The Perio-Endo Tango: A Case Report on Diagnostic Duality

Dr. Luchun Tanya Pamei*, Dr. Ruchi Pandey**
*Post graduate student, Department of Periodontology, Manav Rachna Dental College, SDS, MRIIRS
**Professor and Head, Department of Periodontology, Manav Rachna Dental College, SDS, MRIIRS
Corresponding Author- Dr Ruchi Pandey, Department of Periodontology, Manav Rachna Dental College, SDS, MRIIRS. Orcid ID: 0000-0001-9667-0778 **Affiliation:** Department of Periodontology, Manav Rachna Dental College, SDS, MRIIRS
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ABSTRACT
Introduction: A condition known as an endo-perio lesion occurs when periodontal and pulpal diseases coexist in the same dental component. The periodontal complex comprising of alveolar bone, periodontal ligament, root cementum and the overlying linked with the periodontal tissues is the dental pulp, which may communicate with the periodontium through:the apical foramen, dentin, tubules, lateral root canals, furcation root canals, fractures lines inside the root.
Case Report: The patient in this case report was 28year old female with pain and abscess with vertical bone loss. It was treated with drainage and curettage followed by periodontal regenerative surgery.
Conclusion: A collaborative and interdisciplinary approach can aid in the enhancement and preservation of the natural dentition in order to attain health, comfort, aesthetics, and function even in teeth that are thought hopeless using conservative methods.

KEYWORDS
Endo-perio, periodontal surgery, regenerative.

Introduction

Endo-perio lesion occurs when periodontal and pulpal diseases coexist in the same dental component[1]. Coyler was the first to propose a possible cause-and-effect relationship between periodontaldisease and pulpal illness in 1924.

Cahn then proposed in 1927 that "side canals," which is now known to as lateral or auxiliary canals, a possible route for the infectious process to go from affected periodontal tissues inward and "rapidly involving the pulp"[2].

Simring and Goldberg first used the phrase "retrograde periodontitis" in the year 1964 to refer to periodontal disease that starts in the dental pulp moving from the apical to the gingival margin.This was done to set the process apart from the marginal. The co-occurrence of periodontal and pulpal diseases in the same dental component is known as an endo-perio lesion. Simring and Goldberg initially explained the connection of periodontal and pulpal disease in 1964[3].

Torabinejad and Trope in 1996 proposed a more effective clinical classification for addressing these situations depending on the root of the periodontal pocket[4]:

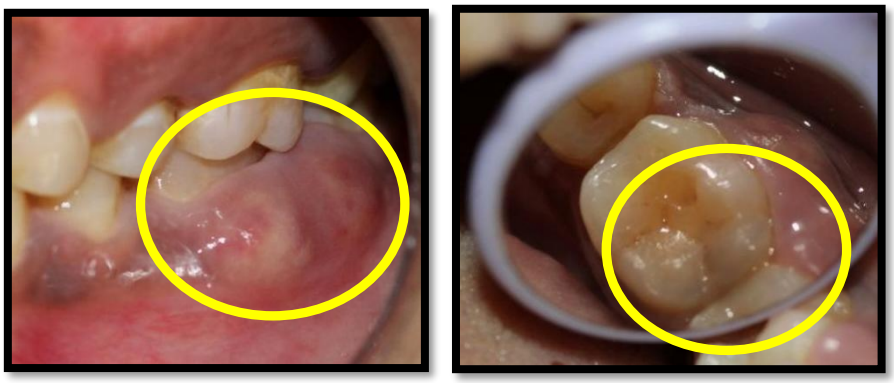
1. Endodontic origin
2. Periodontal origin
3. Combined endo-perio lesions
4. Separate endodontic and periodontal lesions
5. Communication lesions
6. No communication lesions

Case Report

A female patient of 28year old, came to the department of periodontology, Manav Rachna Dental College, Faridabad, Haryana and was referred by the Endodontic department for an abscess drainage in the lower left back tooth region. She had complaint of pain in relation to 36 forfive days. She was apparently well 5 days ago when she started noticing the pain which was severe and continuous and was undergoing root canal treatment in relation to 36. Patient also reported history of tender on percussion wrt 36.

