

IADR Abstract Archives

Efficacy of XP-Endo Finisher in Mandibular Molars: Micro CT Analysis

Objectives: To investigate the percentage of root canal surface instrumentation by XP-endo Finisher NiTi file (*XPF*) in mandibular molars, using Micro-Computed Tomography (μ CT) imaging.

Methods: Thirty-seven mandibular molars were scanned using μ CT scans at a high resolution of $26\mu\text{m}$. Twenty-four molars were selected and divided into 2 groups based on stratified randomisation of canal space volume, canal anatomy, degree of curvature and canal dimensions. Molars were scanned with μ CT at $20\mu\text{m}$ resolution pre-preparation and post-preparation. Group-1 was prepared using XP-endo Shaper (XPS). Group-2 was prepared using ProTaper Next (PTN). Both groups were then prepared using XPF. A single operator undertook all the preparation. Images were reconstructed in three-dimensions, to allow analysis using Materialise package.

Data were recorded and analysed in SPSS-22 software using Univariate analysis and descriptive statistics.

Results: The results showed difference in canal space volume between pre and post preparation in mesial roots with a mean of $= 166618.14 \mu\text{m}^3$, SD = 158807.3 with XPF-in XPS group compared with mean $= 183219.26 \mu\text{m}^3$, SD = 202804 with XPF-in PTN group. In distal roots group 1 showed a mean $= 903514.64$, SD = 2400513.8 compared with a mean $= 999308.34$, SD = 2722310.4 in group 2. The mean percentage of root canal wall instrumentation with XPF in XPS group was $= 5.5\%$, SD = 3.4 in mesial roots and 6.7% , SD = 5.7, in distal roots. For XPF in PTN group the percentage was mean $= 5.9\%$, SD = 5 in mesial roots and mean $= 5.6\%$, SD = 5.6 in distal roots. There was no statistically significant effect on percentage of instrumentation or difference in volume with XPF when used after XPS or PTN.

Conclusions: Within the limitations of the study, XPF used as a finisher file after XPS and PTN improved the percentage of root canal wall instrumentation without significant further loss of root dentine.

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SESSION INFORMATION

Poster Session

Cariology Research: Detection and Imaging Techniques for Dental Caries

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