Comparative Study of Three Different Systems for Removal of Gutta-Percha during Retreatment

Thesis

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BY

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Dedication

To my Dearest Father

To my Geat Mother

To my lovely wife& daughter

To my Dear brother & my Sweet sister

Acknowledgement

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One of the main causes of endodontic failure making the retreatment necessary is thought to be when infection persists [1, 2]. This may be due to insufficient cleaning, inadequate obturation, unfilled or untreated canals, or under extended root canal fillings. That will leave necrotic tissue or bacteria beneath gutta-percha or sealer which will require retreatment.

The main goal of orthograde nonsurgical retreatment is to reestablish healthy periapical tissue [3], which is only obtained by removal of filling material completely and canal negotiated to apical foramen, re-instrumentation and re-disinfection.

The process of retreatment itself is accompanied by many problems resulting from the known techniques used, which are hand files (Hedstrom-files), Gates-Glidden burs, Nickel-Titanium (NiTi) rotary instruments, ultra-sonic instruments and heat carrying instruments. These problems were mainly a) extruded debris from the apex at the periapical area b) canal transportation and ledging c) incomplete removal of gutta-percha especially in the curved canals and d) long chair time required to complete the retreatment.

Introduction of infected debris loaded with millions of bacteria into the periapical tissue causes flare up phenomena

which is always associated with pain and swelling during and after completion of the root canal therapy. Many researches confirmed that there is some debris forced out of the apex during instrumentation with different amount according to the technique of instrumentation used [4-6]

Canal transportation and ledging are also a standing problem against successful and convenient instrumentation and Obturation of the canal. Many researches over the last 20 years had studied the effect of different hand and rotary instruments on the canal shape [7]

Successful retreatment obligates removal as much as possible of the gutta-percha from the canal. Many techniques go far in this and were proved to do good job in the round cross-section canals. However, these techniques showed much less success in oval cross section canals. They left much remaining gutta-percha on the long dimension of the canal.[8-10]

New systems which are specially designed for retreatment have been recently introduced in the market. Of these, Mtwo-R (retreatment) rotary files, RaCe rotary instruments and ultra-sonic tips.

Deficient literature and up-to-date knowledge in evaluating the effectiveness of these instruments in removal of the gutta-percha from the canal, their safety, apically extruded debris & chair time have stimulated the formulation of this study.