On clinical examination, there was an enlargement seen on the buccal region of the mandibular left posterior tooth region which extends from the mid buccal of 36 to the mesial of 37 (figure1a). There was also presence of an abscess and an absence of any sinus opening. On palpation, the gingiva was soft and edematous, bleeding on probing was positive. Pocket probing depth measurement was ≥ 4mm wrt 36 and 8mm on the disto-buccal region.

On the radiographical examination, we can appreciate a radiolucency in the distal side of 36 indicating a vertical bone loss as well as the furcation area showing the furcation involvement. And cervical caries in the distal cervical region of 36 (figure 1b).



a)

b)

Figure 1: a) Clinical interpretation b) Radiographic interpretation

Prior to the intervention, blood investigation included of haemoglobin count, bleeding time, clotting time and random blood sugar level. Followed by an emergency abscess drainage wrt 36,37 under local anaesthesia using 2% lidocaine combined with 1:100,000 epinephrine. Curettage was done using Hu Friedy #11/12 and #13/14 curettes to debride the area. Irrigation was done using saline water thoroughly. Patient was recalled for re-evaluation after 1 week.

On the 2nd visit i.e 1st week post abscess drainage, the gingival inflammation and enlargement subsided in size showing a satisfactory healing and pocket probing depth was re-evaluated using the UNC-15 probe and was maintained the depth of ≥ 4mm wrt 36 and 6mm on the disto-buccal region. Phase I therapy was also delivered which includes scaling with ultrasonic scaler system using.

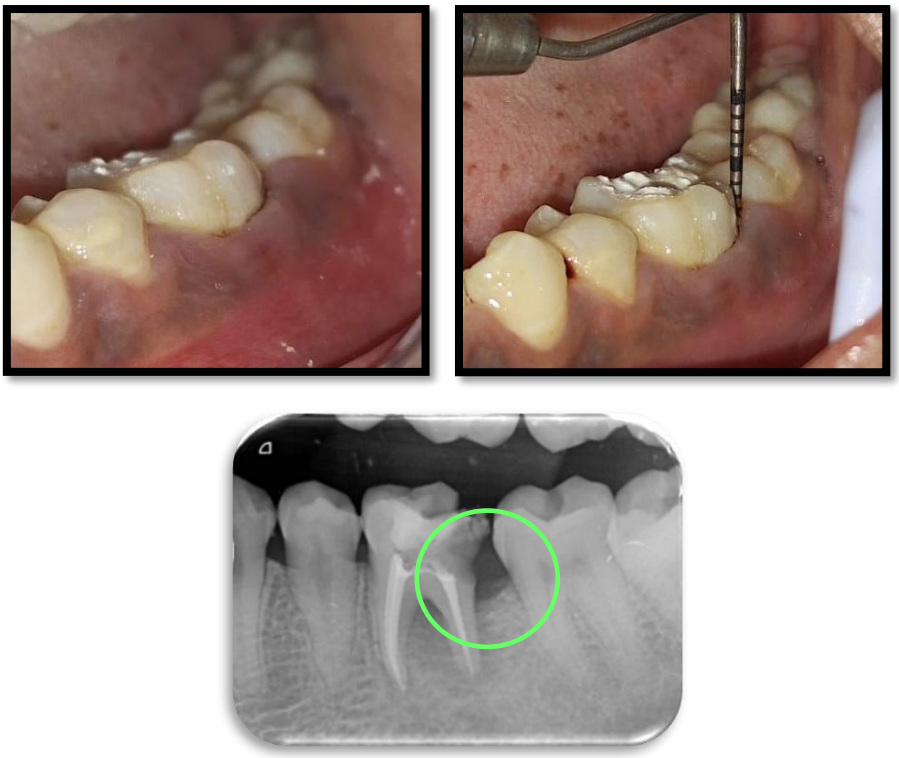


Figure 2: 1 weekpost abscess drainage

On the 3rd visit i.e 1 week post scaling, re-evaluation of pocket probing depth was done measuring ≤ 4mm wrt 36 and 5 mm in the disto-buccal region wrt 36 (figure 3). Radiographic

