

EVALUATION OF AN EXPERIMENTAL SCREW-RETAINED RETRIEVABLE CROWN VERSUS CONVENTIONAL CROWN DESIGN

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Abstract

Statement of problem: Removing cemented crowns is usually a complicated procedure that may lead to irreversible damage to the tooth/crown and mostly necessitate remake of crown with added effort for both patient and clinician.

Purpose: This in-vitro study evaluated an experimental two-component, screw-retained retrievable crown design in comparison to the conventional design.

Materials and methods: A total of 120 extracted maxillary 2nd premolars received root canal treatment and were divided into two groups (n=60 each) according to the crown design they will receive. Gp CC received a threaded modified post, a composite core and a metal coping, while Gp RC received a two-component retrievable crown design. Fracture resistance was assessed by a 90 degrees vertical load to the center of the occlusal surface, using universal testing machine, under a constant crosshead speed of 0.5 mm/min until failure. Microleakage was assessed by placing specimens in methylene blue dye for 12 hours, sectioning the teeth longitudinally, and then examining the sectioned samples under stereomicroscope. Retrievability testing was conducted by 5 prosthodontists who attempted to uncover and unscrew the posts. Data were statistically evaluated using computer software (SPSS version 17; SPSS Inc.). Results: No significant difference between the 2 designs tested regarding microleakage tests ($P=.34$) whereas the experimental design, was significantly more resistant to fracture and more retrievable than the conventional one ($P>.5$). Conclusions: The proposed retrievable crown design showed promising results and may be considered as an option to substitute the conventional design. Further studies are needed to confirm that.

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