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Multidisciplinary Treatment for Patient with Perio-Endo Lesion : A Case Report

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Abstract

Background : Perio-endo lesions are lesions caused by inflammatory products that found in periodontal tissue and pulp at the same time. A comprehensive examination including clinical examination and radiographs will help to get a correct diagnosis. In this case report, regenerative periodontal theraphy with bone graft and membran was performed as a periodontal treatment accompanied by endodontic treatment before making a denture. **Objective :** This case report was written with the aim of understanding the multidisciplinary care of a patient with perio-endo lesions. **Case report :** A 42-year-old female patient referred from the prosthodontics department of UNHAS Makassar Dental Hospital came with complaints of loose front upper teeth and often swollen and festering gums. On clinical examination, it was seen the teeth 21,22,23 were mobile grade 2 with the pocket depth of > 5 mm. Radiographic examination showed a radiolucent picture on the apical to lateral teeth 21,22,23. The patient has no history of systemic disease, does not smoke, and does not taking any medications.. The management of this case at the first visit is doing the initial therapy such as of skeling-root planning and radiographic examination. At the second visit, the regenerative periodontal theraphy with bone graft and membran was performed, and then followed by endodontic treatment. GTSL overdenture was made at the final stage of treatment.. **Conclusion:** Multidisciplinary treatment in this case of perio-endo lesion provides better and satisfactory results for the patient.

Keywords : perio-endo lesions, regenerative periodontal theraphy, multidisciplinary treatment

Introduction

Periodontium and pulp tissue are biological complexes that are closely interconnected. The connection between periodontium tissue and pulp can occur through anatomical and non-physiological pathways.[1] Anatomical pathways occur through the apical foramen, lateral canals and dentinal tubules, while non-physiological pathways such as iatrogenic perforation, trauma,

vertical tooth fracture, inadequate periodontal treatment, and others.1 These tissues can be infected individually or combined.[2] Over the years, perio-endo lesions have always been a clinical dilemma as they are very complex and have varied pathogenesis.[3] In determining the diagnosis, prognosis, and treatment plan for teeth with endodontic-periodontal lesions, it is very important to confirm that the initial lesion originated from the pulp tissue or periodontium tissue.[4] A multidisciplinary approach is necessary to achieve the best results in treating cases of combined lesions such as these perio-endo lesions.[5]

There are various classifications of periodontic-endodontic lesions, one of which is secondary primary-endodontic periodontal lesions.6 In this case, the primary periodontal lesion caused the extension of infection from the socket to the pulp, but the pulp was not necrotized with or without minimal pain from the patient. The localized disruption of the periodontal tissues characterized by plaque and calculus accumulation is the main cause of the lesion and manifests with gingival recession, tooth mobility and loss of attachment.[7] The prognosis of treating this lesion is entirely dependent on periodontic treatment. The destruction of periodontium tissue caused by periodontal lesions is slow.[8] The amount of periodontal tissue destruction is usually influenced by the level of oral hygiene and the amount of plaque, modified by other factors such as smoking, stress, and systemic risk factors.[9] Treatment of periodontal lesions usually includes initial therapy, namely scaling and root planing, curettage, and oral hygiene instructions.10 Follow-up after several weeks or months is needed to evaluate the response of the disease to the initial therapy. The evaluation involves checking the depth of periodontal pockets and gingival inflammation, as well as re-measuring the plaque and calculus indices.[9,10] The results determine whether the patient requires surgical therapy or just continued treatment in the maintenance phase.[10]

Periodontal surgical therapy is a treatment that aims to gain access to the root surface for adequate debridement and establish optimal gingival contours for self-administered plaque control so as to create a better environment in the oral cavity and inhibit further colonization of periodontal pathogens.[11] One of the periodontal surgical treatments performed on primary periodontal lesions is regenerative periodontal therapy using bone grafts and membranes.[12] Regenerative periodontal therapy is one of the surgical treatment therapies in the field of periodontia that aims to eliminate plaque, calculus, necrotizing tissue and granulation tissue in bone damage with moderate to deep pockets followed by the placement of regenerative materials in the form of bone grafts and membranes. [13] The purpose of this case report is to describe the multidisciplinary treatment and long-term follow-up of decayed teeth with perio-endo lesions and eliminate all causative factors and the appropriate treatment sequence to achieve predictable results. In this case, regenerative periodontal therapy was performed as the main therapy in the field of periodontics by combining bone graft and membrane to regenerate the periodontal defect.

