Evaluation of the Reciprocation Technique of Single (SU) File Versus the Conventional Rotary Sequence of the Revo-S Files in Curved Root Canals (An In Vitro Study)

Thesis submitted to the Faculty of Dentistry, Ain Shams University, in partial fulfillment for requirements for Master Degree in

Endodontics

By

Nawar Muhammad Naguib Muhammad Nawar

B.D.S (2008) Ain Shams University

Department of Endodontics

Faculty of Dentistry

Ain Shams University

2014

Supervisors

Dr. Salma Hassan El-Ashri

Professor of Endodontic

Faculty of Dentistry

Ain Shams University

Dr. Abeer Abdel-Hakeem Mahmoud Mohamed El-Gendy

Associate professor of Endodontic

Faculty of Dentistry

Ain Shams University

بسم الله الرحمن الرحيم

قَالُوا سُبْحَانَكَ لاَ عِلْمَ لَنَا
إِلاَّ مَا عَلَّمْتَنَا إِنَّكَ أَنتَ
الْعَلِيمُ الْحَكِيمُ

صدق الله العظيم
سورة البقرة الآية (٣٢)

Dedication

I would like to dedicate my Master thesis to my Mother, everything started the moment you taught me how to grasp a pencil.

I dedicate it also to my Father, Brother, NUB friends and childhood friends who have given me day by day support when progress was slow and morale was flagging and when there was much disappointment to overcome.

Acknowledgement

First of all thanks to almighty Allah the most kind and most merciful.

I wish to express my deepest gratitude and sincere appreciation to Dr. Salma Hassan El-Ashri Professor of Endodontic Faculty of Dentistry Ain Shams University. Her guidance and collaboration helped me to overcome the obstacles and difficulties that arose along the way until my thesis got completed.

I would like to thank Dr. Abeer Abdel-Hakeem Mahmoud Mohamed El-Gendy associate professor of Endodontic Faculty of Dentistry Ain Shams University for offering me much of her time, effort and support throughout the whole work.

Nawar Muhammad Naguib

List of Contents:

Introduction

Introduction

Endodontic therapy is quite complex. Each clinical situation is unique, but the final objective remains identical: to preserve the natural tooth functional and asymptomatic.

Achieving this objective depends upon numerous factors among which the most important is probably the shaping performed to optimize the root canal disinfection. It is influenced not only by the clinician's experience, but also by the complexity of the root canal anatomy, as well as the clinician's armamentarium, this includes Nickel-titanium (NiTi) rotary endodontic instruments that gained increased popularity within the dental profession due to their many favorable characteristics compared to their stainless steel hand files predecessor.

Technological advances led to dramtic improvements in the ability to shape root canals with fewer complications; however, few of these actually addressed the inherent problems that have become apparent with this type of instruments. NiTi instruments are expensive, which limits their usage in poorer regions of the world and /or forces practitioners to use instruments repeatedly.

When shaping canals, it should be appreciated that there are both advantages and disadvantages associated with utilizing continuous rotating versus a reciprocating

motion. The greater tactile touch gained and less inward pressure required when continuously rotating NiTi in curved canals must be balanced with the inherent risks associated with torque and cyclic fatigue failures.

On the other hand, file reciprocation reduces the various risks associated with continuously rotating a file through curvatures. It also considerably reduces the learning curve and is more cost effective.

The present study focuses on the applicability of reciprocating the Revo-S Shaping Universal (SU) endodontic instrument. If applicable, this will be extremely feasible because of its asymmetrical cutting profile as well as the manufacturer suggestions that the Revo-S instruments can be used several times.