Evaluation of the New Terauchi File Retrieval Kit (TFRK) Versus Modified ET25 Ultrasonic Tip on Retrieval Time and Success Rate of Removal of Fractured Files from Middle Third of Root Canals. (A Comparative in Vitro Study)

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Method Article

Keywords:

Posted Date: August 1st, 2023

DOI: https://doi.org/10.21203/rs.3.pex-2314/v1

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Abstract

Objective: the aim of this study is to evaluate the retrieval time, success rate and amount of remaining dentin thickness after removal of separated instruments from middle third of mesial canals of mandibular molar with moderate curvature (10-20°) according to Schneider's classification with: Terauchi ultrasonic tips of (TFRK-new) kit (Woodpecker, medical co., Shanghai, China), modified ET25L ultrasonic tip (Satelec Corp, Merignac Cedex, France), and stock ET25L ultrasonic tip (Satelec Corp, Merignac Cedex, France).

Methodology: a total of 24 human extracted mandibular molar teeth with moderate curvature are selected. Following mesial canals preparations, a CBCT image will be taken before instrument separation. After that, instruments will be fractured in the middle third of mesial canals and confirmed with periapical radiograph. Teeth will be divided into three groups based on the ultrasonic tip to be used for instrument removal: Group 1 (I1): size 25, 6% separated instrument retrieved using ultrasonic tips of (TFRK-new) kit, group 2 (I2): size 25, 6% separated instrument retrieved using modified ET25L ultrasonic tip, and group 3 (control): size 25, 6% separated instrument retrieved using stock ET25L ultrasonic tip.

Procedure

1. Mesial canals preparation.

2. Placement of samples in resin mold and CBCT imaging.

3. Instrument separation in middle third of mesial canals and confirmed with periapical radiograph.

4. Instrument retrieval using different ultrasonic tips.