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Assessment of prevalence of Endo-perio lesions among patients of known population: An observational study

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Abstract

Background: The endodontium and periodontium are closely related and diseases of one tissue may lead to the involvement of the other. Hence; the present study was undertaken for assessing the prevalence of Endo-Perio lesions among patients of known population.

Materials and methods: Screening of a total of 685 patients was done who reported with carious lesion. Complete demographic details of all the patients were obtained. Clinical and examination was carried out in all the patients. Intra-oral Periapical radiographs were taken and periodontal examination was done with mouth mirror, probe and explorer. A Performa was made and final diagnosis and possible etiological factor along with complete history of present illness was recorded. All the results were recorded in Microsoft excel sheet and were analyzed by SPSS software. Chi- square test was used for assessment of level of significance.

Results: Out of the 685 patients, Endo-Perio lesions were found to be present in 14.89 percent of the patients (102 patients). Mandibular arch involvement of Endo-Perio lesions occurred in 48.04 percent of the patients. Molars were the most common to be involved with Endo-Perio lesions found to be present in 41.18 percent of the patients. Premolars were involved in 24.51 percent of the patients.

Conclusion: A significant proportion of patient population is affected by Endo-Perio lesions.

Keywords: Endo-perio, prevalence

Introduction

The endodontium and periodontium are closely related and diseases of one tissue may lead to the involvement of the other. The differential diagnosis of endodontic and periodontal diseases can sometimes be difficult but it is of vital importance to make a correct diagnosis so that the appropriate treatment can be provided. Endodontic-periodontal lesions present challenges to the clinician as far as diagnosis and prognosis of the involved teeth are concerned^[1, 2]. Etiologic factors such as bacteria, fungi, and viruses as well as various contributing factors such as trauma, root resorptions, perforations, and dental malformations play an important role in the development and progression of such lesions. Symptomatic apical periodontitis is characterized by the inflammation of the periapical tissues, generating clinical symptoms including a painful response to biting or percussion or tenderness with palpation^[3-5]. Depending on the phase of the disease, radiographic changes may or may not be detectable. Asymptomatic apical periodontitis can, however, be solely diagnosed by the presence of radiographic changes, namely a periapical radiolucency created by the bony lesion on the radiograph^[6, 7]. Hence; the present study was undertaken for assessing the prevalence of Endo-Perio lesions among patients of known population.

Materials and Methods

The present study was conducted with the aim of assessing the prevalence of Endo-Perio lesions among patients of known population. Screening of a total of 685 patients was done who reported with carious lesion. Complete demographic details of all the patients were obtained. Clinical and examination was carried out in all the patients. Intra-oral Periapical radiographs were taken and periodontal examination was done with mouth mirror, probe and explorer. A Performa was made and final diagnosis and possible etiological factor along with complete history of present illness was recorded. Exclusion criteria for the present study included:

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- Patients with history of any systemic illness,
- Patients with any known drug allergy,
- Patients who have undergone any periodontal therapy or endodontic therapy in the past three years

All the results were recorded in Microsoft excel sheet and were analyzed by SPSS software. Chi- square test was used for assessment of level of significance.

Results

In the present study, a total of 685 patients were analyzed. Out of the 685 patients, Endo-Perio lesions were found to be present in 14.89 percent of the patients (102 patients). All of these patients had pulpal involvement through caries along with occurrence of periodontal pockets in the same tooth causing apical periodontitis. Mean age of the patients with endo-perio lesions was found to be 53.8 years, 47.06 percent of the patients belonged to the age group of more than 50 years. 61.76 percent of the patients with endo- perio lesions were males while the remaining were females. In the present study, mandibular arch involvement of Endo-Perio lesions occurred in 48.04 percent of the patients. Molars were the most common to be involved with Endo-Perio lesions found to be present in 41.18 percent of the patients. Premolars were involved in 24.51 percent of the patients.

