



## Management of Endo-Perio lesions

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### Abstract

**Background:** This study was conducted to address the Management of Endo-Perio lesions.

**Material and methods:** In this study, 100 individuals with periodontitis were enrolled who had been identified with grade 2-3 endo-periodontal lesions on their teeth. According to the clinical symptoms and characteristics of the affected teeth following nonsurgical treatment for both the endodontic and periodontal components, they were separated into high and low responder groups. Before and after therapy, clinical parameters and symptoms were examined, and using univariate analysis, gender, age, smoking, and all clinical parameters were compared between high and low responder groups. To assess the independent impact on the prognosis of endo-periodontal lesions, logistic regression was used.

**Results:**Following endodontic therapy, the values of tooth mobility (TM), periapical index (PAI), as well as chewing discomfort decreased in comparison to the clinical parameters at baseline; similarly, the values of periodontal probing depth (PD), clinical attachment level (CAL), sulcus bleeding index (SBI), TM, simplified oral hygiene index (OHI-S), full-mouth periodontitis severity, PAI, and chewing discomfort decreased in comparison to the clinical parameters at baseline. According to a univariate analysis, there were significant differences between the high and low responder groups in terms of smoking, PD, CAL, TM, PAI, clinical crown-root ratios (CR), full-mouth periodontitis severities, and the number of root canals (P 0.05). According to the results of the logistic regression analysis, grade 2-3 endo-periodontal lesions are still substantially correlated with smoking, PD, CAL, full-mouth periodontitis severity, and the number of root canals.

**Conclusion:**A poor prognosis for teeth with grade 2-3 endo-periodontal lesions was suggested by high PD as well as CAL.

**Keywords:**endo-perio lesions, pocket, attachment, management.

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## Introduction

Endodontic-periodontal disease refers to lesions that inflict both pulpal and periodontal tissues of a tooth. Due to the underlying anatomy, the pulpal and periodontal tissue structures are closely connected via three pathways. The main channels of communication between the pulpal and periodontal structures are dentinal tubules, lateral and accessory canals, and apical foramen[1]. The relationship between endodontic and periodontal diseases was first described by Simring and Goldberg[2] in 1964. Currently, there is a common consensus among clinicians that bacterial infections are the main etiology of endodontic-periodontal disease[3]. The bacteria can penetrate the periodontal tissue and the root canal system in different manners. The main access route between the pulpal and periodontal tissues for the microorganism is the root end foramen. Apart from that, other parts of the root canal system such as the abovementioned dentinal tubules, lateral canals, and accessory canals or foramen can also act as the medium of contamination for the bacterial byproducts[4,5]. A retrospective study of Blomlof [6] concluded that the endodontic infection promotes periodontal pocket formation and is a risk factor in the progression of periodontitis, so, a primary endodontic lesion draining through the attachment apparatus should be initially treated by an endodontic treatment [7], since an aggressive removal of the periodontal ligament and cementum during the endodontic therapy, adversely affects periodontal healing [8].

Hence, this study was conducted to address the management of endo-perio lesions.

## Material and methods

In this study, 100 individuals with periodontitis were enrolled who had been identified with grade 2-3 endo-periodontal lesions on their teeth. According to the clinical symptoms and characteristics of the affected teeth following nonsurgical treatment for both the endodontic and periodontal components, they were separated into high and low responder groups. Before and after therapy, clinical parameters and symptoms were examined, and using univariate analysis, gender, age, smoking, and all clinical parameters were compared between high and low responder groups. To assess the independent impact on the prognosis of endo-periodontal lesions, logistic regression was used.

## Results

**Table 1: Gender-wise distribution of subjects.**

Gender	Number of subjects	Percentage
Males	50	50%
Females	50	50%
Total	100	100%

**Table 2: Changes in clinical parameters at baseline, before periodontal therapy, and 6 months after periodontal therapy.**

Clinical parameters	Baseline	Before periodontal therapy	6 months after periodontal therapy
Pocket depth	5.63 mm	5.12 mm	4.87 mm
Clinical attachment level	5.78 mm	5.09 mm	4.53 mm
Oral hygiene index-simplified	2.63	2.54	0.94

## Discussion

The pulp and periodontal tissue are biological complexes that are closely related uniquely [9]. Many physiologic communication paths exist, such as through the exposed dentinal tubules, lateral and accessory canals, or apical foramen [10]. Those tissues can be infected individually or combined, and when both systems are involved, they are termed endodontic–periodontal lesions (EPLs). For many years, the EPL has always been a clinical dilemma. This lesion is very complex and can have varied pathogenesis [11]. It describes a pathologic pathway between a tooth's pulp and periodontal tissue that several aetiologies can trigger. The EPL can be caused by caries, trauma, restorative procedures, chemical irritation, or severe thermal stimulation that affects the pulp and, secondarily, the periodontium [12].

In this study it was observed that the pocket depth, clinical attachment level as well as oral hygiene index-simplified reduced after 6 months of periodontal therapy.

Bashutski et al. [13] published a decision-making model for guided tissue regeneration. According to their study, other than controlling systemic and environmental factors, it was essential to establish a conducive local environment for periodontal regeneration. Some local factors to be considered are tooth morphology, gingival condition, tooth mobility, and the number of tooth roots. GTR on tooth #26 was ideal because it had no local factors that prevent connective tissue attachment, such as crown or restoration with apical margin, enamel pearls, or enamel cervical projection. A thick gingival biotype with sufficient keratinized tissue width of 2 mm could help in primary wound closure and angiogenesis. Lastly, the tooth had multiple roots but no furcation involvement.

Fan X et al [14] investigated the factors affecting the prognosis of endo-periodontal lesions. A total of 140 teeth diagnosed with grade 2-3 endo-periodontal lesions in patients with periodontitis were recruited in this study. They were divided into high and low responder groups, according to the clinical symptoms and parameters of the teeth involved after nonsurgical treatment of both the endodontic and periodontal components. Clinical parameters and symptoms were compared before and after treatment, and gender, age, smoking, and all clinical parameters were compared between high and low responder groups using univariate analyses. Logistic regression was applied to evaluate the independent effects on endo-periodontal lesion prognosis. Compared with the clinical parameters at baseline, the values of tooth mobility (TM), periapical index (PAI), and discomfort when chewing were decreased after endodontic therapy, and the values of periodontal probing depth (PD), clinical attachment level (CAL), sulcus bleeding index (SBI), TM, simplified oral hygiene index (OHI-S), full-mouth periodontitis severity, PAI, and discomfort when chewing were decreased after periodontal therapy. Univariate analysis revealed that smoking, PD, CAL, TM, PAI, clinical crown-root ratio (CR), full-mouth periodontitis severities, and the number of root canals were significantly different between the high and low responder groups ( $P < 0.05$ ). The logistic regression analysis showed that smoking, PD, CAL, full-mouth periodontitis severities, and the number of root canals remained significantly associated with grade 2-3 endo-periodontal lesions in patients with periodontitis ( $P < 0.05$ ). The logistic regression analysis showed that smoking, PD, CAL, full-mouth periodontitis severities, and the number of root canals remained significantly associated with grade 2-3 endo-periodontal lesions in patients with periodontitis.

## Conclusion

A poor prognosis for teeth with grade 2-3 endo-periodontal lesions was suggested by high PD as well as CAL.

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