Clinical Performance of a Compomer in Posterior Permanent Teeth (5/04)


Compomers (i.e., polyacid-modified composite resins) have been marketed for use in all classes of restorations in permanent teeth. The purpose of the this study was to evaluate the clinical performance of a compomer (Hytac, 3M ESPE, St. Paul, MN) in Class I and II restorations in permanent teeth. Fifty-three Hytac restorations were placed using the self-conditioning adhesive Hytac OSB without additional phosphoric-acid etching according to the manufacturer’s instructions. After 4 years, 39 (73.6%) restorations were available for examination. The restorations were assessed directly using modified-USPHS criteria. Six restorations failed (15.4%). Loss of marginal integrity was the main cause of restoration failure. The minimum 4-year standard for full acceptance of restoration quality of posterior composites set by the American Dental Association (ADA) is 90% (i.e., 10% unacceptable). Under the conditions of this study, the compomer Hytac with a failure rate of 15.4% did not fulfill the ADA requirements for full acceptance.

DIS Comment: Few long-term clinical studies are available evaluating the performance of compomer restorations in stress-bearing areas in permanent teeth. Laboratory studies have shown lower mechanical properties (e.g., compressive and flexural strength) for compomer materials compared with composite resins. Unfortunately, this clinical study did not directly compare compomer and composite resin restorations. The analysis of failed restorations revealed that five failures were caused by loss of marginal integrity with discolored marginal gaps and recurrent caries. The authors speculate that the lack of phosphoric-acid etching might have contributed to the adhesion problems with the compomer used in this study.

References