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### **Glass-Hybrid Cement Adhere Better Than Glass-Ionomer Materials to Primary Dentine**

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**Objectives** The aim of the study was to analyze the interface zone between sound (SD) and caries-affected (CAD) primary dentin, and three types of restorative materials: glass-hybrid (GH), conventional (C-), and resin-modified (RM-) glass ionomer cements (GIC).

**Methods** Occlusal cavities were prepared in 120 extracted primary molars, and randomly divided into two groups: SD and CAD. After formation of the artificial caries lesion, teeth (n=12) were restored with a GH (Equia Forte HT, GC Int- EF), two C-GIC (Equia Fill, GC Int- E; Ketac Molar, 3M ESPE- KM), and two RM-GIC (Fuji II LC, GC Int- II, Photac Fill, 3M ESPE- PF). Samples were immersed in artificial saliva at 37°C for 7 days, and subsequently exposed to thermal aging (10.000×). Sectioning of teeth was done in the occluso-gingival direction, and the interface between dental tissues and restorative materials was analyzed using a scanning electron (SE) microscope. The developed algorithm used for SE microphotographs analysis was done in the Python programming language.

**Results** Intimate contact of the material and dental tissues along the entire interface was not observed. In the C-GIC group, a crack along the entire interface was observed in 33% of SD, and 25% of CAD samples. The mean proportion of intimate contact between the material and SD was EF (76%) > KM (55%) > E (38%) > II (7%) > PF (4%), and EF (32%) > KM (24%) > E (16%) > II (15%) > PF (0%) for CAD (p<0.05, Kruskal-Wallis test). GHC showed significantly better adherence to SD than to CAD (p<0.05, Mann-Whitney test).

**Conclusions** Caries-induced demineralization of hard dental tissues affects the quality of GHC/ and GIC/CAD dentin interface. When compared to C- and RM-GIC, GHC shows better seal of primary dentin.