COMBINATION OF REGENERATIVE PROCEDURE AND ENDODONTIC TREATMENT IN ENDO-PERIO LESION: A CASE REPORT

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ABSTRACT

Introduction: The relationship between the periodontal and endodontic lesion disease was first described by Simring and Goldberg in 1964 which referred to it as an “endo-perio lesion”. The success of the treatment is depending on the proper identification of the causes. The treatment might require both endodontic therapies combine with a periodontal regenerative procedure. The present case report shows a combination of endodontic treatment with a GTR procedure.

Case Report: A 21 years old man came to periodontics department, University of Sumatera Utara with a chief complaint of tooth mobility in a lower lateral incisor with a gingival enlargement. Intra oral examination shows grade II mobility with an interdental gingival inflammation and a trauma from occlusion on tooth 42 and clinical examination shows a non-vital tooth with a infrabony pocket. A combination of endodontic treatment and GTR procedure was performed in this case.

Discussion: Determination the main causes in endo-perio lesion plays an important role which affected the treatment plan of the case. Proper history taking and sequential treatment planning are important for a successful treatment of this lesion. Combination of guided tissue regeneration (GTR) with an adequate root canal treatment in the involvement of pulpal and periodontal lesion will increase the prognosis of a tooth.

Conclusion: Endo-perio lesion presents a challenge in diagnostic and treatment plan. Through proper identification and good treatment plan such as root canal treatment combine with a GTR procedure, it shows a good and predictable outcome.

KEYWORDS: Endo-Perio Lesion, Bone Graft, Guided Tissue Regeneration

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1. INTRODUCTION

The endodontium and periodontium are closely related to each other and the involvement of this disease might be a two way which we often called as “endo-perio” lesion. This endo-perio lesion happened in the same tooth which make it difficult to diagnose and to treat. The pathway for spread of disease bacteria between periodontal and pulpal had been discuss in many literatures.¹

The most common used classification of endo-perio lesion was by Simon et al in 1972 which divided this classification into a few categories: 1. Primary endodontic lesion 2. Primary endodontic lesion with secondary periodontal involvement, 3. Primary periodontal lesion, 4. Primary periodontal lesion with secondary endodontic

involvement 5. True combined lesions.² the newest classification was described by the European Federation of Periodontology (EFP) in 2017 which divided this categorized into two big categories which is endo-periodontal lesion with root damage or endo-periodontal lesion without root damage.³

Treatment of endo-periodontal lesion are depending on the primary cause on the lesion. The treatment might require both endodontic therapies combine with a periodontal regenerative procedure. This article presents a case report of and endo-periodontal lesion without root damage in a lower lateral incisor with a combination of endodontic therapy and periodontal regenerative procedure .

1.1. Case Report

A 21 years old man came to periodontics department, Universitas Sumatera Utara with a chief complaint of tooth mobility in a lower lateral incisor with a gingival enlargement. Patient was systemically healthy and non-contributory medical history. Intra oral examination shows a grade II mobility with an interdental gingiva inflammation and a trauma from occlusion on tooth 42 [Fig 1a, b]. Patient had a good oral hygiene and probing pocket depth of 12mm and 10mm was recorded respectively on the distal labial and lingual aspect on tooth 42. No carious lesion was found on the tooth however the tooth had a negative response toward thermal and electric pulp test. Intra-oral periapical radiograph (IOPR) shows a wide vertical bony defect and widening of periodontal ligament (Figure 1c).

On the first appointment full mouth scaling root planning was done followed by a provisional splinting, occlusal reduction and root canal treatment. Re-evaluation of patient after 14 days shows a decrease of interdental gingival enlargement and a probing depth shows a decrease of pocket to 9mm and 7mm respectively recorded on the distal labial and lingual aspect. Patient was recalled 3 months after the root canal treatment and IOPR shows a persistent of vertical bone defect with a no changes of probing depth [Figure 2a-c]. Therefore, periodontal regenerative surgery was planned for treatment of vertical defect.

Figure 1: A) Initial View of Tooth 42 on Labial Aspect, B) Lingual Aspect & C) Initial IOPR of Tooth 42.

