

## FREQUENCY AND DISTRIBUTION OF TEETH REQUIRING ENDODONTIC TREATMENT IN PATIENTS ATTENDING A FREE DENTAL CAMP IN PESHAWAR

Sabahat ullah Khan Tareen, Asim Qureshi, Shakeel Ur Rehman  
Sardar Begum Dental College & Hospital, Peshawar, Pakistan

### ABSTRACT

**Objectives:** To determine the frequency and distribution of teeth requiring root canal treatment in patients attending at a free dental camp in Peshawar.

**Materials and Methods:** A descriptive cross-sectional study was carried out during a dental camp in the Department of Operative Dentistry at Sardar Begum Dental College and Hospital, Peshawar from 06<sup>th</sup> to 11<sup>th</sup> August 2012. A total of 320 patients were examined. Data regarding age, gender, tooth involved and reason for endodontic treatment was collected through history and clinical examination on customized proforma.

**Results:** Out of 320 patients, 290 teeth required Endodontic treatment. Mandibular teeth were involved more (54.13%) than maxillary teeth. Most of the teeth that required Root canal treatment were molars followed by premolars and then incisors. Caries was found to be the most common reason of endodontic treatment.

**Conclusion:** This study showed an increasing trend of seeking endodontic treatment among males than females with more Mandibular posterior teeth involved. There is a strong association between the cause and the tooth involved.

**Key Words:** Root canal Treatment, Periodontal diseases, Caries.

### INTRODUCTION

Pulp infection is one of the most important and common sequel of dental caries, periodontal disease, trauma and inadequate restorative procedures. Pulp infection may lead to pulp necrosis and periapical periodontitis. Hence endodontic therapy is planned according to the cause of the disease<sup>1</sup>. Caries is considered to be one of the main reasons for endodontic therapy in Pakistan<sup>2, 3</sup>; the most common etiological factor is irreversible pulpitis<sup>4,5</sup>. The objective of endodontic treatment is to restore the tooth to a healthy state such that it can be functionally normal. Recent studies showed that the success of endodontic therapy is as high as 95%<sup>3</sup>. Studies based on epidemiology provide dental health records that are of great value to assess the

incidence and frequency of teeth requiring endodontic treatment<sup>1,6,7</sup>.

The prevalence of root filled teeth is increasing with age<sup>1</sup>. This change in frequency of dentate patients along with root filled teeth is due to the increasing awareness of oral hygiene measures, better restorative materials and techniques, regular checkups and declining tendency of dentists to extract teeth<sup>8</sup>.

The objective of this study is to find the frequency of teeth requiring endodontic treatment in patients attending at a free dental camp conducted at a Sardar Begum Dental teaching hospital.

### MATERIALS AND METHODS

A total of 320 patients were examined during a free dental camp in the Department of Conservation and Endodontics of Gandahara University from 06<sup>th</sup> to 11<sup>th</sup> August 2012. After detail screening of these 320 patients, only 290 teeth were

#### Correspondence:

Dr. Sabahat Ullah Khan Tareen  
Department of Operative Dentistry, Sardar Begum  
Dental College & Hospital, Peshawar, Pakistan  
Cell: +92-345-9148814  
E-mail: Sabahattareen@yahoo.com

found suitable for endodontics. Treatment was performed by 05 postgraduate students and 05 house officers, who were supervised by qualified Endodontists. Exclusion criteria were requirements for surgical intervention or presence of other multiple systemic diseases. Patients with diabetes were, however, included in the study. An informed consent form, approved by the Ethical Committee of the institution, was presented and explained to potential participants.

After written approval the patients underwent a thorough clinical examination. Teeth requiring root canal treatment were treated endodontically. Information, regarding age, gender, affected tooth type and reasons for endodontic treatment were recorded on customized proforma. Records from the clinical and radiographic examination were obtained by two trained and calibrated endodontists. In case there was a disagreement between the evaluators, a mutual consensus was reached after a joint review.

## STATISTICAL ANALYSIS

Data was analyzed using SPSS version 13. Descriptive statistics such as frequencies and Mean  $\pm$  standard deviation was calculated for Age, Gender and number of teeth involved.

## RESULTS

Out of the 320 patients examined, 290 teeth required endodontic treatment. Out of these, 153 teeth (52.75%) were of males and 137 teeth (47.25%) were of females with a male to female ratio of 1.12:1. Maxillary teeth were involved in 133 (45.86%) cases while mandibular teeth were affected in 157 (54.14%) cases. The mean age of patients needing root canal treatment was 41.2 years with range of 13 to 70 years. Table 1 shows the number and frequency of teeth that required endodontic treatment at the free dental camp according to their location and gender of the patient. In this regard negligible differences were found between the maxilla and the mandible. In both the arches, molars and premolars were significantly more affected than canines and incisors.

The most frequently involved tooth was the right mandibular first molar (12.75%), followed by left maxillary first molar (10.34%), left mandibu-

lar first molar (10%), left mandibular second molar (8.72%) and right mandibular second molar (7.24%). The lowest frequency of treatment was for the maxillary central incisors followed by mandibular lateral incisors.

