Abstract
Biodentine as a Base under CEREC Restorations

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Objective: In this study, we are seeking to determine the viability of Biodentine as a base under CEREC restorations.

Method: In order to determine the compatibility of Biodentine with Cerec, capsules mounted in acrylic were filled with Biodentine, set at differing time intervals, and sprayed with titanium dioxide. Samples were bonded to Esthet-X composite-tags and stored in 100% humidity at 37°C for 24 hours. The Biodentine-composite bond strength was tested using an Instron. Forty non-carious, non-restored extracted molars were mounted in epoxy-resin and prepared for mesial occlusal inlay restorations with a large simulated mesial carious lesion and a roughened pulpal floor. Biodentine was placed to fill the lesion and smooth the floor. No base material was placed in the remaining twenty samples. All samples were scanned into CEREC, and inlays were milled with porcelain blocks. To measure overmilling, light body Aquasil was placed between the preparation and the fully seated restoration. The CEREC restoration was cemented in place, and the compressive strength was tested with an Instron.

Result: In testing the compatibility of Biodentine with the CEREC powder, it was determined that at all intervals the composite-Biodentine bond strength was not significantly different. The samples with Biodentine had an average compressive strength of 976.4N(S.D.262N), and the samples without Biodentine had an average compressive strength of 941.7N(S.D.150N). The Biodentine samples averaged an impression material thickness of 0.2mm while the non-Biodentine samples averaged an impression material thickness of 0.4mm. The compatibility studies show that Biodentine can be used as a base for CEREC restorations. The Instron data showed no compromise to the restoration with Biodentine. The most interesting result is the difference in thickness of impression material between samples leading to more accurate milling, better marginal adaptation, and subsequently less recurrent decay.

Conclusion: Biodentine shows promise in conjunction with CEREC.

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