Table 1: Prevalence of Endo-Perio lesions

Parameter	Number of patients	Percentage of patients
Endo-Perio lesions prevalence	102	14.89

Table 2: Age and gender-wise distribution

Parameter	Number of patients	Percentage of patients
Age-wise	Less than 25	22 21.57
	25 to 50	32 31.37
	More than 50	48 47.06
Gender	Males	63 61.76
	Females	48 38.24

Table 3: Distribution of patients according to tooth involved

Parameter	Number of patients	Percentage of patients
Arch	Mandibular	49 48.04
	Maxillary	53 51.96
Tooth	Incisor	12 11.76
	Canine	23 22.55
	Premolar	25 24.51
	Molar	42 41.18

Discussion

The effect of periodontal inflammation on dental pulp is controversial and conflicting studies abound. It has been suggested that periodontal disease has no effect on the pulp before it involves the apex. On the other hand, several studies suggested that the effect of periodontal disease on the pulp is degenerative in nature including an increase in calcifications, fibrosis, and collagen resorption, in addition to the direct inflammatory sequelae. Dental pulp and periodontium have embryonic, anatomic and functional inter-relationships. They are ecto mesenchymal in origin, the cells from which proliferate to form dental papilla and follicle, which are the precursors of the pulp and periodontium, respectively. They are separated by the formation and development of tooth bud from the overlying ectoderm into enamel and dentine [8-10] Hence; the present study was undertaken for assessing the prevalence of Endo-Perio lesions among patients of known

population.

In the present study, a total of 685 patients were analyzed. Out of the 685 patients, Endo-Perio lesions were found to be present in 14.89 percent of the patients (102 patients). All of these patients had pulpal involvement through caries along with occurrence of periodontal pockets in the same tooth causing apical periodontitis. Mean age of the patients with Endo-perio lesions was found to be 53.8 years, 47.06 percent of the patients belonged to the age group of more than 50 years. 61.76 percent of the patients with endo- perio lesions were males while the remaining were females. The periodontal-endodontic lesions have been characterized by the involvement of the pulp and periodontal disease in the same tooth. This makes it difficult to diagnose because a single lesion may present signs of both endodontic and periodontal involvement. There is a general agreement today that the vast majority of pulpal and periodontal lesions are the result of bacterial infection. This suggested that one disease may be the result or cause of the other or even originated from two different and independent processes which are associated with their advancement. Diagnosis is complicated by the fact that these diseases are too frequently viewed as independent entities. However, it is critical to recognize the interrelationship for successful management of these lesions. The pathways for the spread of bacteria between pulpal and periodontal tissues are still a subject of controversy [8-10].

In the present study, mandibular arch involvement of Endo-Perio lesions occurred in 48.04 percent of the patients. Molars were the most common to be involved with Endo-Perio lesions found to be present in 41.18 percent of the patients. Premolars were involved in 24.51 percent of the patients. Mukhaimer R *et al.* determined the prevalence of apical periodontitis and the technical quality of root canal fillings in a Palestinian sub-population. The panoramic radiographs of 258 patients (142 females, 116 males) attending dental clinics in 2010 were examined to identify the presence of apical lesions associated with any remaining teeth, excluding third molars. The technical quality of root canal fillings was also evaluated by assessing apical extension from the radiographic apex. The panoramic radiographs were taken by a well-trained radiology assistant and evaluated by a radiologist and an endodontist. Statistical analysis was performed with the chi-square test with a significant level set at $P < 0.05\%$. Of 6482 teeth examined radiographically, 978 (15.1%) had radiographic signs of apical periodontitis (AP). The prevalence of AP was 8.3% in teeth without filled roots and 59.5% (509/855) in root canal-treated teeth. The prevalence of AP and endodontic treatment increased with age and differed significantly ($p < 0.05$) between males and females. The majority (74.5%) of root canal fillings was performed inadequately, and most (77.2%) inadequate fillings were >2 mm short of the radiographic apex. The presence of AP was correlated significantly with poorly executed root canal fillings ($p < 0.05$). The study found a high prevalence and incidence of AP in association with root-filled teeth [11].

A clear cut relationship between progressive periodontal disease and pulpal involvement, however, does not invariably exist. The most common periodontal lesion produced by the pulp disease is the localized apical granuloma. It is produced by the diffusion of bacterial products through the root apex, with the formation of vascular granulation tissue. Subsequently, resorption of the alveolar bone and occasionally of the root itself may occur. Pulpal and periodontal problems are responsible for more than 50% of tooth mortality. Periodontal disease is a slowly progressing

disease that may have an atrophic effect on the dental pulp. Periodontal treatments such as deep root planning, usage of localized medicaments and periodontal injury or wounding may accelerate pulpal inflammation and provoke the interrelated disease process^[5, 6].

Conclusion

From the above results, the authors concluded that a significant proportion of patient population is affected by Endo-Perio lesions. However; further studies are recommended.

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