

**The effect of removal of the root  
canal filling material on the coronal  
leakage of two different obturating  
materials**

**(An in vitro study)**

***Thesis***

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

﴿قَالُوا سُبْحَنَكَ لَا عِلْمَ

لَنَا إِلَّا مَا عَلَّمْتَنَا<sup>صَلِّ</sup> إِنَّكَ

أَنْتَ الْعَلِيمُ الْحَكِيمُ﴾

صَدَقَ اللَّهُ الْعَظِيمُ

(الآية ٣٢ من سورة البقرة)

# ***Dedication***

***To my great loving family***

***To my precious & lovely spouse***

***To my patients***

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# **CHAPTER 1**

## **INTRODUCTION**

Adequate obturation of root canal system following intra canal preparation is a major step of endodontic treatment. The objectives of the root canal space obturation are to prevent leakage of microorganisms or nutrients from the oral cavity and the peroradicular tissues into the root canal system, and seal any microorganisms that could not be entirely removed during cleaning and shaping procedures.

A great deal of attention has been given to the evaluation of the sealing ability of the root canal filling materials, sealers, and associated obturation techniques. Various test methods have been used to evaluate the quality of seal, such as dye penetration and dye extraction methods, radioactive isotopes, bacteria and metabolites leakage tests, glucose leakage test, and the fluid filtration method.

Many materials have been advocated for obturation of root canal system. Gutta-percha has always been the material of choice for obturation of root canal system. It's considered to be the standard to which other root canal filling materials are compared. Recently, resin-based obturation systems, such as RealSeal and Epiphany, were introduced as an alternative to gutta-percha. Manufacturers of these systems claimed that they have a superior sealing ability compared to that of gutta-percha.

Removal of root canal filling materials to place dowels to restore a badly broken down endodontically treated tooth is a common clinical procedure. This procedure might affect the integrity of the obturating material jeopardizing its long term sealing ability. Therefore, conducting a study

to evaluate the effect of removal of different root canal filling materials on the coronal leakage was thought to be of value.

# **CHAPTER 2**

## **REVIEW OF THE LITERATURE**