strategies on sound and eroded dentin.

MATERIALS AND METHODS: Eighty bovine incisors were polished to obtain flat buccal dentin. Forty teeth were submitted to a pH-cycling model to simulate artificial erosion (3x/day cola drink for 7 days). Teeth from both dentin conditions (sound and eroded) were randomly assigned to four groups according to the adhesive and etching approach: a universal adhesive in self-etch and etch-and-rinse modes (Scotchbond Universal Adhesive), and as controls a two-step etch-and-rinse adhesive (Adper Single Bond Plus), and a two-step self-etch adhesive (Clearfil SE Bond). Four composite restorations (Z250) were built up on each dentin surface, using the area delimitation technique. Half of the specimens were evaluated in the μSBS test after 24 h of water storage, and the other half were evaluated six months later. Data (MPa) were analyzed with three-way repeated measures ANOVA and Tukey’s post-hoc tests (α = 0.05).

RESULTS: The μSBS values of all adhesives significantly decreased after six months of aging (p = 0.01). Lower μSBS values were obtained in eroded dentin (p = 0.04). The universal adhesive showed similar μSBS to the selfetch adhesive used as control, irrespective of the etching strategy. However, Scotchbond Universal Adhesive applied in self-etch mode performed better than the control etch-and-rinse adhesive (p = 0.02).

CONCLUSION: The universal adhesive does not provide the same bonding efficacy on eroded dentin as on sound dentin, and its performance does not
depend on the etching mode.

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