

# Incidence of Apical Periodontitis and Frequency of Root Canal Treatments in Geriatric and Medically Compromised Patients in Jammu Population

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## Abstract

**Background:** With the increase in life expectancy, there has been rise in cases of apical periodontitis. The present study was conducted to assess the prevalence of apical periodontitis and root canal treatment among the elderly and medically compromised patients in the Jammu population.

**Materials and Methods:** The present study was conducted on 150 elderly patients with deep carious teeth of both genders. An equal number of healthy subjects was also recruited. Patients were divided into two groups: Group I was medically compromised patients with apical periodontitis and Group II was healthy subjects with apical periodontitis. Periapical status was scored based on the periapical index.

**Results:** Group I had 95 and Group II had 60 patients with more than 1 periapical lesion. Group II had 110 and Group I had 48 patients with 1 periapical lesion with at least one obturated tooth. The difference was significant ( $P < 0.05$ ). There was a non-significant difference between Groups I and II with more than 1 periapical lesions with at least one obturated tooth ( $P > 0.05$ ). More than 1 periapical lesion was seen more in renal and respiratory patients (45), 1 periapical lesion with at least one obturated tooth was seen more one diabetic patients (22). The difference was non-significant ( $P > 0.05$ ).

**Conclusion:** The authors found that medically compromised patients have more periapical lesions with radiographic evidence. They have a lower frequency of obturated teeth than healthy subjects.

**Key words:** Apical periodontitis, Elderly, Root canal treatment

## INTRODUCTION

The main complaint for which most of the patients visit the dental clinic is pain. It can be tooth related or associated facial bones. Apical periodontitis is the widening of periodontal ligament space at the apex of a tooth. The main cause of this is deep caries, fractured tooth, or traumatic occlusion. In most of the cases, the treatment of choice is root canal treatment followed by restoration with the permanent filling material and crown placement.<sup>[1]</sup>

With the increase in life expectancy, there has been rise in cases of apical periodontitis. The challenge among dental surgeons is to diagnose cases accurately and the management of these elderly patients.<sup>[2]</sup> Old patients are also prone to develop a lot of systemic diseases. In India, diabetes, hypertension, osteoporosis, respiratory diseases, renal, and cardiac diseases are highly prevalent. Most of these patients are on long-standing medications for the same; thus, medically compromised patients need proper care and treatment to overcome further complications.<sup>[3]</sup>

It is mandatory that dentists should be aware and have sufficient knowledge of these medical conditions. Cardiac patients as those with a history of cardiac stents, pacemakers, or hypertensive demand adherence to strict recommended guidelines and with proper antibiotic

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prophylaxis. The use of plain local anesthesia (without adrenaline) is advisable.<sup>[4]</sup>

Poorly controlled diabetics should be advised to consult the physician first and report only after controlling their glycemic level. Root canal treatment should be started after obtaining consent from their physician.<sup>[5]</sup> The present study was conducted to assess the prevalence of apical periodontitis and root canal treatment among the elderly and medically compromised patients.

## MATERIALS AND METHODS

The present study was conducted in the Department of Conservative Dentistry and Endodontics, Institute of Dental Sciences, Sehora, Jammu, India.

It comprised 150 elderly patients of the Jammu region with deep carious teeth of both genders. An equal number of healthy subjects was also recruited. The purpose of the study was explained to all of them, and their written consent was obtained. Ethical approval from the concerned department was taken beforehand.

Demographic particulars such as name, age, gender, and occupation were recorded in case history pro forma. Patients were divided into two groups: Group I was medically compromised patients with apical periodontitis and Group II was healthy subjects with apical periodontitis. A thorough oral examination was performed by single dental surgeon. Digital intraoral radiographs were taken. Periapical status was scored based on the periapical index (PAI). Each of the roots was categorized as normal periapical structure, small changes in bone structure, changes in bone structure with some mineral loss, periodontitis with the well-defined radiolucent area, and severe periodontitis with exacerbating features. A score  $>2$  ( $PAI \geq 3$ ) was considered to be a sign of periapical pathology. Teeth were categorized as obturated teeth if the root canals are filled. Results thus obtained were subjected to statistical analysis.  $P < 0.05$  was considered significant.

