Effect of Cavity Contamination by Blood and Hemostatic Agents on Marginal Adaptation of Composite Restorations.

Abstract

PURPOSE: To determine the effects of contamination of tooth cavities by hemostatic agents applied after blood contamination on marginal adaptation of composite restorations bonded with etch-and-rinse and self-etch adhesives.

MATERIALS AND METHODS: Cervical cavities (n = 10 per group) were contaminated with blood and subsequently treated with aluminum chloride (Racestyptine) or ferric sulfate (Astringedent, ViscoStat) hemostatic agents. After water rinsing, composite restorations were placed using either an etch-and-rinse (OptiBond FL) or self-etch (Opti-Bond All-in-One) adhesive. EDS-based elemental surface analysis was performed, and marginal integrity was evaluated using SEM both before and after thermomechanical loading. The percentage of continuous margins in enamel (%CEM) and dentin (%CDM) was statistically analyzed (p < 0.05).

RESULTS: No statistically significant differences in %CEM and %CDM were observed between hemostatic-contaminated groups and uncontaminated controls after thermomechanical loading, irrespective of the adhesive used. Specimens contaminated with aluminum-chloride-based Racestyptine showed a significantly higher final %CEM when the etch-and-rinse adhesive was applied (OptiBond FL) than with the self-etch adhesive (OptiBond All-in-One).

CONCLUSION: Cavity contamination with hemostatic agents, applied after blood contamination and removed with water spray, does not compromise marginal adaptation in enamel and dentin. In the case of contamination by an aluminum-
chloride hemostatic agent, the tested etch-and-rinse approach resulted in a higher percentage of continuous enamel margins of composite restorations than did the self-etch approach.

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