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Gingival Curettage Treatment in a Case of Chronic Periodontitis: A Case Report

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Chronic periodontitis is an inflammatory disease that leads to the progressive destruction of the supporting tissues of the teeth, resulting in clinical signs such as gingival redness, bleeding, and periodontal pocket formation. One of the treatment approaches commonly used to manage this condition is gingival curettage, a procedure aimed at removing inflamed and necrotic tissue from the gingival wall to promote healing and restore periodontal health. This case report describes the management of chronic periodontitis in a 21-year-old patient who presented with a complaint of persistent gingival redness in the upper right anterior region for approximately three months. Clinical examination revealed erythematous gingiva surrounding teeth 12 and 13, accompanied by a positive Bleeding on Probing response, indicating active inflammation. Based on these findings, a diagnosis of chronic periodontitis was established, and gingival curettage was performed as part of the periodontal therapy. Following the procedure, the patient showed significant clinical improvement, characterized by the disappearance of gingival redness, the absence of bleeding on probing, and the resolution of gingival swelling. These outcomes suggest that gingival curettage can effectively reduce inflammation and improve periodontal tissue condition when appropriately indicated. Nevertheless, the success of this procedure is closely related to patient compliance with oral hygiene practices and regular dental follow-up. Further studies with longer observation periods are needed to evaluate the long-term effectiveness and stability of periodontal outcomes following gingival curettage..
Keywords: gingival curettage, periodontal treatment, chronic periodontitis

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1. Introduction

Oral and dental health problems in Indonesia remain a significant concern, as indicated by the high prevalence of oral diseases such as dental caries and periodontal diseases. These conditions are largely attributed to a lack of awareness and insufficient knowledge regarding oral and dental health.[1]

One of the most frequently encountered periodontal diseases is periodontitis, a condition that causes permanent destruction of the supporting structures of the teeth. This disease is characterized by chronic inflammation, epithelial migration, loss of connective tissue, and resorption of the alveolar bone. Periodontitis is generally classified into two types: chronic periodontitis and aggressive periodontitis.[2]

Chronic periodontitis is one of the most common periodontal diseases worldwide and represents the leading cause of tooth loss in adults.[3] This condition is characterized by chronic inflammation that leads to progressive destruction of the supporting tissues of the teeth, including the gingiva, periodontal ligament, and alveolar bone.[4] In contrast, aggressive periodontitis typically progresses more rapidly, affects younger individuals, and is characterized by faster attachment loss and alveolar bone destruction despite relatively low levels of plaque accumulation. Periodontitis is caused by bacterial infection within subgingival plaque, which triggers the host immune response and results in periodontal tissue degradation through complex inflammatory mechanisms.[5]

According to the American Academy of Periodontology (AAP), periodontitis is classified based on its severity and rate of progression, with chronic periodontitis being the most commonly encountered form.[6] This disease develops slowly over an extended period and presents with clinical signs such as gingival bleeding, periodontal pocket formation, gingival recession, and increased tooth mobility.[7]

The management of chronic periodontitis involves various approaches, including mechanical and pharmacological therapies. One mechanical procedure commonly employed is gingival curettage, a technique aimed at removing inflamed epithelium and granulation tissue from the periodontal pocket wall.[8] Gingival curettage is performed using periodontal curettes inserted into the periodontal pocket to scrape infected soft tissue, with the objective of reducing inflammation and promoting periodontal tissue healing and regeneration.[9]

Several studies have discussed the effectiveness of gingival curettage in the treatment of chronic periodontitis. According to Cobb (1996), curettage can effectively reduce periodontal pocket depth and improve tissue attachment, particularly when combined with scaling and root planing (SRP). Scaling is a therapeutic procedure aimed at removing plaque, calculus, and stains from the crown and root surfaces of teeth. Root planing refers to the procedure of cleaning and smoothing the root surfaces by removing necrotic tissue as well as residual bacteria and their by-products adherent to the root surface (cementum).[11]

Another study by Needleman (2019) indicated that although gingival curettage can reduce gingival inflammation, its effectiveness in promoting true periodontal tissue regeneration remains controversial, especially when compared with other periodontal surgical techniques.

