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Management of Gingival Curettage in Stage II Grade A Localized Periodontitis Patients

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Abstract:
Periodontitis is a chronic inflammatory disease affecting the supporting structures of the teeth, primarily caused by pathogenic microorganisms. It is characterized by periodontal pocket formation, bleeding on probing (BOP), and clinical attachment loss. This case report describes the comprehensive management of periodontitis, with a focus on gingival curettage as an adjunctive procedure. A 31-year-old female patient presented with complaints of dental plaque accumulation, bleeding gums during tooth brushing, and tooth mobility. The Oral Hygiene Index-Simplified (OHI-S) score was 4.4, indicating poor oral hygiene. Clinical examination revealed erythematous gingiva with a BOP score of 29.2% and probing depths of 4 mm on the labial surfaces of teeth 12, 32, 31, 41, and 42. Grade II mobility was observed in teeth 32, 31, 41, and 42. Radiographic findings showed horizontal bone loss in the coronal third of tooth 12 and vertical bone resorption in teeth 32, 31, 41, and 42. Initial periodontal therapy included oral hygiene instruction and scaling and root planing. At one-week follow-up, persistent periodontal pockets and mobility were noted; therefore, splinting was performed, followed by gingival curettage one week later. The intervention resulted in a reduction in periodontal pocket depth and improvement in clinical parameters. This case highlights the effectiveness of gingival curettage as an adjunct to non-surgical and supportive periodontal therapy in managing moderate periodontitis.

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INTRODUCTION

Periodontitis is a chronic inflammatory disease characterized by the progressive destruction of the periodontal ligament and alveolar bone, primarily caused by specific pathogenic microorganisms within dental biofilm (Bhuyan et al., 2022). The disease manifests clinically as gingival inflammation, periodontal pocket formation, bleeding on probing (BOP), clinical attachment loss, and, in more advanced stages, tooth mobility (Heitz-Mayfield, 2024). If left untreated, periodontitis can lead to tooth loss and significantly impact oral health–related quality of life (Agnese et al., 2025).

The management of periodontitis requires a comprehensive and staged approach aimed at eliminating etiological factors, controlling infection, and restoring periodontal health (Herrera et al., 2022). Periodontal therapy is generally divided into several phases, including the preliminary phase, Phase I (etiotropic therapy), re-evaluation, Phase II (surgical therapy), Phase III (restorative therapy), and Phase IV (maintenance) (Kotb, 2023). Each phase plays a critical role in achieving long-term treatment success and preventing disease recurrence (Garbo et al., 2024).

Phase I therapy, also known as the initial or non-surgical periodontal treatment, focuses on eliminating local etiological factors (Vinel et al., 2022). This phase includes oral hygiene instructions, scaling and root planing (SRP), splinting of mobile teeth, management of dentin hypersensitivity, occlusal adjustment, correction of local irritants, minor orthodontic interventions, and, when indicated, adjunctive antimicrobial therapy (Dommisch et al., 2022). Scaling removes supragingival and subgingival plaque, calculus, and stains, while root planing smoothes contaminated root surfaces and eliminates bacterial toxins, thereby promoting periodontal healing (Kohli, 2023).

When nonsurgical therapy does not fully resolve periodontal pockets or inflammation, surgical intervention may be required (Nibali & Cortellini, 2025). Phase II periodontal therapy includes procedures such as gingivectomy, periodontal flap surgery, implant therapy, and gingival curettage (Safaee et al., 2025). Gingival curettage is a procedure that involves removing inflamed soft tissue lining the periodontal pocket, including the pocket epithelium and granulation tissue, using curettes (Herawati & Olivia, 2022). This procedure aims to reduce inflammation, eliminate residual pathogens, and facilitate new attachment or tissue adaptation in accessible periodontal defects (Jepsen et al., 2023).

Gingival curettage may be an effective adjunctive treatment to improve clinical outcomes in selected cases of periodontitis, particularly in localized and moderate cases (Calciolari et al., 2022). Its application can enhance the results of conventional periodontal therapy when residual pockets persist (Citterio et al., 2022). Therefore, this case report aims to describe the comprehensive management of Stage II Grade A localized periodontitis, with a focus on the clinical application and outcomes of gingival curettage.

STUDY DESIGN

Research Design

This study employed a case report design to describe the clinical management of a patient diagnosed with periodontitis, with a focus on periodontal therapy and gingival curettage.

Participant

The participant in this study was a patient diagnosed with periodontitis who received treatment at the Dental and Oral Hospital, Universitas Jember, in October.

Data Collection

Data were collected through comprehensive clinical and supporting examinations, including assessment of oral hygiene status using the Oral Hygiene Index-Simplified (OHI-S), periodontal clinical examinations (such as probing depth and bleeding on probing), and radiographic evaluation to assess alveolar bone loss. Documentation of the periodontal therapy performed, including oral hygiene instruction and scaling and root planing, was also recorded.

