

**EVALUATION OF MARGINAL ADAPTATION
AND MICROLEAKAGE OF TWO DIFFERENT
TYPES OF ZIRCONIA CROWNS WITH THAT OF
A GLASS CERAMIC CROWN LUTED WITH
RESIN CEMENT: A COMPARATIVE IN VITRO
STUDY.**

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BRANCH I

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ABSTRACT

INTRODUCTION:

An alternative to metal ceramic restoration is the All Ceramic restoration. The use of All Ceramic restorations has substantially increased over the last 20 years for the restoration of anterior and posterior teeth. In achieving an aesthetically and functionally ideal restorations, three main factors- aesthetic value, resistance to fracture and marginal adaptation are responsible for success of every dental restoration. However, the longevity of fixed prosthodontics depends upon the quality of the marginal adaptation to the abutment teeth.

Inadequate marginal adaptation lead to plaque accumulation which increases the risk of carious lesions, in turn can cause microleakage and endodontic inflammation and finally terminates to periodontal diseases.

Here, the purpose of the present study is to evaluate the marginal adaptation and microleakage of different types of metal-free ceramic crowns.

AIMS AND OBJECTIVES:

1. Comparison of marginal adaptation of two different types of zirconia crowns, with a glass ceramic crown.
2. Comparison of microleakage of two different types of zirconia crowns, with a glass ceramic crown.

METHODOLOGY:

In the present study, maxillary first premolar is prepared to receive All ceramic restoration and impression made using addition silicone putty to make wax tooth replica then it was casted for a cobalt-chromium tooth model. 30 heat cure acrylic replicas are fabricated from the metallic die. Then 30 All Ceramic crowns were fabricated for the heat cure acrylic tooth models [20 zirconia crowns - 10 of each system and 10 glass ceramic crowns]. The experimental group were divided according to the types zirconia and glass ceramics into 3 groups.

The constructed All ceramic crowns were luted to the acrylic tooth models using self adhesive resin luting cement. The luted crowns were dipped into 0.1% methylene blue solution. Sectioning of luted crowns were done by diamond wheel disc of 0.01mm thickness.

The marginal discrepancy between the All ceramic crowns were then measured with scanning electron microscope at magnification of 400X.

Microleakage were measured with stereomicroscope of 4X magnification. The measurements were made at buccal and lingual cervical margins. The images were captured and later transformed to the computer.

RESULTS

The results of the study indicated that IPS e-max (pressable glass ceramics) crowns have less marginal gap and microleakage compared to LAVA Zirconia crowns and DENTCARE Zirconia crowns

SUMMARY AND CONCLUSION

Based on the observations in this study, it was concluded that IPS e-max (pressable glass ceramics) crowns have less marginal gap and microleakage. However further clinical research is suggested in order to prove it as a reliable and successful treatment modality.