



ENDO – PERIO LESIONS – A CLINICAL DILEMMA.

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ABSTRACT

The interrelationship between periodontal and endodontic disease has aroused confusion, queries and controversy. Differentiating between periodontal and endodontic problems can be difficult. Endo-perio lesions primarily occur by way of the intimate anatomic and vascular connections between the pulp and the periodontium. Diagnosis is often challenging because these diseases have been primarily studied as separate entities and may mimic clinical characteristics of each other. When a primarily endodontic lesion changes into a secondary periodontal lesion the resultant clinical features become even more bizarre. Radiographic and clinical evaluation can help clarify the nature of the problem.

KEYWORDS : Endo-perio lesions, periodontal, pulpal, diagnosis**Introduction:**

The periodontium is anatomically interrelated with the dental pulp by virtue of apical foramina and lateral canals create pathways for exchange of noxious agents between the two tissue compartments when either or both surfaces are diseased⁽¹⁾. The simultaneous existence of pulpal problems and inflammatory periodontal disease can complicate diagnosis and treatment planning. Endodontic lesion denotes an inflammatory process resulting from noxious agents present in the root canal system of the tooth.

Periodontal lesion:

Denotes inflammatory process resulting from accumulation of dental plaque on the external tooth surfaces. If a periodontal and an endodontic lesion affects the same tooth simultaneously and presents as a single lesion, the condition is termed as a true endodontic-periodontal lesion"

True endodontic -periodontal lesion implies that the lesion either is the result of, or the cause of, the other, or the lesion may represent two separate processes, an endodontic and a periodontal which have developed independently.

Etiologic factors of pulpal disease⁽²⁾

1. Instrumentation during periodontal, restorative, prosthetic dentistry.
2. Dental caries
3. Direct local trauma

Classification of Pulpal Disease-Is based on the clinical signs and symptoms

- 1) Reversible pulpitis
- 2) Irreversible pulpitis
- 3) Pulpal necrosis

Reversible pulpitis- is a condition where, the inflammation and symptoms can be reversible without permanent pulpal damage. Irreversible pulpitis-if the pulp is so affected that inflammatory lesion cannot be resolved, even though the source of trauma is eliminated.

Effects of pulpal disease on the periodontium

As long as the pulp remains vital it is unlikely that significant changes will occur in the periodontium⁽³⁾. Necrosis of pulp can result in bone resorption. The lesion that results may be an acute apical lesion or a chronic periradicular lesion associated with lateral or accessory canal. The periapical lesion may remain small or expand sufficiently to destroy a substantial amount of tooth and communicate with the lesion of periodontitis.

Classification of periradicular lesions

1. Acute apical periodontitis
2. Chronic apical periodontitis
3. Condensing osteitis
4. Acute apical abscess
5. Chronic apical abscess

Classification of endo-perio lesions⁽⁴⁾

Original endodontic problem with fistulization from apex

1. Long standing periapical lesion draining through the periodontal ligament
2. (Retrograde pulpitis)
3. A periodontal pocket can deepen to the apex
4. The periodontal pocket can infect the pulp through lateral canal
5. Two independent lesions(Marginal, Apical) can coexist

Histopathology of periapical inflammatory lesion⁽⁵⁾

1. Highly vascular granulation tissue infiltrated by inflammatory cells
2. Neutrophils may be seen near the apical foramen
3. Macrophages, Plasma cells, lymphocytes and fibroblasts are increased in the periphery of the lesion.

Manifestations of endodontic lesions in the marginal periodontium from lateral canals⁽⁵⁾

Inflammatory processes in the periodontium occurring as a result of root canal infection may not only be localized at the apex, but may also appear along the lateral aspects of the root and in furcation areas of multirooted teeth. In such instances the inflammatory process can be induced and maintained by bacterial products which reach the periodontium through the lateral canal. If there is an existing periodontal lesion, the two soft tissue lesions may merge and radiographically appear as one lesion. And, clinically one may be able to bring a probe through both lesions.

