COMMENTARY

INFLUENCE OF CAVITY CONFIGURATION ON MICROLEAKAGE AROUND CLASS V RESTORATIONS BONDED WITH SEVEN SELF-ETCHING ADHESIVES

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This study compared microleakage scores of several new self-etch dentin/enamel adhesives. A two-bottle total-etch adhesive, 36% H_3PO_4 with Prime & Bond NT, was used as a positive control. Although the materials used are actual and relevant for clinicians, it would have been more interesting to compare one total-etch material and one self-etch material from each manufacturer.

No statistical differences were found for enamel margins, which is a sign that the new self-etch materials may provide more reliable enamel bonds than do the older self-etch adhesives. The enamel-etching capability of self-etch adhesive materials has been studied abundantly.[1–3] One of the shortfalls of self-etch adhesives is that they may not etch enamel to the same depth achieved with phosphoric acid.[2] Other studies, however, demonstrated that enamel bonding with self-etch adhesives is as effective as enamel bonding after phosphoric acid etching.[4,5] For example, the enamel bond strengths obtained with the self-etch adhesive Adper Prompt-L-Pop are comparable to those obtained when etching enamel with phosphoric acid.[6] Additionally, the enamel etching pattern in aprismatic enamel after the application of Adper Prompt-L-Pop is similar to the etching pattern obtained with phosphoric acid.[7] In another study Adper Prompt-L-Pop resulted in a mean enamel bond strength of 33.0 MPa, which is statistically similar (32.2 MPa) to the bond strength obtained with the total-etch adhesive Single Bond (3M ESPE, St. Paul, MN, USA).[8]

High C-factor Class I restorations undergo a relatively fast degradation in vivo.[9] It is also known that dentin bond strengths decrease with an increasing C-factor.[10] In this study the C-factor did not influence microleakage, which may be a result of the preparations being only 1.5 mm deep. Furthermore, had the authors used a composite resin with a higher elastic modulus, the shrinkage stresses might have pulled the adhesive from the cervical margins and resulted in greater microleakage for preparations with higher C-factor.

Overall, this study shows that new self-etch adhesives are becoming more reliable for use around enamel and dentin margins.

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