The reasons for endodontic treatment according to gender are shown in Table 2. The highest percentage of teeth that needed treatment occurred in males. Caries was the most common reason for root canal treatment (86.55%) followed by failure of previous endodontic treatment (7.24%). Periodontal disease was the reason for endodontic treatment in 5.17% of the cases.

## DISCUSSION

Preservation of teeth affected by different pulp pathologies is the most important objective of endodontic treatment. In this study the frequency and distribution of teeth requiring endodontic treatment was evaluated in a free dental camp at a dental hospital and the results were compared with previous reports. It must be emphasized that interpretation of information from clinical and radiographic examination can sometimes be misleading, because inter-observed differences may exist. To minimize this, criteria for interpretation of the findings was designed and prior calibration of the examiners was carried out for reliable data collection.

This study showed that more teeth in the mandible than in the maxilla required endodontic treatment which correlates with the study of Vohra<sup>5</sup> but differed from similar international studies<sup>6,9,10</sup>. However Gulsahi et al<sup>11</sup> reported that the percentage of teeth with apical periodontitis that required endodontic treatment was similar for maxillary and mandibular teeth.

In this study males required endodontic treatment more often than females which is in contradiction to studies by Molven<sup>12</sup>, Barbakow et al<sup>13</sup> and Hull et al<sup>14</sup>. One of the reason for this difference can be that men has more access to health care system in comparison to females in this part of the world.

The frequency of posterior teeth (molars and pre-molars) involvement was more than anterior teeth which corelates with other studies<sup>15,16</sup>. The

Table-1 Distribution of teeth with type of quadrant involved.

Tooth	Location				Female				Male			
	Right,		Left		Right		Left		Right		Left	
	n	%	n	%	n	%	n	%	n	%	n	%
<b>MAXILLA</b>												
Central Incisor	1	0.34	2	0.68	1	0.34	1	0.34	0	0	1	0.34
Lateral Incisor	3	1.03	1	0.34	2	0.68	0	0	1	0.34	1	0.34
Canine	1	0.34	3	1.03	1	0.34	2	0.68	0	0	1	0.34
First Premolar	6	2.06	7	2.41	3	1.03	3	1.03	3	1.03	4	1.37
Second Premolar	7	2.41	5	1.72	3	1.03	3	1.03	4	1.37	2	0.68
First molar	29	10	30	10.34	16	5.51	14	4.82	13	4.48	16	5.51
Second Molar	16	5.51	13	4.48	10	3.44	6	2.06	6	2.06	7	2.41
Third Molar	3	1.03	6	2.06	1	0.34	2	2.06	2	2.06	4	1.37
Total	66	22.7	67	23.1	37	12.7	31	10.6	29	10	36	12.41
<b>MANDIBLE</b>												
Central Incisor	1	0.34	2	0.68	0	0	1	0.34	1	0.34	1	0.34
Lateral Incisor	0	0	2	0.68	0	0	0	0	0	0	2	0.68
Canine	2	0.68	1	0.34	1	0.34	0	0	1	0.34	1	0.34
First Premolar	9	3.10	9	10	5	1.72	6	2.06	4	1.37	3	1.03
Second Premolar	5	1.72	9	10	3	1.03	3	1.03	2	0.68	6	2.06
First Molar	37	12.75	29	10	15	5.17	14	4.82	22	7.5	15	5.17
Second Molar	21	7.24	24	8.72	9	3.10	11	3.79	12	4.13	13	4.48
Third Molar	2	0.68	4	1.37	0	0	1	0.34	2	0.68	3	1.03
Total	77	26.55	80	27.58	33	11.37	36	12.41	44	15.17	44	15.17

Table-2 Reason for endodontic treatment with respect to gender distribution

Reasons for Root canal Treatment	Total		Female		Male	
	n	%	n	%	n	%
Caries	251	86.55	115	39.66	136	46.90
Retreatment	21	7.24	9	3.10	12	4.14
Periodontal disease	15	5.17	12	4.14	3	1.03
Others	3	1.03	1	0.34	2	0.69
<b>Total</b>	<b>290</b>	<b>100</b>	<b>137</b>	<b>47.24</b>	<b>153</b>	<b>52.76</b>

mandibular first molar was found to be the most frequent tooth in the oral cavity requiring endodontics. This finding should be related to the fact that the first mandibular molar is the first permanent tooth to erupt, at the age of 6 years. Its long duration in the oral cavity makes it more prone to caries and hence endodontic treatment<sup>17</sup>.

There is a general change in trend of treatment strategy among the general dentist as well as high demands from patient side, preferring more conservative options, while keeping extraction of the tooth as the last option<sup>18</sup>. One important finding in our study was increase in number of retreatments of failed endodontics and patients high demand for saving teeth. In our understanding lack of proper training and attempting every case by general dentist was one of the main reasons of high rate of failed endodontic treatment. The success rate of endodontic treatment is high if it is carried out by specialists.<sup>19,20,21</sup>

**CONCLUSION**

From this study it is concluded that:

- 1- There is an increasing trend of male patients requiring endodontic treatment.
- 2- Mandibular posterior teeth being the most frequently effected teeth.
- 3- Carries was the leading reason for endodontic treatment.
- 4- A 7.24% failure rate of endodontic treatment strongly urge for better training and understanding of the core science of endodontics.

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