

## Period –Endo Nexus A Review Of Literature

Dr Sarika Shetty, Associate Professor,

,Department of Periodontics,MGM Dental College &Hospital,Kamothe,NaviMumbai.India.

Corresponding Author:Dr Sarika Shetty

---

**Abstract:** Periodontal therapy includes many aspects of the supporting structures, and also the prevention and repair of lesions of the gingival sulcus. Endodontic lesions origin is significant as they frequently extend and manifest themselves in the attachment apparatus.The success of the Perio Endo lesions depends on the elimination of both disease processes, whether they exist separately or as a combined lesion.

The fact that the Periodontium and the dental pulp are anatomically interconnected also implies that exchange of noxious agents may also occur in the opposite direction that is from the external environment to the pulp.The aim of this paper is to give a comprehensive insight of several aspects of Perio - Endo lesions.

**Keywords:** Classification, Pathways of communications of endo –periolesions.Diagnostic procedures & Micro biology.

---

Date of Submission: 15-06-2018

Date Of Acceptance: 30-06-2018

---

### I. Introduction

The relationship of the pulp and the periodontium is a dynamic one. There are few specialities of dental practice that are as intimately related to each other as endodontics and periodontics<sup>1</sup>.A perio -endo lesion simply means that the tissues around and within the teeth are affected by disease process.So the survival of such tooth depends on proper diagnosis and appropriate sequence of treatment of the lesion.

When disease appears in the periodontal ligament ,it might have originated from pulpal tissues and spread through the apical foramen or extended from the marginal gingival tissues and spread through the teeth.Since both the peri -apical periodontal and marginal periodontal tissues have the same embryonic origin,it is of no surprise that there could be a pathogenic relationship between the two areas.<sup>2</sup>

An infection originated in the pulp may extend to the periodontal tissues or a periodontal infection may extend to involve the pulpal tissue,and vice-versa.The diagnosis of these lesions is a challenge but establishing the correct diagnosis and subsequently the proper treatment sequence is of importance for a satisfactory progress.The clinician must be aware that endodontic and periodontic lesion arise from inflammations,including a thorough medical and dental history ,pulp testing,periodontal probing and radiographic examination is very important in establishing proper diagnosis.

The true relationship between perio pulpal diseases was described by Goldberg in 1964.Since then the term” Perio Endo lesions “ have been used to describe in both the periodontium and pulpal tissues.The pulpal periodontium have embryonic ,anatomic and functional inter relationship<sup>3</sup>.

### Classification:

There are various peri – endo lesions classification among which the classification of Simon et al 1972,<sup>4</sup> separately classifies lesions involving both periodontal and pulpal tissues into the following group.:

1. Primary -endo lesions
2. Primary endo lesion with secondary perio involvement
3. Primary perio lesion
4. Primary perio lesion with secondary endodontic involvement.
5. True combined lesion.

For treating these cases efficaciously another classification was provided by Torabinejad and Trope in 1996,<sup>5</sup>based on the origin :

1. Endodontic origin
2. Perio origin
3. Combined endo perio lesions

4. Seperate endo -perio lesions
5. Lesion with communication
6. Lesions with no communication.

Another classification was recommended by the World Workshop Classification of Perio diseases {1999},<sup>6</sup> as follows:

Periodontitis associated with endodontic disease

1. Endodontic -periodontic lesion
2. Periodontic endodontic lesion
3. Combined lesion.

**Pathways of communication from perio-endo lesions:**

Cahn (1927)<sup>7</sup> and Sicher (1936),<sup>8</sup> were the people who first described the presence of communicating channels between the pulp and periodontal ligament. Direct communication between the pulp and periodontal ligament exists by way of the dentinal tubules, the lateral and/or accessory canals and the apical foramina.

