

Republic of Iraq
Ministry of Higher education
& Scientific Research
University of Baghdad
College of Dentistry



**Intra canal adaption, intradentintotubular
penetration and push out bond strength of AH Plus,
Guttaflow bioseal, MTA Fillapex and TotalFill
bioceramic sealer**

An invitro comparative study

A Thesis

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Abstract

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The purpose of this study was to evaluate the intracanal adaptation, intratubular penetration, and push-out bond strength of Total fill Bioceramic, AH Plus, Gutta-flow BIOSEAL and MTA Fillapex (MTAF) sealers.

Sixty freshly extracted human lower 1st premolars were collected, drowned, and endodontically filled using different types of sealers by using thermafil obturation technique. Specimens were randomly divided into four groups (A, B, C, and D) (n=15) depending on the sealer type (Total Full Bioceramic, AH Plus, Gutta-flow BIOSEAL and MTA Fillapex sealers respectively). The used sealer in five samples from each group was mixed with 0.1% fluorescein die before obturating the canals. These samples then were embedded in clear acrylic before sectioning into 0.5mm disks at 3, 7 and 11mm from the root apex. Disks were examined by fluorescent microscope to identify the intradentotubular penetration of the root canal sealers. The rest samples (n=10 in each group) were sectioned into 2mm thickness at the same positions from root apex. These samples were examined by stereoscope to measure the root filling adaptation before testing the push-out bond strength.

The results of the adaptability, and push out bond strength tests have shown statistically significant higher values for the Total Fill Bioceramic sealer with mean values ($4.01 \pm .544$, $3.53 \pm .470$, $2.57 \pm .574$) at the coronal, middle and apical regions. respectively in comparison to the other types of sealers within all regions of the tested roots, especially within the apical sections. However, no statistically significant differences have been detected in the sealer penetration test among all sealer groups which may suggested further future analysis using more sensitive testing procedure.

Conclusions: The Total fill Bioceamic sealer has better Intracanal adaptation and push out bond strength in comparison to other types of sealers used in this

study. The use of this sealer may improve the success rate with better prognosis for endodontic treatment outcomes.



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التكيف داخل القناة ، والاختراق داخل القنوات العاجية ، ودفع قوة
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