This case report aims to describe the effectiveness of gingival curettage in a patient with chronic periodontitis and to provide information regarding the stages of gingival curettage treatment in the anterior teeth. Through this report, it is expected to offer further insight into the role of gingival curettage in the management of chronic periodontitis, as well as to consider its advantages and limitations as one of the available periodontal treatment options.

2. Literatur Riview and Problem Statement

A 21-year-old patient presented to a dental clinic with the chief complaint of redness and swelling of the gingiva in the upper right anterior region. The complaint had persisted for approximately three months without significant pain. Although the patient did not experience disturbing pain, they reported discomfort due to the swollen appearance of the gingiva and frequent bleeding during tooth brushing.

The patient also admitted to infrequent dental visits and reported brushing their teeth twice daily without the use of dental floss or mouthwash. In addition, the patient had a daily habit of consuming tea, which may increase the risk of plaque and calculus formation. There was no history of systemic disease that could have contributed to the patient's periodontal condition.

Extraoral subjective examination revealed no abnormalities. Intraoral examination showed gingival redness in teeth 12 and 13. The Oral Hygiene Index (OHI) score was 5, the Gingival Index (GI) score was 1.2, and bleeding on probing (BOP) was positive. For tooth 12, BOP was positive at the mesial, mid-facial, and distal sites with probing scores of 6, 5, and 4, respectively. For tooth 13, BOP was also positive at the mesial, mid-facial, and distal sites with probing scores of 5, 3, and 6.

At the patient's first visit, scaling and root planing were performed. One week later, the patient's complaints had not improved, and clinical examination revealed persistent gingival redness at tooth 12, with positive BOP at the mesial, mid-facial, and distal sites, recording values of 5, 4, and 5, respectively. Meanwhile, tooth

13 also showed gingival redness and positive BOP at the mesial, mid-facial, and distal sites, with values of 5, 2, and 5. At this follow-up visit, the OHI score was 0.5 and the GI score was 0.8.

Figure 1. Dental condition at the time of gingival curettage indication.

Clinical examination revealed that the patient's extraoral condition was within normal limits, with no enlargement of lymph nodes in the head and neck region. However, intraoral examination demonstrated significant gingival inflammation surrounding teeth 12 and 13, characterized by redness, swelling, and a tendency to bleed upon probing. Periodontal pocket depth examination showed probing depths of up to 5 mm at several sites, accompanied by bleeding on probing (BOP), indicating active inflammation of the periodontal tissues. No tooth mobility or furcation involvement was detected in the affected area.

Based on the clinical findings, the patient's daily tea consumption habit may have contributed to accelerated plaque and calculus accumulation. Following scaling and root planing, the patient was diagnosed with localized chronic periodontitis affecting the maxillary anterior teeth, caused by plaque and calculus accumulation.

The treatment selected for this condition was gingival curettage, a periodontal procedure aimed at removing inflamed and granulation tissue within the periodontal pocket. Prior to the procedure, the patient underwent scaling and root planing (SRP) to eliminate plaque and calculus that could exacerbate inflammation. Subsequently, asepsis of the operative field was performed to prevent contamination and maintain procedural sterility (Figure 2A). Local anesthesia was then administered using the infiltration technique to ensure patient comfort during the procedure (Figure 2B).

Once adequate anesthesia was achieved, necrotic tissue was removed by inserting a periodontal curette apically toward the base of the pocket, with the cutting edge directed toward the sulcular epithelium. The curettage procedure was performed carefully and repeated several times until all inflamed tissue was completely removed (Figure 2C).

After completion of the curettage procedure, the surgical area was irrigated with saline solution to remove residual curetted tissue. Pressure was then applied to the operative site for 3–5 minutes to aid in bleeding control. In this case, suturing was not required, as the tissue condition was sufficiently stable to allow healing without sutures. Metronidazole gel was subsequently applied to control anaerobic bacterial infection commonly associated with periodontal disease. As a final step, a periodontal dressing was placed to protect the curetted area and support tissue healing (Figure 2D).