Data Analysis

Data were analyzed descriptively by comparing clinical findings before and after treatment, focusing on changes in periodontal parameters, including oral hygiene status, pocket depth, and signs of inflammation.

Ethical Clearance

Ethical approval for this study was obtained from the Faculty of Dentistry, Universitas Jember. Informed consent was secured from the patient prior to participation and treatment.

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PATIENT INFORMATION

Patient woman, age 31 years, presented to the Dental and Oral Teaching Hospital of Jember University (RSGMP) (UNEJ) with a complaint of a rough tooth for 4 years and gums that were sometimes bloody when brushing her teeth in the morning. The patient also complained that his teeth had been shaking for 3 years. The patient had no history of systemic disease or allergy, no bad habits, and no family history of systemic disease.

CLINICAL FINDINGS

Examination of the extraoral and joints of the temporomandibular region shows abnormalities, including measurement of normal vital signs. Results of the intra-oral examination of tissue periodontal disease show on tooth 12, 32, 31, 41, 42 reddish gingival color, probing depth (PD) 4 mm, bleeding on probing (BOP) 29.2%, recession gingiva class I Millar 1 mm, loss 5 mm attachment, and unsteadiness of the tooth degree 2 at 32, 31, 41, 42. Available calculus all over the region. The Oral Hygiene Simplified Index (OHI-S) patient score was 4.4, which falls in the bad category (Figure 1).

Periapical radiographs were obtained after inspection to support the diagnosis of teeth 12, 32, 31, 41, and 42. Radiographic results show the existence of resorption of the alveolar crest 1/3 coronal with a horizontal pattern on tooth 12 and a vertical pattern on teeth 32, 31, 41, 42. There is widening of the ligament periodontal on tooth 31, 41, 42, mesial tooth 32, and mesial apical tooth 12. Lamina dura is not clear and disconnected on the mesial-distal part of teeth 32, 31, and the distal part of tooth 41 (Figure 2). Based on the results of the anamnesis, clinical inspection, and radiographic inspection, the patient's periodontal disease is localized to stage II, grade A. The patient's prognosis is generally good (good prognosis). Treatment of DHE patients, scaling and root planing, and gingival curettage.

Figure 1. Clinical picture before treatment

Figure 2. Description radiography periapical (a) Tooth 12, (b) Tooth 32, 31, 41, 42.

THERAPEUTIC INTERVENTION

First visit

During the visit, the patient was first provided with communication, information, and education (KIE) and informed consent. The initial action for the patient is Dental Health Education (DHE) on dental health, including knowledge of the teeth and mouth, as well as explaining the method, time, and frequency of correctly brushing teeth. Furthermore, scaling and root planning have been performed to remove plaque and calculus, which cover the tooth surfaces and reduce inflammation. Patient instructed to maintain oral hygiene and to use 1 week of control. On the next visit, we will perform a post-treatment evaluation of the scaling and root planing.

Second visit

On a visit to two done evaluations with subjective examination, the patient has no complaints, reports no aching, and feels more comfortable on intra-oral examination, obtaining an OHI-S score of 0.67 (category good). Examination of periodontal tissue shows a reddish, existing pocket on the labial part of tooth 12, 32, 31, 41, 42, 4 mm, no pain, smooth texture, soft consistency, and positive BOP. At teeth 32, 31, 41, and 42, still found unsteadiness degree 2 (Figure 3). After the evaluation, post-scaling and root planing, the patient underwent action splinting with composite fiber on teeth 32, 31, 41, 42, with a buffer on teeth 33 and 43. Patient instruction: 1-week control, then (Figure 4).

Figure 3. Clinical picture after scaling and root planning

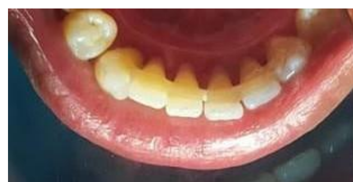

Figure 4. Splinting on tooth 32, 31, 41, 42.

Three visits

On a visit to three done control post splinting. Examination results obtained, the splint condition is still good, and there is no complaint of unsteadiness of teeth. The next action is gingival curettage on teeth 32, 31, 41, and 42.

Surgical gingival curettage was performed on teeth 32, 31, 41, and 42 on the labial side, starting with aseptic preparation using povidone-iodine. Then, do local anesthesia with the infiltration technique on the apical tooth 42 and 32. After the patient feels numb, the surface root can be cleaned using root planning. During the root planing stage, the instrument is inserted with a corner angulation slightly less than 90°, with the cutting edge facing the root surface until it reaches the base pocket. Pulling motion is done in the direction of occlusion to eliminate plaque, calculus, as well as necrotic tissue cementum. Manipulation continued until the surface root was clean, smooth, and hard.

