

Assessment of Influence of Quality of Root Canal Fillings and Periodontal Status of Endodontic Treated Teeth

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ABSTRACT

Background: 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. Hence we undertook the present study to assess the influence of quality of root canal fillings and periodontal status in patients who underwent endodontic therapy by under-graduate dental students.

Materials & methods: The patients were clinically and radiographically rethought after root channel treatment. The nature of the root-filled trenches, coronal rebuilding efforts, intraradicular posts, dental caries, and periodontal parameters were related with the teeth's periapical status.

Results: Significant results were obtained while associating bleeding on probing with the success of root canal therapy.

Conclusion: Occurrence of peri- apical pathologies in endodontically treated tooth were significantly associated with caries and gingival bleeding.

Keywords: Endodontic, periapical, therapy.

INTRODUCTION

The endodontium and periodontium are closely related and diseases of one tissue may lead to the involvement of the other.¹The 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.^{2, 3} 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.^{4- 7}

The endo-perio lesion is a condition characterized by the association of periodontal and pulpal disease in the same dental element.⁸ Hence we undertook the present study to assess the influence of quality of root canal fillings and periodontal status in patients who underwent endodontic therapy by under-graduate dental students.

Received: Jan. 11, 2017; Accepted: Feb. 7, 2017

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MATERIALS & METHOD

The present investigation was led in the division of moderate dentistry of the dental establishment and included appraisal of patients who experienced root waterway treatment by under-graduate dental understudies. Moral endorsement was taken from institutional moral council and composed assent was gotten. Such understudies were in the third undergrad year and had related knowledge in research center preparing utilizing front and premolars teeth removed from people. Consequently, quiet with calcified root trenches and with over the top root ebbs and flows or retreatment cases and molar teeth were barred from this stage facility. The endodontic treatment took after a characterized convention. Counterfeit lighting was utilized on the teeth in relative seclusion. The investigated clinical signs and side effects were edema, erythema, fistula, purulent exudate seepage, and torment on palpation of the adjoining mucosa notwithstanding the vertical percussion of the endodontically treated tooth. Periodontal testing was performed on buccal, lingual, mesial, and distal surfaces utilizing a millimeter periodontal test. Six destinations for Table 1: Clinical and demographic details of the patients.

every tooth were surveyed, and the more noteworthy estimation esteem for each surface was recorded. Noticeable bacterial biofilm, gingival seeping on testing, and pathologic tooth portability were named being available or truant. Periodontal malady was thought to be available when the tooth at the same time given at least one destinations with a pocket profundity ≥ 4 mm and an inclusion misfortune ≥ 3 mm. The treatment was viewed as fruitful when the periapical radiographic ordinariness was related with the nonattendance of clinical signs and side effects. The nearness of periapical radiolucency was characterized as treatment disappointment. Every one of the outcomes was broke down by SPSS programming. Chi -square test were utilized for the evaluation of level of criticalness.

RESULTS

Among males, 70 percent of endodontic therapy patients had success while failure of the therapy occurred in 30 percent of the male patients (**Table 1, Graph 1**). Significant results were obtained while associating bleeding on probing with the success of root canal therapy (**Table 2**).

Parameters	Clinical and radiographic results		P- value
	Success (%)	Failure (%)	
Males	70	30	0.52
Females	79	21	
16 to 26 years age group	73	27	0.12
27 to 36 years age group	72	28	
37 to 45 years age group	77	23	
46 to 55 years age group	78	22	

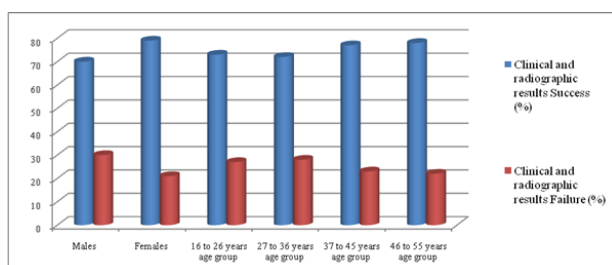
DISCUSSION

In the present study, we observed that success rate of endodontic treatment was more than 70 percent. We also observed that bleeding on probing and pathologic tooth mobility was the predictor factors for the failure of root canal therapy. Alafif H et al determined the status of periapical tissues of endodontically treated teeth according to coronal restorations and root canal fillings separately and in concomitant in adult Syrian subpopulation. 784 endodontically treated teeth from two hundred randomly selected Syrian adult patients were radiographically evaluated.

According to predetermined criteria, the quality of coronal restorations and root canal filling of each tooth was scored as adequate or inadequate. The status of periapical tissues was also classified as healthy or diseased. Results were analyzed using Chi-squared test. Adequate coronal restorations were determined in 58.54% of cases which was accompanied with less periapical pathosis than that in teeth with inadequate restorations ($P < 0.01$). 14% of teeth were restored by posts which showed no significant impact on the periapical tissues health. 18.5% of endodontic treatments were evaluated as adequate with less number of periapical radiolucencies than that of inadequate

root canal fillings ($P < 0.01$). Absence of periapical pathosis was 96.6% in cases with both adequate coronal restorations and root canals fillings. The rate was 88.5% in cases with only adequate root canals fillings, and about 70% in cases with only adequate coronal restorations. When the treatment was inadequate in both coronal and root canals fillings, success rate was only observed in 48.8%. The most important factor with regard to the periradicular tissue health is the quality of root canal filling without neglecting the influence of coronal restoration (regardless of its type). There is a high prevalence rate of periapical pathosis in Syrian subpopulation due to poor dental practice.⁹

Graph 1: Clinical and demographic details of the patients



Song M et al assessed the prevalence of apical periodontitis in root canal-treated teeth from the Korean population and to evaluate the relationship between the quality of root canal fillings and coronal restorations and the periapical status of these teeth. Full-mouth periapical radiographs at the Dental Hospital of Yonsei University, Seoul, South Korea, were examined. A total of 1030 endodontically treated teeth restored with full veneer crown-type restorations were evaluated by 2 independent examiners. Teeth were classified as healthy or diseased according to the periapical status.

Table 2: Success of root canal therapy according to periodontal parameter

Parameter	Clinical and radiographic success		p-value
	Success	Failure	
Present: bleeding on probing	60	40	0.02*
Present: bleeding on probing	72	28	

*: Significant

The quality of endodontic treatment and coronal restorations were also classified via radiographic and clinical evaluation. The data were analyzed using the chi-square test and logistic regression. Forty-one percent of all endodontically treated teeth were classified as diseased. Approximately 35.6% of the teeth had endodontic treatments that were rated as adequate. The diseased teeth rate for cases with adequate endodontic treatment was 24.5%, which was significantly lower when compared with teeth with inadequate endodontic treatment (49.9%). The number of teeth with adequate coronal restorations was 706 (68.5%). Teeth with adequate coronal restorations had a significantly decreased prevalence of diseased teeth (34.7%) compared with teeth with inadequate coronal restorations (54.3%). Teeth with both adequate root fillings and restorations showed a significantly better outcome (82.3%) than the others, and teeth with both inadequate root fillings and restorations showed a significantly worse outcome (41.2%) than the others. Data from this Korean population showed a relatively high prevalence of apical periodontitis. The quality of endodontic treatment and coronal restorations were of equal importance and were strong independent predictors of the periapical status.¹⁰

CONCLUSION

The authors conclude that occurrence of peri- apical pathologies in endodontically treated tooth were significantly associated with caries and gingival bleeding.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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