

**Republic of Iraq
Ministry of Higher Education
And Scientific Research
University of Baghdad
College of Dentistry**



**The Effect of Ultrasonic Agitation of the Final Solvent
Rinse Following Two Endodontic Retreatment Protocols
on the Removal of Residual Obturation Materials**

An ex vivo study

A Thesis Submitted to the Council of the College of Dentistry at the
University of Baghdad in Partial Fulfillment of the Requirements for
the Degree of Master Science in Conservative Dentistry

By:

Sarah Muayad Mahmood

B.D.S

Supervised by:

Asst.Prof. Dr. Saifalarab A. Mohmmmed

B.D.S., M.Sc., PhD

2020 A.D

1441 A.H

Abstract

The complete removal of the obturation materials from the root canal walls is the key for successful endodontic retreatment.

The aim of this study was to investigate the effectiveness of ultrasonic activation of two different solvents (Orange oil, Chloroform), after the use of two retreatment systems (Protaper universal retreatment system and Reciproc R25).

Eighty mandibular premolars were used. The teeth were set to 19 mm length by removing a part of the crown. All samples were prepared using rotary Protaper universal system up to size F3, then obturated using same size Gutta percha. The samples were divided into 2 main groups (Protaper and ReciprocR25 retreatment systems) N=40. Each group were subdivided into 5 subgroups [no solvent, Orange oil (with or without ultrasonic activation), Chloroform (with or without ultrasonic activation)] N=8. The retreatment systems were used according to the manufacturer's instruction. The samples were then sectioned longitudinally and imaged under digital microscope. Thirty samples were prepared for Scanning Electron Microscope observation.

Within the Protaper universal retreatment system, the results showed that there were significant differences between the Chloroform (without or with activation) and both control and Orange oil groups.

Within Reciproc R25 groups, there was significant differences between the Chloroform with activation and the control groups. Chloroform groups showed less residual obturation materials, this could be due to the higher solubility of Gutta Percha in Chloroform

There were significant differences between Protaper and Reciproc R25 retreatment systems. Reciproc R25 showed better results, this could be due to the S cross sectional shape of Reciproc R25.

In conclusion, the solvent reduced the amount of residual obturation materials. Ultrasonic activation gave better results. Reciproc R25 retreatment systems showed better results in terms of removing the obturation materials.