Removal Of Different Root Canal Filling Materials Using Two Nickel-Titanium Rotary Systems

Thesis

Submitted to the Endodontic Department, Faculty of Dentistry, Ain Shams University

For

Partial fulfillment of requirements of the Master Degree in Endodontics

By

Hebatullah Mohammed Adel Saleh

B.D.S.
(Faculty of Dentistry, Ain Shams University, 2007)

2013

Supervisors

Prof. Dr. Ehab El-Sayed Hasanein

Professor of Endodontics

Chairman of Endodontic Department,

Faculty of Dentistry, Ain-Shams University

Ass. Prof. Dr. Kariem Mostafa El-Batouty

Assistant Professor of Endodontics

Endodontic Department,

Faculty of Dentistry, Ain-Shams University

Dedication

To my dearest family

For their kindness and devotion

And for their endless support

Acknowledgement

I would like to express my deepest gratitude to ***Professor Dr. Ehab El-Sayed Hassaneen***, Chairman of Endodontic department, Faculty of Dentistry, Ain Shams University for his enthusiastic help and his generous guidance and effort during my academic and clinical work.

I would also like to thank ***Dr. Kariem Mostafa El Batouty***, Assistant Professor of Endodontics, Faculty of Dentistry, Ain Shams University for his enormous effort, help, and advice. Also I would like to thank him for his encouragement and co-operation during my work.

Finally, gratitude is due to all stuff members and colleagues of Endodontic department; without their teaching and help, I would not been able to accomplish this work. And special thanks to ***Dr. Shehab El-Din Mohammed Saber***, Assistant Professor of Endodontics, Faculty of Dentistry, Ain Shams University for his valuable help at statistical analysis.

List of Contents

List of Figures

List of Tables

Root canal therapy, despite having a high degree of success, may not lead to the desired response, and failure may occur [1-3]. When root canal therapy fails, treatment options include conventional retreatment, periradicular surgery, or extraction. Whenever possible, the nonsurgical retreatment option is preferred because it is the most conservative method to solve the problem [4]. The main goal of retreatment is to regain access to the apical foramen by complete removal of the root canal filling material, thereby facilitating sufficient cleaning and shaping of the root canal system and final proper obturation [5-6].

Today it has not been proven that removing all obturation material will ensure success of endodontic retreatment and that remaining gutta-percha or sealer will cause the retreatment to fail [7]. However, removing as much sealer and core as possible from inadequately prepared and obturated root canal systems is critical in order to uncover remnants of necrotic tissue or bacteria that may be responsible for periapical inflammation and failure [8].

Many materials are being used for the filling of root canals, of which gutta-percha with a variety of sealers is the most common [9]. However, lately, various resin-based root canal filling materials have been developed to establish a core-sealer-dentin continuum to the end of preventing microleakage and improving the fracture resistance of root-filled teeth [10, 11].

A variety of techniques have been advocated for the removal of gutta-percha from the root canal system including manual endodontic hand instruments [12, 13] facilitated by solvents such as chloroform, xylol, eucalyptol, halothane, orange oil [14, 15], or