*Guilin Woodpecker Medical Instrument Co., Ltd.,China Piezo-electric, DTE D5 Optic Dental Ultrasonic scaler

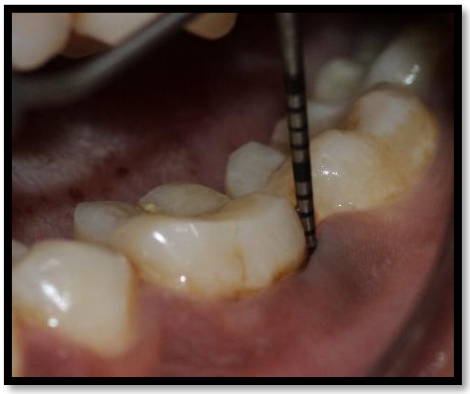


Figure 3: 2week post abscess drainage showing 5 mm pocket probing depth in disto-buccal region of 36

So hereafter, the decision was taken up so as to provide a surgical therapy wrt 36.

The surgical therapy included the disinfection of the extraoral area near the oral cavity with betadine solution with the help of cotton and tweezer followed by the delivery of local anaesthesia then first incision is given using a sterile 15c BP blade (figure 4) then flap was reflected both on the buccal and lingual surfaces using periosteal elevator for the access to the defected region. Thorough debridement was done using curettes. Regenerative material intervention was done using a synthetic bone grafting material, specifically a bioactive glass particulates(Figure5) however, prior to that, stabilizing suture was given using following the bone graft placement and condensing it to compact it. Then, simple

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interrupted suture method was used to ensure the flap to its position (Figure 4). Then coepak was delivered to not further produce infection and inflammation from contaminants.
*Scitech(ST-141004)
*2% lidocaine combined with 1:100,000 epinephrine
*Hu Friedy gracey curette #11/12 and #13/14
*Novabone PerioGlas (1x0.5 cc)
#Trusilk (USP 5-0, 3/8 Circle Reverse Cutting SN 5080)