Case Report

A 42-year-old female patient referred from the Prosthodontics department came to the Periodontics Department of Hasanuddin University Dental and Oral Hospital with chief complaints of loose teeth and often swollen and festering gums on the front and upper left side since 3 months. The patient had no history of systemic disease, drug allergy and had never received dental treatment before. The patient has been using acrylic GTS since 6 months ago, but often forgets to remove his dentures while sleeping. The patient last cleaned tartar to the dentist 1 year ago. She brushed her teeth twice a day in the morning and before bed and never used toothpicks. Clinical examination showed hyperemic gingiva with calculus and mace recession on RA-RB, teeth 21, 22, and 23 were vital, non-carious and rocked °2 with a socket depth of ± 6mm. Radiographic examination showed a radiolucent lesion extending apically.

The patient's general condition was healthy, and agreed to dental treatment. The management of this case is that at the first visit, initial therapy is carried out in the form of skeling and root planning and radiographic examination. At the second visit, regenerative periodontal therapy was performed using bone graft and membrane, followed by endodontic treatment. GTSL overdenture was made at the final stage of treatment. It is hoped that with this multidisciplinary treatment, the patient's oral and dental complaints can be resolved properly and the patient will return to health. In this case, the prognosis is good, and the patient is expected to be cooperative so that the results obtained are maximized.

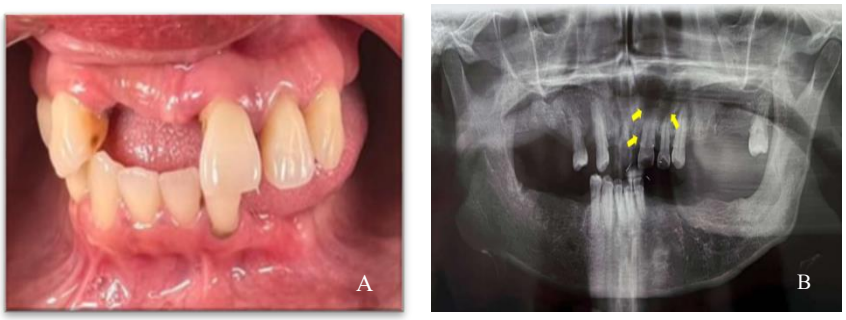

Figure 1. Photographs during the patient's first visit to the Periodontics Department
A). Clinical photo of the patient. B) Foto rontgen panoramik pasien

Based on the 2017 AAP classification, this patient was diagnosed with Periodontitis Generalized Stage IV Grade B dissertation Periodontal Abscess caused by plaque and calculus.

Case Management

The first visit was carried out initial therapy in the form of scaling and root planing and Dental Health Education (DHE). The next visit was carried out regenerative periodontal surgical therapy, namely with Flap surgery and a combination of bone graft and membrane on the maxillary teeth 21,22,23. After regenerative surgery, the patient was prescribed antibiotics, namely amoxycilin 500 mg taken 3x a day for five days, metronidazole 250 mg taken 3x a day for five days, analgesics, namely mefenamic acid 500 mg taken 3x a day, and chlorhexidine gluconate gargle 0.2% mouthwash. Patients were instructed not to eat and drink for 1 hour, not to rinse their mouth, avoid hot, hard, acidic foods and clean the surgical area with a gauze pad soaked in warm water, and instructed to control 1 week later and immediately go to the dentist if there are complaints.

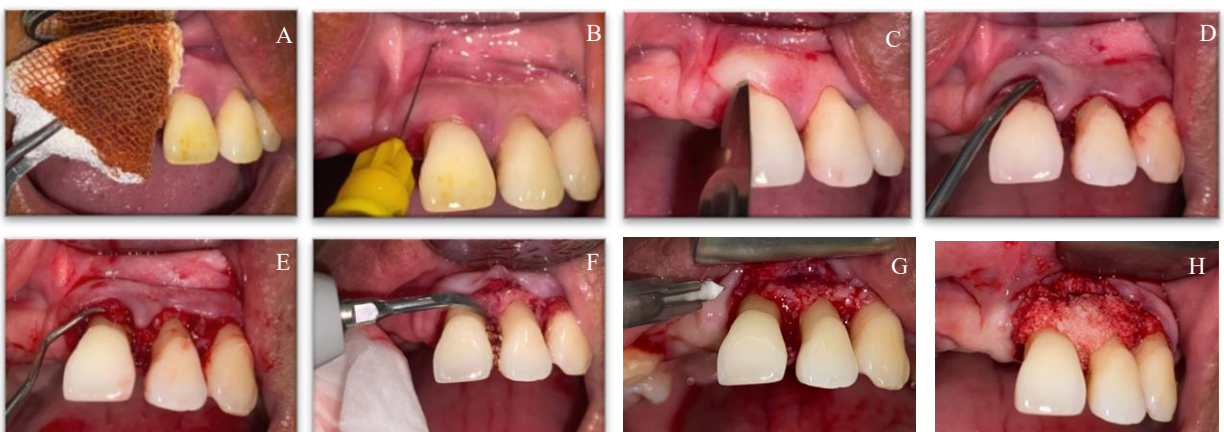

Figure 2: Stages of regenerative flap surgery on teeth 21,22,23. A) Intraoral asepsis. B) Anathesis. C) Incision with 15 C blade. D) Flap elevation. E) Curettage and root planing. F) Scaling. G) Irrigation with sterile saline. H) Bone graft application. I) Membrane placement. J) Flap suturing. K) Periodontal pack placement. L) One month post-action control

