

Hybrid vs. Microfill Composite Resins in Class V Lesions (9/04)

Van Meerbeek B, Kanumilli P, De Munck J, Van Landuyt K, Lambrechts P, Peumans M. A randomized, controlled trial evaluating the three-year clinical effectiveness of two etch & rinse adhesives in cervical lesions. *Oper Dent* 2004;29:376-385.

The purpose of this study was to evaluate the clinical effectiveness of two etch & rinse (i.e., total etch) adhesives after three years. A three-step etch & rinse adhesive (PermaQuick, Ultradent) was placed with either a hybrid composite resin (Amelogen Hybrid, Ultradent), or a microfill composite resin (Amelogen Microfill, Ultradent). A three-step etch & rinse adhesive (Optibond FL, Kerr) was placed with a hybrid composite resin (Prodigy, Kerr). Fifty restorations per adhesive were placed in non-cariou cervical lesions in seventy-five patients. Restorations were examined at baseline, six months, and after one, two, and three years of clinical service for retention, marginal integrity, clinical microleakage, caries recurrence, tooth vitality, and postoperative sensitivity. **After three years, the overall clinical success rate was 98% for the Optibond FL / Prodigy group and 96% and 92% for the PermaQuick / Amelogen Hybrid and PermaQuick / Amelogen Microfill groups, respectively. There was no statistical difference in retention rate between both adhesives systems with 100% retention for the Optibond FL / Prodigy restorations and 98% retention for both hybrid and microfill versions of Amelogen in combination with PermaQuick.**



DIS Comment: It was not surprising to find high clinical retention rates with the well-established fourth-generation etch and rinse adhesives. The retention rates of the two adhesives easily exceeded the 90% retention rate at 18 months required by the ADA guidelines to acquire “full acceptance”.¹ It was more interesting to find no significant difference in retention rates between the hybrid and microfill composite resins using the same adhesive agent. Microfill resin composites have been recommended as the materials of choice for restoring Class V restorations.^{2,3} It has been hypothesized that the relatively flexible microfill composite resins absorb polymerization and flexural stress more than the stiffer hybrid composite resins. This study agrees with the results of Browning and others⁴ who also found no significant difference in retention rates between a hybrid and microfill composite resin after two years in non-cariou cervical lesions using a three-step etch and rinse adhesive.

References

1. Council on Dental Materials, Instruments and Equipment, Revised American Dental Association Acceptance Program Guidelines for Dentin and Enamel Adhesive Materials. Am Dent Assoc, Chicago, IL:1994.
2. Heymann HO, Sturdevant JR, Bayne SC, Wilder AD, Sluder TB, Brunson WD. Examining tooth flexure effects on cervical restorations: a two-year clinical study. *J Am Dent Assoc* 1991;122:41-47.
3. Van Meerbeek B, Braem M, Lambrechts P, Vanherle G. Two-year clinical evaluation of two dentine-adhesive systems in cervical lesions. *J Dent* 1993;21:195-202.
4. Browning WD, Brackett WW, Gilpatrick RO. Two-year clinical comparison of a microfilled and a hybrid resin based composite in non-cariou Class V lesions. *Oper Dent* 2000;25:46-50.