Figure 2: 3-Month Re-Evaluation of Tooth 42 A) Labial Aspect, B) Lingual Aspect, C) Persistent Vertical Defect Was Seen

1.2. Regenerative Periodontal Therapy Procedure

Before the surgery patient was given an aseptic procedure extra and intraoral with a 2 % povidone-iodine. The procedure was carried out under local anesthesia (articaine 4 % with epinephrine 1: 100,000). A horizontal incision was given 2mm below the interdental of the mesial and distal aspect of tooth 42 with a purpose to preserve the intact of interdental papilla. A vertical incision was given on the distal of tooth 41 and 43 and a sulcular incision was done from tooth 41 to 43. A full-thickness flap was raised with a combination of periosteal releasing incision to create a free-tension flap [Fig 3a, b]. Granulation tissue was removed using a Gracey curettes and root planning procedure was done. A 2-wall bone defect was seen and a xenograft bone graft material was placed into the defect follow by a placement of pericardium membrane [Fig 4a-c]. The flap was suture with 5-0 blue nylon tightly to the interdental papilla [Fig 5] and post-operatively care treatment was given to the patient.

Figure 3: A) Sulcular Incision on Tooth 42, B) Full Thickness Flap was Raised.

Figure 4: A) 2-Wall Defect Was Seen on Tooth 42, B) Xenograft Placement & C. Membrane Placement.

Figure 5: Interrupted Sutured Was Performed.

1.3. Post-Operative Care

The patient was instructed not to disturb the surgical site in any way until the sutures were removed. Other post-operative instructions were also given. The patient was advised to take antibiotics & analgesics for 7 days postoperatively (Amoxicillin 500mg & Mefenamic Acid 500mg). Use of 0.12 % chlorhexidine rinse was also advised. Two weeks postoperatively the sutures were removed. Healing was satisfactory and a no sensitive pain was reported [Fig 6 a, b]. The patient was recall regularly. After 4 month the probing depth shows a reduced by 2 mm and clinical examination shows a growth of interdental papilla both on the labial and lingual aspect with a stable bone graft [Fig 7 a-c].

Figure 6: Clinical View of 2 Weeks Post-Operatively A) Labial Aspect, B) Lingual Aspect.

Figure 7: Clinical View and Radiography at the 4 Months Recall A) Labial Aspect, B) Lingual Aspect, C) A Stable Bone Graft Was Shown in the IOPR.

2. DISCUSSIONS

Treatment of endo-perio lesion have always been a challenge for the dentist. Endo-perio lesion is a clinical manifestation of inflammatory intercommunication between the periodontal tissue and pulpal via structures such as dentinal tubules, lateral or accessory canals and apical foramen.⁴Determination the main causes in endo-perio lesion plays an important role which affected the treatment plan of the case. Proper history taking and sequential treatment planning are important for a successful treatment of this lesion.⁵

In the present case, no carious lesion was found on tooth 42 but a deep periodontal pocket with a non-vital examination test was found. Radiographic examination showed an advanced of periodontal bone loss until apical one third. Through this finding according to the Simons classification we concluded that it was a primary periodontal lesion with

secondary endodontic involvement and according to the EFP classification this case was diagnose as endo-periodontal lesion without root damage. Study by Adriaens et al showed that dentinal tubules was a reservoir for microorganism to infected tooth.⁶ Rubach and Mitchell suggested that accessory canals had a possible role as a pathway of periodontal lesion with a secondary endodontic involvement.⁷

Combination of guided tissue regeneration (GTR) with an adequate root canal treatment in the involvement of pulpal and periodontal lesion will increase the prognosis of a tooth. GTR procedure is a procedure which involve a removal of granulation tissue and a placement of bone graft with a purpose of creating a healthy periodontal tissue.^{8,9,10} Xenograft bone graft was used in this case because it has osteoconductive properties and act as a scaffold for the growth and deposition of new bone formation. A non-resorbable membrane was used as a barrier toward the epithelial cells and no second surgical intervention should be performed.

The result of this case shows a satisfied result of the regenerative procedures which shown by the increasing of papilla interdental and a significant amount of bone fill with a reduction of pocket depth.

3. CONCLUSIONS

Endo-perio lesion presents a challenge in diagnostic and treatment plan. Through proper identification and good treatment plan such as root canal treatment combine with a GTR procedure, it shows a good and predictable outcome.

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