## RESULTS

Table 1 and Graph 1 show that Group I comprised eight males and 70 females and Group II had 85 males and 65 females.

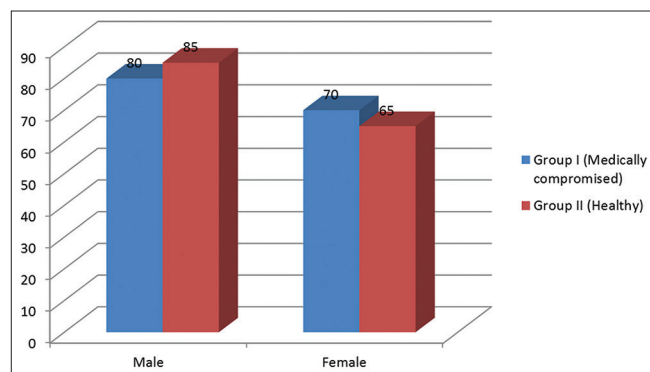
Table 2 shows that Group I had 95 and Group II had 60 patients with more than 1 periapical lesion. Group II had 110 and Group I had 48 patients with 1 periapical lesion with at least one obturated tooth. The difference was significant ( $P < 0.05$ ). There was a non-significant difference between

**Table 1: Distribution of patients**

Groups	Group I (medically compromised)	Group II (healthy)
Male	80	85
Female	70	65

**Table 2: Distribution of AP and obturated teeth**

Variables	Group I	Group II	P-value
More than 1 periapical lesion			
Present	95	60	0.01
Absent	55	90	
One Periapical lesion with at least one obturated tooth			
Present	48	110	0.01
Absent	102	40	
More than 1 periapical lesions with at least one obturated tooth			
Present	82	85	0.91
Absent	68	65	



**Graph 1: Distribution of patients**

Groups I and II with more than 1 periapical lesions with at least one obturated tooth ( $P > 0.05$ ).

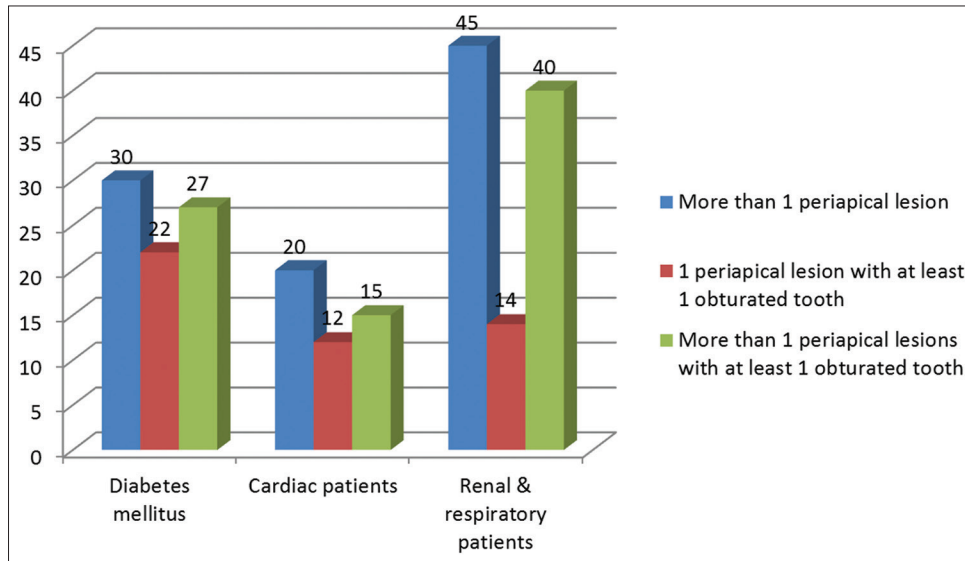
Table 3 and Graph 2 show that more than 1 periapical lesion was seen more in renal and respiratory patients (45), 1 periapical lesion with at least one obturated tooth was seen more in diabetic patients (22). The difference was non-significant ( $P > 0.05$ ).