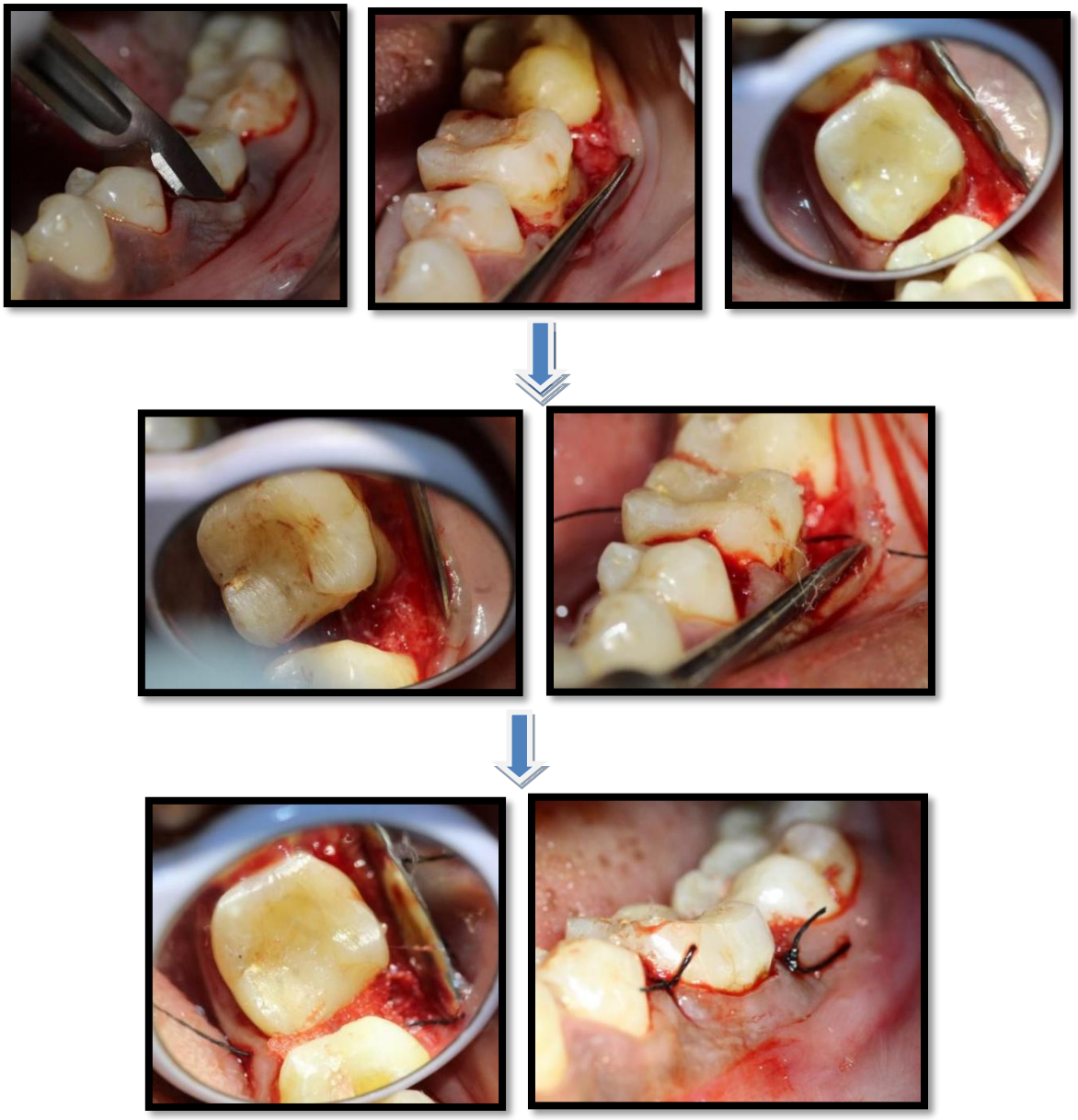

Figure 4: Steps of the regenerative procedure wrt 36 intra-operative

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Figure 5: Regenerative material used

Figure 6: 1 month post operative

Figure 7: 3month post-operative radiograph

Discussion

Prognosis is determined by the degree of periodontal contribution, periodontal treatment, and patient reaction.When the majority of the bone support lost due to periodontitis, nonetheless of the predictability of endodontic therapy, the tooth can have a bleak outcome. Strategic therapy for multirooted teeth includes regeneration, root eradication, and hemi-section.Tagger et al. discovered that when the pulp in monkey, dog, and rat teeth becomes necrotic, an inflammatory response develops in the periodontal ligament, apical foramen, or furcation areas in 21% of the teeth studied[5].The pulp and periodontium communicate mostly through the apical foramen. Microbial and inflammatory by-products can easily leave through the apical foramen, causing peri-radicular pathoses. The apex may allow inflammatory byproducts from deep periodontal pockets to reach the pulp.Kakehashi, et al., Moller, et al., & Blomlof, et al.showed the inter-connection between the availability of bacterial organisms anddiseases in pulp and peri-radicular structures[6].

Hench et al. invented bioactive glasses (bio glasses) in 1970s, which are first silicates that are coupled with different minerals that are biologically present in the body (Ca, Na2O, H, and P).When exposed to a hydrous solution or physiological secretions, the interface of bio-glasses transforms into a silica-CaO/P2O5-rich gel layer, mineralizing into hydroxycarbonate within hours. Bio-glasses are

biocompatible, osteoconductive, and, accordingto how they were manufactured. They may possess a permeable framework or exhibit a penetrable architecture facilitates bone formation and resorption[7]. They have been effectively employed in periodontal surgical procedures,they are utilized to stimulate bone regrowth including being relatively easy to operate on and adjust to the defect[8].The treatment plan in both pulp and periodontal tissue necessitates a focus on specific findings and their implications, rather than categorizing each case arbitrarily, especially when the clinician is perplexed and unable to quickly determine an acceptable diagnosis. In this purpose, increased emphasis must be focused on the full examination of the tissues in question, as well as an integrated analysis and synthesis of history and present data acquired, resulting in a repair-predictive, treatment-circled diagnosis[9].

Conclusion

A collaborative and interdisciplinary approach can aid in the enhancement and preservation of the natural dentition in order to attain health, comfort, aestheticsand function even in teeth that are thought hopeless using conservative methods[10].

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