Don't Compomer-ise Your Restorations! (5/03)

A 3-year clinical evaluation of a compomer, a composite and a compomer/composite (sandwich) in Class II restorations. Wucher M, Grobler SR, Senekal PJC. Am J Dent 2002;15:274-278.

Increasing demands by esthetic-conscious patients have lead to the development and marketing of multiple tooth-colored restorative systems by dental manufacturers. One of the more recent types of esthetic-restorative materials is the polyacid-modified composite resin or compomer. The purpose of this study was to clinically compare the performance of a hybrid-resin composite, a compomer and an open-sandwich of a compomer layered occlusally with a resin composite in Class II cavities of permanent molars and premolars. The study used clinical codes (Ryge/USPHS) to assess the performance of the restorations after three years. The authors completed three Class II restorations (30 molars and 39 premolars) in each of 23 adult patients using cotton roll isolation. The preparations were bonded with a two-step total-etch system (Prime and Bond 2.1, Dentsply/Caulk). Three different restorative groups were created and utilized in each patient: a hybrid resin composite (Spectrum-TPH, Dentsply/Caulk); a compomer (Dyract, Dentsply/Caulk) or an open-sandwich of the compomer (Dyract, Dentsply/Caulk) layered occlusally by the resin composite (Spectrum-TPH, Dentsply/Caulk). Color slides, periapical radiographs and a clinical assessment evaluating 11 different criteria were taken at baseline and at three years. **Results found that all three types of restorations performed well clinically with only one open-sandwich restoration requiring replacement due to secondary caries. However, the compomer restorations exhibited significantly greater occlusal wear and significantly greater degradation of marginal integrity over the three years compared to the resin composite or open-sandwich restorations.**

DIS Comment: This study confirms clinically what was already suspected from laboratory testing - compomers have lower mechanical properties than hybrid-resin composites. Compomer materials were introduced as an alternative to resin-modified glass ionomers. Their ease in placement and polishing, and fluoride release made them an attractive alternative. Compomers have better mechanical properties and esthetics than resin-modified glass-ionomer restorative materials, however, they release less fluoride and provide no chemical bond to tooth structure. Compared with hybrid-resin composites, compomers have inferior mechanical properties that may lead to accelerated wear and ledging in restorations receiving direct contact.[1] Marketing by some manufacturers and a least one clinical study suggest that compomer materials will provide reliable restorations in stress-bearing areas.[2] However, due to the increased potential for wear in direct-contact restorations as found in this study, compomers should be limited to areas of lower stress such as Class V[3], or III[4] or perhaps lower life expectancy, such as pediatric Class I or II restorations.[5]

References

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