## DISCUSSION

Endodontic treatment is the best-preferred option for an infected and painful tooth. The foremost option is to preserve the tooth rather than extraction. Endodontic treatment is a sensible procedure of removing the infected dental pulp and periradicular exudates using proper instruments and biocompatible agents in addition to medicaments to preserve the tooth.<sup>[6]</sup> The dentist should be well versed with the use of various dental products such as dentifrices, alginate, cotton rolls, airtors, local anesthesia, especially in elderly, and medically compromised patients. Elderly people have poor health and medically

**Table 3: Distribution based on systemic conditions**

Medical condition	More than 1 periapical lesion	1 Periapical lesion with at least one obturated tooth	More than 1 periapical lesions with at least one obturated tooth	P-value
Diabetes mellitus	30	22	27	79
Cardiac patients	20	12	15	47
Renal and respiratory patients	45	14	40	99
Total	95	48	82	



**Graph 2: Distribution based on systemic conditions**

compromised patients such as cardiac, for example, hypertension, congestive cardiac failure, and cardiac stents patients, renal such as those on dialysis or renal failure patients, respiratory such as bronchial asthma, bronchiolitis, and chronic obstructive pulmonary disease, and endocrine such as diabetes mellitus are challenge for dentists.<sup>[7]</sup>

Age is considered a risk factor for a large number of diseases, injuries, hospitalization, length of hospitalization, and adverse drug reactions. Moreover, aging can influence nearly all parts of the body.<sup>[8]</sup> The effects of aging on major organ systems can be summarized as follows: (1) Changes in structure, function, metabolism, and blood flow in the aging brain, which may cause cognitive impairments, most frequently episodic memory changes, as well as an increased risk of hallucination in acute cases. Root canal treatment is a multistep procedure which requires the use of arotar, where there is excessive aerosol production.<sup>[9]</sup> The present study was conducted to assess the prevalence of apical periodontitis and root canal treatment among elderly and medically compromised patients.

In the present study, Group I comprised 80 males and 70 females and Group II had 85 males and 65 females. Sharma *et al.*<sup>[10]</sup> conducted a study on 100 subjects to record the prevalence of apical periodontitis among elderly and medically compromised patients. They were divided into two

groups of 50 subjects each with 25 males and 25 females in each group. Group I was medically compromised and Group II was healthy patients. There was a highly significant relationship between the presence of more than 1 periapical lesions and medically compromised subjects. There was more number of subjects in the control group having 1 periapical lesion with at least one obturated tooth.

We found that 79 diabetic, 47 cardiac, and 99 renal and respiratory patients had apical periodontitis. Group I had 95 and Group II had 60 patients with more than 1 periapical lesion. Group II had 110 and Group I had 48 patients with 1 periapical lesion with at least one obturated tooth. The difference was significant ( $P < 0.05$ ). There was non-significant difference between Groups I and II with more than 1 periapical lesions with at least one obturated tooth ( $P > 0.05$ ).

In asthmatic patients, if a patient suddenly shows that the symptoms of acute asthmatic attack, maintain the airway open and deliver agonists with inhaler or nebulizer, and provide oxygen supply through face mask nasal hood or cannula. A care should be taken to limit the long procedures.<sup>[11]</sup>

We observed that more than 1 periapical lesion was seen more in renal and respiratory patients (45), 1 periapical lesion with at least one obturated tooth was seen more one

diabetic patients (22). The difference was non-significant ( $P > 0.05$ ). Castellanos-Cosano *et al.*<sup>[12]</sup> recorded the prevalence of apical periodontitis and endodontic treatment in liver transplant candidates (LTC) and control healthy subjects. It comprised 42 LTC and 42 controls. It was found that radiographic signs of AP in one or more teeth were found in 79% of patients in the study group and 50% of control subjects. One or more root-filled teeth (RFT) were found in 19% and 62% of the study and control subjects, respectively. Among LTC patients, 14.7% of the teeth had AP, whereas, in the control subjects, 4.2% of teeth were affected. The percentage of RFT in the study and control groups was 1.5% and 6.8%, respectively.

## CONCLUSION

The authors found that medically compromised patients have more periapical lesions with radiographic evidence. They have a lower frequency of obturated teeth than healthy subjects.

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