

ORIGINAL ARTICLE

Paedodontics

The effect of working time on the displacement of Biodentine™ beneath prefabricated stainless steel crown: a laboratory study

Abstract:

Objective: To investigate the displacement of Biodentine™ following cementation of stainless steel crowns (SSC) with glass-ionomer cement (GIC) on plastic

Methods: Twenty plastic teeth with prepared occlusal cavities were divided into four groups and had Biodentine™ placed as a mock pulpotomy agent. The pulp chamber was filled with freshly mixed Biodentine™ then a GIC-loaded SSC was seated on the tooth using a standardized seating force for periods of: 1 min (Group 1); 2 min (Group 2), 3 min (Group 3) and 6 min (Group 4) after mixing. After 24 h at 37°C and 90% humidity, the crowns were sectioned mesio-distally and standardized digital photographs taken. Image analysis software was used to determine the ratio of the surface area of displaced Biodentine™ relative to the surface area of the pulp chamber. The thinnest section of the remaining Biodentine™ was measured.

Results: The lowest values of Biodentine™ displacement and the highest values of remaining Biodentine™ thickness were associated with Group 4. There were no significant differences between the results in Group 3 and Group 4.

Conclusion: Within the limitations of this in vitro study, a GIC-loaded SSC can be seated on Biodentine™ placed into a pulp chamber 3 min after mixing.