



Canal Cleaning Ability of Endovac System Using Different Irrigants: An In-vitro Study

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Dedication

I would like to dedicate this work to my adorable and most precious girls whom I really love and adore Alia and Laila.

And finally I would to dedicate this work for my friend Heba Fahmy whom I dreamt to be with us, may she rest in peace, love you Heba.

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CONTENTS

	Page
LIST OF TABLE	I
LIST OF FIGURES	II
LIST OF ABBREVIATIONS	VI
INTRODUCTION.....	1
REVIEW OF LITERATURE	3
Negative pressure agitation technique.....	3
Endovac irrigation device	3
Irrigating solutions.....	16
Sodium hypochlorite	17
EDTA.....	28
Chlorohexidine	38
AIM OF THE STUDY	49
MATERIALS AND METHODS	50

RESULTS	61
DISCUSSION	105
SUMMARY AND CONCLUSION	110
RECOMMENDATION	114
REFERENCES.....	115
ARABIC SUMMARY	-

LIST OF TABLES

Table. No.	Title	Page
(1)	Debris Scoring	58
(2)	Smear layer scoring	60
(3)	Mean and standard deviation (SD) for Irrigants extruded apically using Endovac and Conventional syringe	61
(4)	Median and interquaternary ratio (IQR) of debris scores for Endovac and Conventional needle using same irrigating solutions.	63
(5)	Median and IQR of overall debris scores for different irrigating solutions (NaOCl, EDTA, CHX) with Endovac and conventional needle.	65
(6)	Median and IQR of overall debris scoring for the canal portions using different systems with different irrigating solutions.	65
(7)	Median and interquaternary ratio (IQR) of Smear layer scores of Endovac and conventional needle using different irrigants.	66
(8)	Median and IQR of smear scoring for different irrigating solutions (NaOCl, EDTA, CHX) using Ev and CN.	68
(9)	Mean and interquaternary ratio (IQR) of overall smear layer scoring of different canal portion on using different irrigation systems using different irrigating solutions.	76

LIST OF FIGURES

Fig. No.	Title	Page
1.	Endovac System(A)-master delivery tip is attached to a 20-cc syringe.(B)-The plastic hood surrounding the delivery tip is attached to the office HiVa	50
2.	The macro cannula of the Endovac	51
3.	The micro cannula of the Endovac	51
4.	apical negative pressure of Endovac	51
5.	irrigant collection apparatus was prepared similar to that described by Meyers and Montgomery	57
6.	apparatus collecting apically extruded irrigant and debris	57
7.	sensitive 3 Digit balance	57
8.	Scanning electron microscope	59
9.	Sputter coated root segments	59
10.	Bar chart showing mean score values of irrigant extruded using Endovac and Conventional needle	62
11.	Bar chart showing mean score value of overall debris scores of root canal	64
12.	Bar chart showing mean score value of debris scores of root canal irrigated with Ev.	65
13.	Bar chart showing mean score value of debris scores of root canal irrigated with conventional needle	66
14.	Bar chart showing mean score value of debris scores for root canal irrigated with Ev using different irrigating solutions	69

Fig. No.	Title	Page
15.	Bar chart showing mean score value of debris scores for root canal irrigated with CN using different irrigating solutions.	69
16.	SEM image of apical segments of root canal A) after using Ev as an irrigation device with NaOCl as final rinse. B) After using CN as an irrigation device with NaOCl as final rinse.	69
17.	SEM image of middle segments of root canal A) after using Ev as an irrigation device with NaOCl as final rinse. B) After using CN as an irrigation device with NaOCl as final rinse.	70
18.	SEM image of coronal segments of root canal A) after using Ev as an irrigation device with NaOCl as final rinse. B) After using CN as an irrigation device with NaOCl as final rinse.	70
19.	SEM image of apical segments of root canal A) after using Ev as an irrigation device with EDTA as final rinse. B) After using CN as an irrigation device with EDTA as final rinse.	71
20.	SEM image of middle segments of root canal A) after using Ev as an irrigation device with EDTA as final rinse. B) After using CN as an irrigation device with EDTA as final rinse.	71
21.	SEM image of coronal segments of root canal A) after using Ev as an irrigation device with EDTA as final rinse. B) After using CN as an irrigation device with EDTA as final rinse.	72
22.	SEM image of apical segments of root canal A) after using Ev as an irrigation device with CHX as final rinse. B) After using CN as an irrigation device with CHX as final rinse.	72

