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Shear Bond Strength of Direct Restorative Gallium Alloys Compared 1Nith Selected Dental Amalgam Alloys

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The objective of this research was to study the shear bond strength of direct restorative gallium alloys compared with selected types of amalgam alloys. Cylindrical shaped Test specimens were used for all amalgam or Gallium alloys. Also, Specimens from these alloys bonded to dentin surfaces by adhesive liner (stored in distilled water at 37 ^{o}C) were also tested. Storage times varied from 24 hours, 7 days, 3 months, and 6 months. Shear bond strength test was achieved using universal testing machine. Dimensional change of a variety of specimens was studied and recorded. Mode of fracture was also studied and determined using stereographic microscope. The results of this study revealed that shear bond strength of amalgam to dentin was significantly affected by both material and storage time. Dimensional changes were experienced by different specimens with and without bonding liner adhesive (storage time was also considered). Examination of failing specimens, made from amalgam alloys, under direct shear revealed that mixed mode was prevailing in most cases. However, specimens made from Gallium alloys failed primarily within the adhesive layer.

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