The patient was scheduled for a follow-up visit one week after the procedure. At the evaluation visit, a significant improvement in gingival condition was observed. Spontaneous bleeding was no longer present, swelling had decreased, and the gingival color had begun to return to normal. The patient also reported increased comfort and no longer experienced bleeding during tooth brushing. Clinical examination showed a healthy pink gingival color at tooth 12, with negative BOP at the mesial, mid-facial, and distal sites,

recording values of 2, 2, and 3, respectively. Similarly, tooth 13 exhibited pink gingiva with negative BOP at the mesial, mid-facial, and distal sites, with recorded values of 2, 1, and 3.

For long-term evaluation, the patient was advised to maintain optimal oral hygiene practices, including proper tooth brushing techniques, the use of dental floss, and routine dental visits for ongoing periodontal monitoring.

Overall, gingival curettage in this patient demonstrated favorable outcomes in the management of localized chronic periodontitis. The success of the treatment depended not only on the clinical intervention but also on the patient's compliance with oral hygiene maintenance and the adoption of improved oral health practices. Regular follow-up remains necessary to prevent recurrence and to ensure long-term periodontal stability.

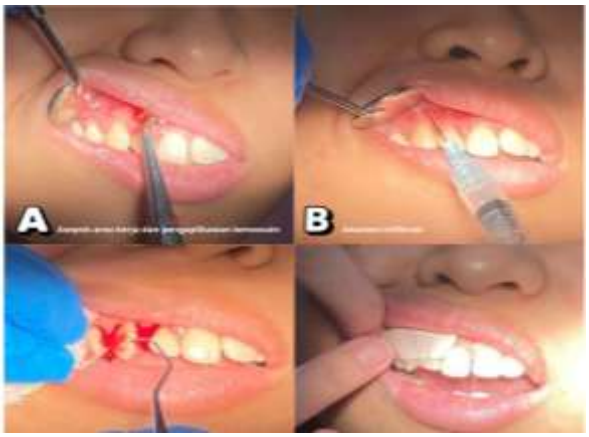

Figure 2. Asepsis of the operative field (A), infiltration anesthesia (B), curettage procedure (C), application of benzocaine gel and Coe-Pak periodontal dressing (D).

3. Method

This study used a descriptive case report design to describe the management of localized chronic periodontitis using gingival curettage. The subject was a 21-year-old patient who presented with persistent gingival redness and swelling in the maxillary right anterior region. Clinical examination included extraoral and intraoral assessments, evaluation of gingival condition, probing pocket depth, Gingival Index, Oral Hygiene Index, and bleeding on probing (BOP) around teeth 12 and 13. Initial periodontal therapy in the form of scaling and root planing (SRP) was performed to remove supra- and subgingival plaque and calculus. One week after SRP, clinical reevaluation revealed persistent inflammation, indicating the need for further periodontal intervention. Gingival curettage was subsequently performed using a closed technique under local infiltration anesthesia following aseptic preparation of the operative field. A periodontal curette was inserted to the base of the periodontal pocket with the cutting edge directed toward the sulcular epithelium to remove inflamed and granulation tissue. The procedure was repeated until all pathological tissue was eliminated, followed by irrigation with saline solution and pressure application to control bleeding. Metronidazole gel was applied, and a periodontal dressing was placed to support healing. Postoperative evaluation was conducted one week later to assess clinical improvement, including changes in gingival color, swelling, and bleeding on probing.

4. Result and Discussion

Gingival curettage is one of the periodontal treatment procedures aimed at removing granulation tissue and inflamed epithelium within the periodontal pocket. The curettage method used in this case was the closed

technique, which involves the removal of pathological tissue through the gingival sulcus. This procedure is performed to help reduce pocket depth, improve gingival tissue condition, and promote reattachment between periodontal tissues and the tooth root surface. In this case, the patient was diagnosed with localized chronic periodontitis, characterized by gingival inflammation, bleeding on probing, and periodontal pocket depths reaching 5 mm. If left untreated, this condition may progress to more severe periodontal disease, potentially leading to gingival recession, loss of supporting tooth structures, and ultimately tooth mobility or tooth loss (Newman et al., 2014).