These pathways of communication may be divided into 3 categories:

1. Developmental:
  - Apical foramina
  - Lateral /accessory canals.
  - Developmental grooves
2. Pathological
  - Empty spaces created by destroyed Sharpey's fibres.
  - Root fracture following trauma/endodontic therapy.
  - Idiopathic resorption –internal /external
3. Iatrogenic:
  - Exposure of dentinal tubules following root planning.
  - Accidental lateral perforation during endodontic therapy



**Figure 1: The possible anatomic pathways of communication between the pulp and the periodontium; apical foramen, lateral canals and dentinal tubules**

**Various diagnostic procedures that can be used to identify perio endo lesions<sup>9</sup> Visual examination**

Soft Tissues

Inflammation

Ulcerations

Sinus tracts

Teeth

Caries

Defective restorations

Abrasions

Cracks

Fractures

Discolorations

**Palpation**

Periradicular abnormalities

Cannot differentiate between endodontic and periodontal lesion

Compare with control teeth

**Percussion**

Periradicular inflammation

Compare with control teeth

**Mobility**

Loss of periodontal support

Fractured roots

Recent trauma

Periradicular abscess

**Radiographs**

Periradicular bone resorption of endodontic origin - not effective

Bone loss due to periodontal disease - effective

**Pulp vitality testing**

(Cold test, Electric test, Blood flow tests, Cavity test)

Abnormal response – Degenerative changes

No response – Pulp necrosis

Moderate transient response – Normal vital pulp

Quick painful response – Reversible pulpitis

Lingering painful response – Irreversible pulpitis

**Pocket probing**

Probing depth

Clinical attachment level

Sinus tracking

**Fistula tracking**

Semi rigid radioopaque material (gutta percha)

**Cracked tooth testing**

Transillumination

Wedging

Staining

## **II. Microbiology**

It is well documented that bacteria play an important part in the pathogenesis of both periodontal and pulpal disease. A few studies have directly compared the microflora of the root canal and periodontal pocket in the same patient. Kipiotti et al (1984),<sup>10</sup> found large similarity in such microflora when they compared the different sites.

Kerekes and Oslen (1990),<sup>11</sup> in their review provided some example of similarities in the microflora of these adjacent oral sites. This also found that the organisms most often involved are bacteroides, fusobacteria, eubacteria, spirochetes, veilonella, campylobacter and peptostreptococci. The important qualities of cross infecting organisms may be the ability to survive in highly reduced environments and motility.

Trope et al (1988),<sup>12</sup> conducted a study to determine if a periodontal abscess could be differentiated from an endodontic abscess by the type and proportion of micro organisms found in abscess exudate using Dark field microscopic examination. They examined 17 patients of which 8 were diagnosed clinically as having abscess of endodontic origin and the rest having abscess of periodontal origin. Results showed that the percentage of coccooid organisms did not differ much in both lesions. But there was a distinct difference in the percentage of spirochetes in the two types of abscess., concentration occurrence of spirochetes ranged from 30-60% whereas in endodontic abscess the range was 0-10%. Based on these results they suggested the use of dark field microscopy as an aid in the diagnosis of endo-perio lesions. In 1992,<sup>13</sup> the same authors reported two cases which were diagnosed using dark field microscopy and treated successfully.

## **III. Treatment**

Treatment planning must include the consideration of diagnostic and prognostic factors deemed to influence the treatment outcome of perio - endo lesions<sup>13</sup> (Modified from Rotstein I, Simon JHS). Diagnosis, prognosis and decision making in the treatment of combined periodontal-endodontic lesions. That should be taken into consideration. If any of these factors are deemed negative, extraction is the treatment of choice. In cases where the pulp is nonvital and infected, conventional endodontic therapy alone will resolve the lesion. Surgical endodontic therapy is not necessary, even in the presence of large periradicular radiolucencies and periodontal abscesses. Any, primary endodontic lesions persist, despite extensive endodontic treatment, the lesion may have secondary periodontal involvement or it may be a true combined lesion.

In case of secondary periodontal involvement, root canal therapy is instituted immediately and the cleaned and shaped root canal is filled with calcium hydroxide paste, which has bactericidal, anti inflammatory and proteolytic property, inhibiting resorption and favouring repair. It also inhibits periodontal contamination of instrumented canals via patent channels connecting the pulp and periodontium before periodontal treatment removes the contaminants. Evaluation of the treatment results need to be done after two to three months and only then should periodontal treatment be considered.

