東京医科歯科大学

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第24回グローバルCOE海外研究者講演会共催

歯と骨の分子疾患科学の国際教育研究拠点
ーデント・メドミクスのインテリジェンスハブー

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日時：２０１０年３月２３日（火）１７時～１９時
場所：歯学部校舎棟５階
保存矯正示説室

演題：『Adhesion of loaded direct and indirect composite MOD restorations』

抄録

Objectives: To investigate the effect of loading on the microtensile bond strength and microleakage of MOD direct and indirect composite restorations bonded with self-etching/etch and rinse adhesives and self-adhesive/adhesive resin cements.

Methods: Class II MOD cavities were prepared into the dentine of extracted molar teeth. Cavities for restoration with direct composite resin (Gradia or Venus) were bonded with one of 6 adhesives (G-Bond, Optibond Solo Plus, i Bond total etch, XP Bond, Scotchbond XT, ExcIte). Indirect composite resin inlays were fabricated in either Gradia Indirect or Estenia C & B and luted with one of 4 cements (Fuji Cem, Nexus 3, Panavia F, Rely X Unicem, SA Cement. The enamel margins of the proximal boxes of half the cavities for the indirect restorations were etched with phosphoric acid. After restoration, the teeth were mechanically loaded at 2.5 cycles/second for 250,000 cycles. The unloaded teeth acted as controls. The teeth were stored in rhodamine solution for 24 hours and sectioned bucco-lingually at the proximal boxes to examine microleakage using confocal microscopy. The restorations were further sectioned for μTBS testing of the resin-dentine interface. Analysis of variance was performed to assess the effect of loading and acid-etching on microleakage and microtensile bond strength.

Results: Regarding the direct restorations, loading had no significant effect on the bond strength of G-Bond, i Bond total etch, Scotchbond XT, and Excite. The bond strengths of Optibond Solo Plus and XP Bond decreased significantly after loading. With regards to the indirect restorations, Fuji Cem exhibited significantly lower bond strengths than the resin cements. Of the tested resin cements, Panavia F exhibited a significant reduction in bond strength after loading. However, there was no significant difference between the resin cements after loading.
Enamel acid etching had no effect on microleakage. With regards to the direct restorations, loading did not have a significant effect on microleakage and there were no significant differences between the adhesives. Concerning the indirect restorations, loading had no effect on microleakage at the cavity floor.

Conclusions: The effect of loading on the direct restorations depended upon the adhesive used. With regards to the indirect restorations, the two tested self-adhesive cements exhibited similar bond strengths and microleakage to the tested adhesive and esthetic resin cements when luted to indirect composite restorations. Prior acid etching of the enamel margins is not indicated. Resin-modified glass ionomer cement is not recommended for luting indirect composite restorations.

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