

Microfilled or Hybrid Resin Composites In Cervical Lesions? (6/07)

Peumans M, De Munck J, Van Landuyt KL, Kanumilli P, Yoshida Y, Inoue S, Lambrechts P, Van Meerbeek B. Restoring cervical lesions with flexible composites. *Dent Mater* 2007;23:749–754.

In dealing with the possible "abfraction" non-carious cervical lesion, conventional clinical wisdom has suggested that a more flexible restorative material (e.g., microfilled resin composite) would better withstand functionally generated flexural forces. The aim of this study was to test the hypothesis that resin composites with higher flexibility would have a higher survival rate in non-carious cervical lesions over a



seven-year period. In this study, 142 non-carious cervical lesions were restored using resin composites with contrasting stiffness. Seventy-one patients randomly received two cervical restorations from two of three experimental groups: (1) Using a three-step, etch-and-rinse adhesive (Permaquick, Ultradent Products Inc., South Jordan UT) applied with a stiff micro-hybrid composite (Amelogen Hybrid, Ultradent); (2) Permaquick applied with a more flexible micro-filled composite (Amelogen Microfill, Ultradent); or (3) the control group using a three-step, etch-and-rinse adhesive (Optibond FL, Sybron Dental Specialties, Orange CA) applied with a micro-hybrid composite (Prodigy, Sybron Dental Specialties). After seven years, 80% of the restorations were available for evaluation with all groups presenting a high rate of retention (only 10 de-bonded restorations out of the total 114 available restorations.) Eleven percent of the restorations restored with Optibond FL and Prodigy were clinically unacceptable due to loss of retention and/or severe marginal discoloration, while 22 percent of the restorations restored with Permaquick and Amelogen Microfill were found to be unacceptable. Nineteen percent of the Permaquick-Amelogen Hybrid restorations were found to need either repair or replacement. No statistically significant difference was found among the adhesive systems or among the resin composites (McNemar, $p > 0.05$). **The authors concluded that the clinical performance of the three adhesive/composite combinations was good and reliable during the seven-year clinical trial and that composite stiffness did not affect the clinical longevity of cervical composite restorations.**

DECS Comment: The most rigorous test of any dental material is a long-term clinical evaluation. Due to many reasons, seven-year clinical evaluations such as this one are rarely reported in the scientific, peer-reviewed dental literature. This clinical evaluation compared the performance of resin composite restorations of different stiffnesses against the clinical adage that more flexible resin composites should display better clinical performance. Although the ages of the patients were not identified, the authors did state that patients with signs or symptoms of heavy bruxism were excluded from the study. No mechanical retentive features were placed, a short enamel bevel was used, and the resin composite was incrementally placed. The performance of the three-step, etch-and-rinse adhesive correlates well with previous studies, while the results of this study reinforce another shorter clinical study that also could not find a correlation between restoration stiffness and survival. The bottom line seems to be if that if you are going to restore a non-carious cervical lesion with a resin composite, the best route is to use a three-step, etch-and-rinse adhesive. However, the choice between a microfill or a hybrid resin composite may not matter.

References

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