Before performing gingival curettage, it is essential to understand the etiological factors underlying the patient's periodontal condition. Bacterial plaque is the primary cause of periodontitis, as the accumulation of bacteria and their toxic by-products can trigger an inflammatory response in the gingival tissues. If plaque is not adequately removed, mineralization may occur, resulting in calculus formation, which further exacerbates inflammation and increases periodontal pocket depth. In this case, the patient demonstrated suboptimal oral hygiene habits, such as not using dental floss and infrequent dental visits, which likely contributed to the progression of periodontitis (Newman, Takei, Klokkevold, & Carranza, 2014).

The curettage procedure was performed after the patient underwent scaling and root planing (SRP) to remove plaque and calculus from the root surfaces. SRP aims to create a cleaner periodontal environment, thereby facilitating tissue healing following curettage. After periodontal debridement, local anesthesia was administered using the infiltration technique to ensure patient comfort during the procedure. Anesthesia also helps reduce pain during the removal of inflamed tissue using curettes (Bian et al., 2021).

During the curettage procedure, the curette was inserted parallel to the long axis of the tooth and advanced apically to the base of the periodontal pocket. The cutting edge of the curette was directed toward the sulcular epithelium to remove necrotic and inflamed tissue. This technique was performed carefully and repeated several times until all granulation tissue was completely removed. The elimination of inflamed tissue is crucial to prevent chronic inflammation that may lead to further periodontal tissue degradation. After the curettage was completed, the operative area was irrigated with saline solution to remove residual tissue debris and reduce the risk of infection.

At the one-week follow-up visit, the patient demonstrated favorable signs of healing. Spontaneous bleeding was no longer present, and the gingival tissues showed reduced inflammation and a return toward normal coloration. This postoperative evaluation is essential to assess treatment success and to detect potential complications, such as infection or recurrence of inflammation. The patient was also educated on the importance of maintaining optimal oral hygiene, including proper tooth brushing techniques, the use of dental floss, and regular dental visits for ongoing periodontal monitoring.

The success of gingival curettage is strongly influenced by factors such as the patient's oral hygiene status, individual immune response, and adherence to maintenance therapy following treatment. Therefore, this procedure should be integrated with long-term management strategies, including strict plaque control and regular dental check-ups. Patients with poor oral hygiene habits or risk factors such as smoking and diabetes have a higher likelihood of periodontal disease recurrence, even after undergoing curettage. Consequently, a holistic approach encompassing patient education, lifestyle modification, and routine periodontal maintenance is essential for achieving long-term periodontal health.

In conclusion, this case demonstrates that gingival curettage is an effective procedure for managing localized chronic periodontitis, particularly in reducing periodontal pocket depth and improving inflamed periodontal tissues. Optimal outcomes can be achieved when the procedure is supported by good oral hygiene practices and regular follow-up. Therefore, dentists play a crucial role not only in providing clinical treatment but also in educating patients on the importance of maintaining long-term periodontal health.

5. Conclusion

Gingival curettage has been shown to be effective in the management of chronic periodontitis, particularly in reducing gingival inflammation and periodontal pocket depth. Patients who initially presented with clinical signs such as gingival erythema and bleeding on probing demonstrated marked improvement following the procedure, including the resolution of swelling and overall enhancement of periodontal tissue health. The effectiveness of gingival curettage is strongly influenced by patient adherence to proper oral hygiene practices, including correct tooth-brushing techniques and regular dental visits. In addition, lifestyle-related risk factors, such as habitual tea consumption, should be considered as they may contribute to extrinsic staining and plaque accumulation. When combined with appropriate patient education and maintenance therapy, gingival curettage can be a viable and effective approach for supporting long-term periodontal health..

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