IN VITRO COMPARATIVE ASSESSMENT OF THE EFFECT OF GUTTA-FUSION OBTURATION ON THE PUSH OUT BOND STRENGHT OF THREE TYPES OF SEALERS

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ABSTARCT

Background: The bond strength of the root canal sealers to dentin is very important property for maintaining the integrity and the seal of root canal filling. The aim of this study was to evaluate and compare the push-out bond strength of root filled with total fill Bioceramic, AH Plus and Gutta-flow®2 sealers using GuttaFusion®obturation system versus single cone obturation technique.

Materials and method: sixty of mandibular premolars teeth with straight roots were used in this study, these roots were instrumented using Reciproc system, instrumentation were done with copious irrigation of 3 mL 5.25% sodium hypochlorite solution (NaOCl) during all the steps of preparation, and smear layer will be removed with 1 ml of 17% EDTA kept in the canal for 1 min, roots were randomly divided into two groups according to the obturation technique (thirty teeth for each group):

Group I: Single Reciproc Gutta percha cone obturation technique, Group II: Gutta fusion obturation technique, then each group divided into three subgroup according to the type of sealer, AH subgroup: AH Plus sealer, BC subgroup: Bioceramic sealer and GF subgroup: Gutta flow 2 sealer. The roots then stored in moist environment at 37°C for one week, the roots were embedded in clear acrylic resin and each root sectioned into three levels apical, middle and cervical. The bond strength was measured using computerized universal testing machine each section fixed in the machine so that the load applied from apical to cervical direction at 0.5mm/min. speed and the computer show the higher bond force before dislodgment of the filling material. These forces were divided by the surface area to obtain the bond strength in MPa.

Results: Statistical analysis was performed and the result showed a highly significant differences between the three types of sealers when the same obturation technique were used, also there is highly significant differences between two groups with two different obturation technique.

Conclusion: This study showed that the push out bond strength of AH plus sealer was higher than Bioceramic sealer and Gutta flow 2 sealer respectively when the same obturation technique was used. The push out bond strength was affected by the obturation technique and Gutta fusion obturation technique showed higher bond strength than single cone obturation technique when the same type of sealer was used.

Key words: push-out test, bond strength, endodontic sealers, Gutta fusion.

Professional Biography

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