It is important from a therapeutic point of view to understand that the coronal part is directed towards an infection in the marginal periodontium, and the apical part to an infection emanating from the root canal system. Lateral canals normally harbor connective tissue and vessels which connect the circulatory system of the pulp with that of the periodontal ligament. Such anastomoses are formed during the early phases of tooth development. During the completion of root formation, several anastomoses become blocked and reduced in width by continuous deposition of dentin and root cementum. This may explain why endodontic lesions seldom are seen in furcal areas of the adult dentition. Lateral canals can be observed in all groups of teeth. The majority is found in the apical portion of the root. Radiographically, it is seldom possible to identify lateral canals unless they have been filled with a contrasting root-filling material. A lateral radiolucency associated with a tooth with a necrotic and infected pulp may indicate the presence of a lateral canal⁽⁵⁾.

The clinical significance of lateral canals in the dissemination of infectious elements from a necrotic pulp to the periodontium is not well established. It is conceivable that the wider the lateral canal, the greater the likelihood for a juxtaradicular lesion to develop. Even if there is passage of both bacterial and their components, an intact outer layer of cementum evidently acts as an effective barrier against such penetration.

Effect of periodontitis on the dental pulp

Although the effects of pulpal disease on the periodontium are well documented, a clear cut relationship between periodontitis and pulpal involvement is less evident. One may postulate that actual and the inflammatory products of periodontitis could gain access to the pulp via.

- a. Accessory canals
- b. Apical foramina
- c. Dentinal tubules.

In this process, the reverse of the effects of a necrotic pulp on the periodontal ligament, has been referred to as retrograde pulpitis. Although inflammatory changes have been reported adjacent to accessory canals exposed by periodontitis, it rarely produces significant changes in the dental pulp. It has been suggested that the presence of an intact layer of cementum may protect the pulp from injurious elements of the plaque. Severe breakdown of the pulp apparently does not occur until periodontitis has reached a terminal state that is when bacterial plaque has involved the apical foramina. Pulp has a good capacity for defense as long as the blood supply is maintained.

Influence of periodontal disease on the condition of the dental pulp

The formation of bacterial plaque on the root surfaces following periodontal disease has the potential to induce pathologic changes in the pulp along the very same pathways as an endodontic infection can affect the periodontium in the opposite direction. Inflammatory alterations as well as localized necrosis of pulp tissue have been observed adjacent to lateral canals in teeth exposed by periodontal disease⁽⁶⁾. It has been reported that pulps of teeth with long standing periodontal disease develops fibrosis and various forms of mineralization⁽⁷⁾. Intact cementum layer is important for the protection of the pulp from injurious elements produced by plaque microbiota⁽⁸⁾.

CONCLUSION:

It seems that periodontal disease rarely jeopardizes the vital functions of the pulp. Breakdown of pulp presumably does not occur until the periodontal disease process has reached a terminal state. Apparently as long as the blood supply through the apical foramen remains intact, the pulp is capable of withstanding the injurious elements released by the periodontal disease.

Inflammatory lesions may develop at the lateral aspect of the root from a root canal infection and may in these instances, be induced and maintained by bacterial products, which reach the periodontium through lateral canals. This type of lesion appears to be infrequent and does not seem to emerge at a rate that corresponds to the frequency with which lateral canals occur in teeth.

REFERENCE:

1. Simon J, Glick D, Frank A. The relationship of endodontic-periodontic lesions. *Journal of Periodontology* 1972;43(4):202.
2. Jansson L, Ehnevid H, Lindskog S, Blomlöf L. The influence of endodontic infection on progression of marginal bone loss in periodontitis. *J Clin Periodontol* 1995;22:729-73.
3. Jansson L, Ehnevid H, Blomlöf L, Weintraub A, Lindskog S. Endodontic pathogens in periodontal disease augmentation. *J Clin Periodontol* 1995;22:598-602.
4. Rotsten I, Simon JH. The endo perio lesion: a critical appraisal of the disease condition. *Endodontic Topics* 2006;13(1):34-56.
5. Kurihara H, Kobayashi Y, Francisco IA, Isoshima O, Nagai A, Murayama Y. A microbiological and immunological study of endodontic-periodontic lesions. *Journal of Endodontics* 1995;21(12):617-21.
6. Meister Jr F, Haasch GC, Gerstein H. Treatment of external resorption by a combined endodontic-periodontic procedure. *Journal of Endodontics* 1986;12(11):542-5.
7. Meng HX. Periodontic-endodontic lesions. *Annals of Periodontology* 1999;4(1):84-9.
8. Walton RE, Garnick JJ. The periodontal ligament injection: histologic effects on the periodontium in monkeys. *Journal of Endodontics* 1982;8(1):22.