



Republic of Iraq
Ministry of Higher Education
and Scientific Research
University of Baghdad
College of Dentistry



**A STEREOMICROSCOPIC EVALUATION OF
FOUR ENDODONTIC SEALERS PENETRATED
INTO ARTIFICIAL LATERAL CANALS USING
SINGLE CONE TECHNIQUE**

This thesis is submitted to the Council of the College of Dentistry/University
of Baghdad in partial fulfillment of the requirement for the degree of
master science in conservative dentistry

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ABSTRACT

The obturation of all root canal space including lateral canals in root canals treatment is very important to isolate the remnant microorganisms if present and consequently successes of such treatment.

Aim of the study: Evaluate the filling ability of four different sealer (TotalFill® BC, GuttaFlow bioseal, MTA fill apex and AH- plus) to the artificial lateral canals when main canal obturated with single cone technique.

Materials and method: Forty single-rooted extracted mandibular premolars were instrumented up to size X2 (protaper Next, Dentsply) then drilled three artificial lateral canals in each mesial and distal aspects for an apical, middle and coronal third of the roots then randomly divided into four groups (n=10) each group was obturated with single cone gutta-percha with deferent sealers G1: calcium silicate-based sealer TotalFill® BC Sealer™(FKG), G2: ROEKO GuttaFlow® bioseal(COLTEN), G3: MTA Fillapex(ANGELUS) and G4: AH Plus® (DENTSPLY)

The teeth were demineralize with week acid (3% hydrochloric acid,7% formic acid and 8% sodium citrate in aqueous solution) to evaluate the penetration of sealers into artificial lateral canals by stereomicroscope. The significance of the difference of different means (quantitative data) were tested using Students-t-test for the difference between two independent means.

Result: For all ALCs of roots, the GUTTAFLOW BIOSEAL sealer had the highest mean penetration (94.83 ± 6.29) which was significantly higher than

the penetration of AH-PLUS (p-value 0.030), MTA-FILLAPEX (p-value 0.0001) and Totallfill BC® (p-value 0.001).

GUTTAFLOW BIOSEAL sealer in the coronal third had the highest mean penetration which was significantly higher than the penetration of Totallfill BC (p-value 0.049) and MTA-FILLAPEX (p-value 0.002) and not significant with AH-PLUS (p-value 0.227). In the middle third also significantly higher than the penetration of Totallfill BC® (p-value 0.017) and MTA-FILLAPEX (p-value 0.007) and not significant with AH-PLUS (p-value 0.278). The same in the apical third which was significantly higher than the penetration of Totallfill BC® (p-value 0.0001) and MTA-FILLAPEX (p-value 0.003) and not significant with AH-PLUS (p-value 0.054).

In conclusion, GUTTAFLOW BIOSEAL had more penetration ability to the lateral canals than Totallfill BC and MTA-FILLAPEX in each root third with no significant differences with AH-PLUS sealer.



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تقييم تجسيمي لاختراق أربعة أنواع من السدادات اللبية المختلفة الى
القنوات الجانبية الاصطناعية بعد اكمال حشوة الجذر باستخدام تقنية
المخروط الواحد من الجيتابيركا

رسالة مقدمة إلى

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