After root planing, gingival curettage is performed using a Gracey No. 1-2 curette. The procedure began with scraping the lateral wall of the pocket using horizontal motion, with the cutting edge leading into the soft tissue. Furthermore, done technique scoping on area-based pocket / junctional epithelium with vertical movement from apical to coronal until fresh blood appears. The work area was then irrigated use 0.9% NaCl solution and dried with tampons. The gingiva adapts to the tooth surface when pressed. After the area is dried with a tampon, a periodontal dressing is applied (Figure 5). Patient given instructions post-curettage and prescribed mefenamate acid 500 mg as a pain reliever, amoxicillin 500 mg three times a day after eating, and a medicine gargle chlorhexidine twice a day as an antiseptic.

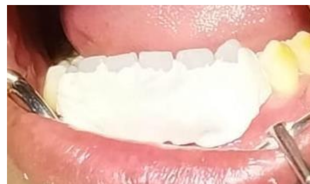

Figure 5. Periodontal dressing on tooth 32, 31, 41, 42 after curettage

Four visits

On a visit to four, done control gingiva, coral pink, bleeding on probing, no, probing depth 2 mm (Figure 6). The patient was instructed to continue to maintain mouth cleanliness, control plaque effectively, and follow the 6-month routine very well.

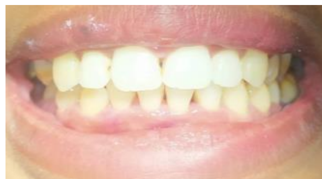

Figure 6. Clinical picture 1-week post-curettage

DISCUSSION

Periodontal disease is initiated by pathogenic bacteria within dental biofilm that produce virulence factors, including lipopolysaccharides (LPS), enzymes, and toxic metabolites. These substances can directly damage periodontal tissues and stimulate host inflammatory responses. The accumulation of plaque, along with contributing factors such as calculus, poor restorations, and smoking, further exacerbates tissue destruction. As a result, the disease progresses if these etiological factors are not adequately controlled (Basic & Dahlén, 2023).

The host inflammatory response plays a crucial role in the breakdown of periodontal tissues. Persistent inflammation leads to the destruction of the periodontal ligament and alveolar bone, resulting in attachment loss. This process increases tooth mobility and, in severe cases, may eventually lead to tooth loss. In this case, Grade II mobility reflected moderate periodontal support loss due to ongoing inflammation (Ray, 2023).

The patient was diagnosed with localized periodontitis, Stage II Grade A, based on the AAP/EFP classification. This stage is characterized by clinical attachment loss of 3–4 mm and bone loss in the coronal third of the root. Grade A indicates a slow rate of disease progression relative to

the patient's age. The presence of Miller Class I gingival recession further suggests chronic and localized periodontal deterioration (Fageeh et al., 2024).

Poor oral hygiene was a major contributing factor, as indicated by the high OHI-S score. Although the patient brushed twice daily, ineffective technique and lack of interdental cleaning resulted in persistent plaque accumulation. Interproximal areas are often inadequately cleaned without flossing or interdental brushes. Dental health education (DHE) improved the patient's understanding and practices, supporting better plaque control and periodontal health (Yang et al., 2025).

Scaling and root planing (SRP) is the primary non-surgical treatment for periodontitis. It removes plaque, calculus, and bacterial toxins from both supragingival and subgingival areas. This procedure reduces inflammation and promotes healing of periodontal tissues. However, in this case, residual pockets remained after SRP, indicating the need for additional intervention (Oliveira et al., 2024).

Splinting was performed to stabilize mobile mandibular anterior teeth. Fiber-reinforced composite splints were selected due to their minimal invasiveness and ease of application. This approach helps reduce discomfort and improve masticatory function. Stabilization also supports periodontal healing by limiting excessive tooth movement (Waqasi & Hanif, 2024).

Gingival curettage was performed due to the persistence of 4 mm periodontal pockets after SRP. The procedure involves removing inflamed granulation tissue and pocket epithelium from the periodontal pocket. This helps eliminate bacterial reservoirs and promotes the attachment of new tissue. Curettage is particularly useful as an adjunctive therapy in accessible pockets where non-surgical treatment is insufficient (Karina & Widhawati, 2022).

Post-treatment evaluation showed significant clinical improvement in the gingival condition. The gingiva appeared coral pink and firm, with a reduced pocket depth of 2 mm. Healing typically begins with clot formation, followed by re-epithelialization within 7–10 days. In this case, favorable healing was observed within one week, indicating successful periodontal tissue recovery (Fraser et al., 2022).

CONCLUSION

Periodontitis is a chronic inflammatory disease affecting the supporting structures of the teeth, characterized by periodontal pocket formation, clinical attachment loss, and alveolar bone resorption. Effective management requires the elimination of etiological factors, particularly dental plaque, calculus, and inflamed granulation tissue within periodontal pockets. In this case, gingival curettage, as an adjunct to non-surgical periodontal therapy, contributed to a significant reduction in pocket depth and improvements in clinical parameters. These findings suggest that gingival curettage may be a beneficial supportive procedure in the management of localized periodontitis when conventional therapy alone is insufficient.

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CONFLICT OF INTEREST

There is no conflict of interest in this article.

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