

## An evaluation of etiologic factors in 300 patients treated in undergraduate endodontic program

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### ABSTRACT

A survey was carried out to determine the various etiologic factors leading to root canal therapy .

The study included cases of root canal filling that had been done by undergraduate students in conservative department . Results of this study can be concluded in the following :

- 1.Necrotic pulp and irreversible pulpitis were the most frequent reasons for root canal filling and trauma was the second common reason .
- 2.The frequency of maxillary central incisor was the most often for endodontic therapy .
- 3.The frequency of endodontic therapy by arch showed three times as often in upper arch as in the lower arch .
- 4.Preoperative pain was noted in 58.3% of the patients .

**Key words:** Etiologic factors, endodontic therapy.

### الخلاصة

أجريت هذه الدراسة لبيان العوامل المسببة لمعالجات حشوة قنوات الحذور في مدينة الموصل ، تبيين

في النتائج مايلي :

1. ان حالات التهاب العصب السني اكثر المسببات لهذا العلاج .
2. ان نسبة العلاج في القواطع الامامية العلوي اكثر مقارنة بالغير .
3. ان نسبة العلاج في الفك العلوي اعلى بنسبة ثلاث مرات مقارنة مع الفك السفلي .
4. ان تواجد الالام قبل المعالجة كانت بنسبة 58.3 % .

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## INTRODUCTION

The most common causes for endodontic therapy are Bacterial , Traumatic , Iatrogenic , Chemical and idiopathic<sup>(1)</sup> .

Various studies have been performed for evaluation of the etiological factors which make the necessity of endodontic therapy .

It was demonstrated the reasons for endodontic treatment in an undergraduate dental school setting<sup>(2,3)</sup>. It was stated that dental caries was the common reason for endodontic therapy .

Cyr et al reported in their study that previous restorative treatment was the major cause of pulpal disease leading to root canal therapy<sup>(4)</sup> .

Yousef et al reported in their survey that necrotic pulp and irreversible pulpitis were the most common reasons for endodontic therapy<sup>(5)</sup> .

The purpose of this study was to evaluate the most common causes for endodontic therapy .

## MATERIALS AND METHODS

The survey demonstrated all endodontic treatment done by the final year students in conservative Department , College of Dentistry University of Mosul – Iraq during period of one calendar year .

Diagnosis was based on symptoms , medical and clinical history , clinical tests and radiographic finding and the reasons for treatment were recorded .

In this study the following terms were used .

**Necrotic pulp** : Applied to those teeth that gave no response to cold and electric pulp test .

Radiographic finding may or not showed periradicular pathosis . Caries was the most cause of necrosis .

**Trauma** : was applied to those teeth in which there was a history of trauma from physical impact to the teeth and supporting structures .

**Previous restoration** : Applied to those teeth which had been restored by deep seated filling materials including composite , silicate and acrylic .

The restored teeth may or may gave response to cold and electric pulp test.

**Irreversible pulpitis** : Applied to those cases in which the teeth have sensitivity and pain that lingered minutes after cold and hot stimulus was removed and also applied to any other types of pain related to pulp pathosis .

**Retreatment** : Those cases in which a root canal filling was unsuccessful .

**Restorative considerations** : Those teeth that lack sound tooth structure and need to be restored by a post - crown . The validity of all tests was based on comparison with contralateral sides. Radiographical examination may or may not demonstrated any periradicular pathosis .

## RESULTS

This study included 300 patients treated by undergraduate students. One hundred ninety four patients (64.7%) were male and one hundred six patients (35.3%) were female . The age of the patients ranged from 10 to 55 years . The mean age was (32.5) years .

Table (I) lists the common reasons for endodontic therapy in College of Dentistry University of Mosul - IRAQ .

The study revealed that necrotic pulp and irreversible pulpitis were the common causes for root filling 38.3% and 28.3 % respectively . Trauma was the second frequent cause for endodontic treatment 20.7%. The previous restoration and retreatment record 6.7% and 3%, respectively. While the restorative consideration was the least often for root canal therapy (2%).

Table (II) shows the number and percentage of maxillary and mandibular teeth . The study indicated that maxillary central incisor was the most frequent teeth needed root filling followed by maxillary first premolar. According to the arch (79.3%) was the frequency of patients who required endodontic therapy in upper arch while (20.7%) of patients required endodontic therapy in lower arch .

Total of patients (58.3%) had preoperative pain while 125 patients (41.7%) had not .

Table (I) . Reasons for treatment , number and percentage of endodontically treated patients in relation to their age .

Reason for root Canal therapy	No. of patient	%	Age mean ± S.D
Necrotic pulp	115	38.3	43.5 ± 11.8
Trauma	62	20.7	15 ± 5
Previous restoration	23	7.7	36.2 ± 9.3
Irreversible Pulpitis	85	28.3	34.1 ± 14.9
Retreatment	9	3	28.5 ± 12.7
Restorative consideration	6	2	38.0 ± 14.5
Total	300	100.	32.55 ± 9.09

Table (II) . Number and percentage of treated maxillary and mandibular teeth .

Teeth	No. of teeth	%
Maxillary		
Central incisor	80	26.7
Lateral incisor	32	10.7
Canine	25	8.4
First premolar	55	18.3
Second premolar	44	14.7
First molar	1	0.3
Second molar	1	0.3
Third molar	0	0.0
Total	238	79.4%
Mandibular		
Central incisor	7	2.3
Lateral incisor	9	3
Canine	5	1.7
First premolar	13	4.3
Second premolar	24	8
First molar	3	1
Second molar	1	0.3
Third molar	0	0
Total	62	20.6%
Over total	300	100.00%

## DISCUSSION

It was suggested that female patients who had root canal therapy outnumbered male patients. While other study reported that male and female were equally represented as patient<sup>(6)</sup>.

In this study male patients accounted 64.7% and female patients 35.3% . This might related to high incidence of trauma in young male .

The finding observed in this study shows that necrotic 38.3% and irreversible pulpitis 28.3% were the most often reasons for endodontic therapy and trauma 20.7%

was the second most frequent reason , while restorative consideration 2% was the least often reason .

This results is agrèement with study conducted by Yousef<sup>(5)</sup> who stated that a necrotic pulp and irreversible pulpits was the most frequent causes 36.9% , 36.1% respectively for endodontic therapy while trauma was the least often cause .

Maxillary central incisor was the most frequently treated tooth 26.7% for endodontic therapy . This finding was similar to that reported by Ingle et al<sup>(1)</sup> and Barbakow et al<sup>(6)</sup> 27.1% and 23.3% respectively while it differed from those reported by Serene<sup>(3)</sup> and Cry<sup>(4)</sup> Who found that maxillary first molar was the most frequently treated tooth . The frequency of endodontic treatment according to arch demonstrated almost equal distribution between maxillary and mandibular teeth in the studies of Serene<sup>(3)</sup> Cry<sup>(4)</sup> and Yousef<sup>(5)</sup>.

Ingle<sup>(1)</sup> reported that endodontic therapy in upper arch occurred twice such treatment in lower arch while the present study shows such a frequency four times as often in upper arch as in the lower arch 79.4% to 20.6% .

Barbakow<sup>(6)</sup> and Yousef<sup>(5)</sup> reported that more than 78% , 58% respectively of patients had some preoperative pain while in this study preoperative pain was noted in 58.3% of the patients .

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