This allows sufficient time for initial tissue healing and better assessment of the periodontal condition. Prognosis of primary endodontic disease with secondary periodontal involvement depends on periodontal treatment and patient response.

Primary periodontal lesions should be treated first by proper oral prophylaxis phase therapy. Factors affecting the maintenance of patient's oral hygiene need to be evaluated. Periodontal surgery is performed after the completion of hygiene phase therapy. Pulpal pathology may be induced while carrying out periodontal therapy in lesions involving the furcation area. The various periodontal therapy that may be involved are attempted to treat periodontal pockets and promote regeneration. These techniques include new attachment techniques, gingivectomy, apically displaced flap, removal of the tooth side of pocket by tooth extraction or by hemisection or root resection.

## **IV. Discussion**

The inter relationship between the pulpal and periodontal disease is unique and is histologically demonstrated using various criteria's including radiographic, histological and clinical. However this relationship, over a period of time has been both confirmed and denied by investigators using wide variety of evaluation, methodologies and parameters, its controversial which disease came first., A thorough diagnosis is of utmost importance and evaluation must ensure to determine the most probable etiology, course of disease and most reasonable treatment.

In case an interrelationship in disease entities exist or if the potentiality for the occurrence is anticipated, appropriate treatment must be initiated to remove the true etiologic factors to enhance the prognosis for retention of tooth, which is the primary goal. An essential difference between the two diseases that is endodontic and periodontic entities is their source of infection. While the periodontal disease is maintained by bacterial

accumulations in the dentogingival region, Endodontic lesions are directed towards infectious elements raised from the pulpal space.<sup>14</sup>

### **Bibliography**

- [1]. Christie W.H and HOLTHUIS A .F: The Endo perio problem in dental practise, Diagnosis and prognosis J.Can .Dent Assoc.1999;56:1005
- [2]. Stallard RE :Periodontic endodontic relationship
- [3]. Singh .P:Dent Res J (Isfahan) : Endo –perio detection a brief review 2011, Winter ,8:1:38-47.
- [4]. Simon J .H ,Glick D.H ,Frank AL.:The relationship of endo perio lesions: J of Periodontology -1971,43(4),202-208(pubmed).
- [5]. Torabinejad M, Trope M-Endodontic and perio interrelationship ,in Walton RE ,Torabinejad M, editors ,Principles and practise of endodontics 1996.
- [6]. Armitage –GC –Development of a classification system for periodontal disease and condition –Annals of Periodontology 1999,4(1),1-6 (pubmed).
- [7]. Chn L.R –Pathology of pulps found in pyorrheic teeth. Dent .Items.Intl.1927;49:598-617.
- [8]. Sicher H and Gottlieb B:Biological pathology of tooth and its supporting mechanism .Z. Stomatol 1936;34:819.
- [9]. Raja Sunitha V, Pamela Emmadi et al, J Conservative Dent 2008, April-June vol 11, issue 2, 54-62.
- [10]. Kipioti A et al : Microbiological findings of infected root canals and adjacent periodontal pockets in teeth bwith advanced periodontitis : Oral Surg: 1984 ,58:213.
- [11]. Kerekes K and Olsen I: Similarities in the microflora of root canals and deep oeriodontal pockets .J.Endo .Dent Traumatol :1990,6:1.
- [12]. Trope M et al Dark field microscopy as a diagnostic aid in differentiating exudates from endodontic and periodontal abcessess .J. Endo 1988;14:35.
- [13]. Lang and Tonetti et al, Treatment of Perio Endo lesions systematic review –JCP, 2014 Aug vol 41, 81:779-790.
- [14]. Jan Lindhe :Clinical periodontology and Imolant Dentistry ,5<sup>th</sup> edition ,vol 1.

Dr Sarika Shetty 'Period –Endo Nexus A Review Of Literature.' IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 6, 2018, pp 33-37.