At the next stage, root canal treatment was carried out on teeth 21,22,23 in the Dental Conservation department for further overdenture GTSL to be made in the Periodontia Department of UNHAS RSGMP.

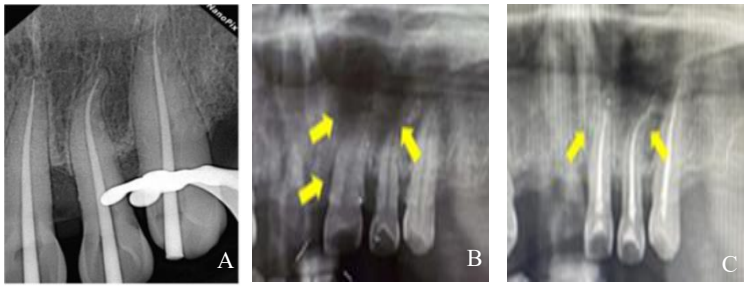

Figure 3: Radiographic image of root canal treatment of teeth 21,22,23 (Conservation Department). A) Post obturation radiographic image. B) Pre-treatment radiographic image. C) Radiographic image after treatment.

Figure 4. GTSL Overdenture fabrication (Department of Prosthodontics).

Discussion

The diagnosis of perio-endo lesions is often difficult to determine because periodontal and endodontic lesions are usually studied as separate lesions.[14] Determining an accurate classification of the lesion is the first step that can assist the dentist in planning the most appropriate treatment strategy.[15] A good history, clinical evaluation, and radiographic

examination, as well as additional diagnostic tests, such as vitality test, percussion, mobility, and periodontal examination should also be performed to differentiate between pulp and periodontal disease.[14] In this case, the patient with primary periodontal lesions in teeth 21,22,23 showed extensive bone loss from cervical to apical and regenerative periodontal treatment was performed. The main goal of periodontal treatment is to regenerate the damaged tissue. The prognosis of a case depends on the severity of the disease and the effectiveness of the treatment.

The regenerative periodontal therapy performed in this case used a combination of bone graft with pericardium membrane which gave satisfactory results for treating primary periodontal lesions. The bone graft material used was xenograft of 0.5 cc. Specifically, the goal of this therapy is to improve tooth attachment to the periodontium and induce bone strengthening and improve support for the dentition. Regenerative periodontal procedures involve the use of various regenerative materials and techniques to regenerate lost portions of the periodontium.[16] Histological findings from periodontal regeneration studies and Melcher's concept of "compartmentalization" reveal that new connective tissue attachment can be assessed if cells from the periodontal ligament settle on the root surface during the healing process.[17] Regenerative periodontal surgical therapy with a bone graft-membrane combination showed good results in terms of decreased inflammation, decreased socket depth, and increased bone height.12 This proves that regenerative periodontal surgery can be used to repair periodontal tissue damage caused by chronic periodontitis disease and establish improved attachment. [16,17]

In this case, bone graft was used as a scaffold for blood clot stabilization and cellular infiltration. The use of the membrane resulted in long junctional epithelium and also played a role in regenerating periodontal ligament fibers, new cementum, and new alveolar bone.[12] The biological reason behind the use of graft is because the content of the material is considered to contain bone-forming cells (osteogenesis) or function as a scaffold for new bone formation (osteconduction) which stimulates bone growth and new attachment formation.[18] Patient evaluation was carried out at 7 days, 1 month post-treatment. The results of periodontal regenerative surgical treatment with a combination of bone graft and membrane in teeth 21,22, 23 showed good results. Follow-up treatment in the form of root canal treatment and GTSL overdenture on these teeth also showed satisfactory results for the patient. The limitation in this case report is that the patient could not fully feel the scheduled recall after surgery because the patient's residence was far from the treatment area, making it difficult for the author to recognize the decrease in the level of bone destruction.

Conclusion

Perio-endo lesions have complex pathogenesis and require high expertise to identify and treat. Multidisciplinary treatment from various related disciplines in this perio-endo lesion case provided satisfactory results for the patient. Regenerative periodontal therapy as a treatment carried out to prevent the expansion of inflammation from periodontal tissue to pulp tissue also provides effective results for the regeneration of the patient's periodontal tissue.

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