Fig. No.	Title	Page
23.	SEM image of middle segments of root canal A) after using Ev as an irrigation device with CHX as final rinse. B) After using CN as an irrigation device with CHX as final rinse.	73
24.	SEM image of coronal segments of root canal A) after using Ev as an irrigation device with CHX as final rinse. B) After using CN as an irrigation device with CHX as final rinse.	73
25.	Bar chart showing overall smear scoring of root canals irrigated with Ev and CN using different irrigants.	75
26.	Bar chart showing smear layer scoring for root canals irrigated with different irrigating solutions(NaOCl ,EDTA,CHX) using Ev.	76
27.	Bar chart showing smear layer scoring for root canals irrigated with different irrigating solutions(NaOCl ,EDTA,CHX) using CN.	77
28.	Bar Chart showing smear layer scoring for Ev using different irrigants.	80
29.	Bar Chart showing smear layer scoring for CN using different irrigants.	80
30.	SEM images of apical segments of root canal A) after using Ev as an irrigation device with NaOCl as final rinse. B) After using CN as an irrigation device with NaOCl as final rinse.	81
31.	SEM images of middle segments of root canal A) after using Ev as an irrigation device with NaOCl as final rinse. B) After using CN as an irrigation device with	81

Fig. No.	Title	Page
	NaOCl as final rinse.	
32.	SEM images of coronal segments of root canal A) after using Ev as an irrigation device with NaOCl as final rinse. B) After using CN as an irrigation device with NaOCl as final rinse.	82
33.	SEM images of apical segments of root canal A) after using Ev as an irrigation device with EDTA as final rinse. B) After using CN as an irrigation device with EDTA as final rinse.	82
34.	SEM images of middle segments of root canal A) after using Ev as an irrigation device with EDTA as final rinse. B) After using CN as an irrigation device with EDTA as final rinse.	83
35.	SEM images of coronal segments of root canal A) after using Ev as an irrigation device with EDTA as final rinse. B) After using CN as an irrigation device with EDTA as final rinse.	83
36.	SEM images of apical segments of root canal A) after using Ev as an irrigation device with CHX as final rinse. B) After using CN as an irrigation device with EDTA as final rinse.	84
37.	SEM images of middle segments of root canal A) after using Ev as an irrigation device with CHX as final rinse. B) After using CN as an irrigation device with EDTA as final rinse.	84
38.	SEM images of coronal segments of root canal A) after using Ev as an irrigation device with CHX as final rinse. B) After using CN as an irrigation device with EDTA as final rinse.	85

LIST OF ABBREVIATIONS

<i>NaOCl</i>	Sodium Hypochlorite
<i>EDTA</i>	Ethylenediaminetetraaceticacid
<i>CHX</i>	Chlorohexidine
<i>CN</i>	Conventional irrigation
<i>Ev</i>	Endovac
<i>EDTAC</i>	Ethylenediamine tetra-acetic acid plus Cetavlon
<i>SEM</i>	Scanning electron microscope
<i>Ea</i>	Endoactivator
<i>PUI</i>	Passive ultrasonic irrigation
<i>PI</i>	Passive irrigation
<i>WL</i>	Working length
<i>CEJ</i>	Cemento Enamel junction
<i>PCA</i>	Parachloroaniline
<i>H₂O₂</i>	Hydrogen peroxide
<i>PCR</i>	Polymerase chain reaction
<i>MDI</i>	Manual dynamic irrigation
<i>MDA</i>	Manual dynamic agitation
<i>CUI</i>	Continuous ultrasonic irrigation
<i>ANP</i>	Apical negative pressure

INTRODUCTION

Success of root canal therapy depends on the quality of several factors, including instrumentation, irrigation, disinfection and 3-dimensional obturation of the root canal. Mechanical and chemical effects of the irrigant solution are crucial during irrigation. Mechanical effects are generated by the flow and backflow of irrigant solutions in the root canal.

Ideally root canal irrigants should flush out debris, dissolve organic tissue, kill microbes, destroy microbial by products and remove the smear layer. To accomplish these objectives, there must be an effective delivery system to deliver the irrigating solution efficiently to the apical one third of the root canal.

Conventional irrigation using syringes as endodontic irrigating technique is still widely accepted by both general practitioners and endodontists. Some of these needles are designed to dispense an irrigant through their most distal ends whereas others are designed to deliver an irrigant laterally through closed ended side-vented channels.

Endovac system provides a constant flow of fresh irrigant to the working length. This patent pending system enables safe irrigation to the apical termination with an abundance of fresh and continuous irrigation solutions, unlike positive pressure systems which use cannulas to deliver irrigants in the canal. The Endovac system is a true apical negative pressure system that draws fluid apically by way of evacuation. In addition Endovac system provides cleaning, disinfection and smear layer removal during and after root canal preparation leading to maximum microbial control.