



## Gingival Curettage Treatment in Chronic Periodontitis Patients: A Case Report

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### Abstract

**Introduction:** Periodontitis is defined as an inflammatory disease of the tooth-supporting tissues caused by certain microorganisms. One of the surgical treatments for generalized chronic periodontitis is gingival curettage. Gingival curettage is a closed surgical procedure involving the removal of inflamed soft tissue lateral to the pocket wall. The goal is to promote the attachment of new connective tissue to the root surface by removing the pocket lining and junctional epithelium using a curette. **Purpose:** To determine whether gingival curettage is an effective treatment for patients with generalized chronic periodontitis. **Case presentation:** A 26-year-old female patient presented to the Special Dental and Oral Hospital of South Sumatra Province with complaints of rough masses on all of her teeth. Clinical examination revealed calculus in all regions, an OHI-S score of 1.83 (medium), and an O'Leary plaque index score of 41.37%. Probing depths ranged from 1 to 5 mm, with positive BOP on almost all teeth. After scaling and root planing, the decision was made to proceed with gingival curettage for the patient. **Conclusion:** In this case, gingival curettage helped reduce pocket depth and restored the gingiva to a more normal appearance. This demonstrates that gingival curettage can be an effective treatment for chronic periodontitis.

**Keywords:** Chronic periodontitis; gingival curettage

### Introduction

Periodontal disease is a common dental and oral health problem with a relatively high prevalence in society. In Indonesia, the prevalence of periodontal disease across all age groups is 96.58%.<sup>1</sup> Periodontitis is a disease of the supporting tissues of the teeth, affecting the gingiva, periodontal ligament, cementum, and alveolar bone as a result of the inflammatory process.<sup>2</sup>

Periodontitis is defined as an inflammatory disease of the tooth-supporting tissues caused by specific microorganisms or groups of microorganisms, leading to progressive damage to the periodontal ligament and alveolar bone, with increased probing depth, gingival recession, or both.<sup>3</sup> According to the AAP (1999), periodontitis is classified into chronic periodontitis and aggressive periodontitis. Chronic periodontitis is further subclassified as localized or generalized, based on the number of affected sites.<sup>4</sup> Among periodontal diseases,



chronic generalized periodontitis holds particular significance. According to the World Health Organization (WHO), up to 90% of the adult population in developed countries exhibits some symptoms of generalized chronic periodontitis.<sup>5</sup>

Therapy for generalized chronic periodontitis consists of non-surgical and surgical therapy. In non-surgical therapy, this can be done by scaling, root planning, gargling with 0.2% CHX for 2 minutes, and irrigating the periodontal pocket with 1% CHX solution, or certain antibiotics can be given (for example, amoxicillin combined with metronidazole) after scaling and root planning.<sup>6,7</sup> After the initial phase, the residual calculus might still remain and require further surgical therapy such as gingival curettage, flap surgery, and regenerative procedures<sup>6,7</sup>

Gingival curettage is *the “gold standard”* periodontal therapy for patients with chronic periodontitis.<sup>8</sup> Gingival curettage is a closed surgical procedure involving the removal of inflamed soft tissue lateral to the pocket wall to induce the attachment of new connective tissue to the root surface by removing *the pocket lining and junctional epithelium* using a curette.<sup>7,8</sup> This procedure usually uses *hand instruments* (curette and scaler). This procedure is reported to have a high success rate, such as an increase in clinical attachment loss (CAL), a reduction in pocket depth *probing*, and frequency of bleeding during BOP examination.<sup>8</sup>

### Case report

A 26-year-old female patient came to the Special Dental and Oral Hospital of South Sumatra Province with complaints that there were many rough masses on all her teeth after being touched with her tongue. The patient admitted that her gums sometimes bled when brushing her teeth, so the patient wanted an examination and treatment of her teeth. The clinical examination showed there was calculus in all regions, the score of the Oral Hygiene Index Simplified (OHI-S) was 1.83 (medium) with a score of O’leary index plaque 41.37%, probing 1-5 mm, positive BOP in almost all teeth. The gingiva appears swollen and erythema with a soft consistency, and the gingival edges appear rounded in the interdental area. The patient underwent a panoramic radiograph, and there was horizontal bone damage throughout the region. The patient stated that she had no systemic diseases or disorders, and the systemic

condition was good. Based on the results of this examination, the diagnosis was generalized chronic periodontitis. The initial treatment plan was scaling on all regions and root planing.



**Figure 1.** Initial clinical picture of the patient

The initial phase of treatment includes *scaling* in all regions to remove supragingival and subgingival calculus, and plaque on the tooth surface. After the treatment is completed, the patient is given education regarding the correct technique and timing of toothbrushing and is advised to use tools such as interdental brush, dental floss, and tongue scraper, as well as an explanation of the possible causes of the disease.

Patients were scheduled for follow-up visits in one week and one month. During these control appointments, both subjective and objective examinations were conducted. The patient reported that his gums occasionally bled while brushing his teeth. Upon examining the periodontal pockets using the UNC-15 probe, the probing revealed pocket depths ranging from 2 to 6 mm. Additionally, the roots of the teeth still felt rough, prompting the decision to continue with root planing.

Root planing was performed on teeth 24, 25, 26, and 27 to smooth the root surfaces using a Gracey curette. Following the root planing procedure, the patient was instructed to maintain good oral hygiene and was scheduled for follow-up visits at 1 week and 1 month.

At the 1-week follow-up, the patient reported no complaints. Clinical examination showed an OHI-S score of 0.67 (good), a plaque index of 41.3%, and a slight erythema on the gingival surface. At the 1-month follow-up, pocket depths were reassessed. The results showed pocket depths of 2 mm on the teeth that underwent root planing. The patient

maintained a good OHI-S score, and the plaque index had improved to 29.3%. The gingival erythema had also diminished. However, pockets with depths of 4-5 mm remained, leading to the decision to proceed with surgical curettage treatment.

Before the patient undergoes curettage surgery, a clinical examination is performed. The examination reveals an Oral Hygiene Index Simplified (OHI-S) score of 0.5 (good) and an O'Leary Plaque Index score of 41.3%. Positive bleeding on probing (BOP) is observed on teeth 24, 25, 26, and 27. The gingiva shows slight erythema and a soft consistency in some areas. The planned procedures for the curettage surgery include: vital sign examination, obtaining informed consent, plaque examination, oral prophylaxis, pocket depth assessment using a UNC-15 probe.

Asepsis of the surgical area was performed both extraoral and intraoral using 10% povidone-iodine (Fig. 2). Following asepsis, infiltration anesthesia was administered to the mucobuccal fold and palatal mucosa of teeth 24, 25, 26, and 27. The anesthesia was delivered using a 3-cc syringe and Pehacaine (Fig. 3).



**Figure 2.** Asepsis measures on extraoral and intraoral parts.



**Figure 3.** Sectional infiltration anesthesia *mucobuccal fold* and palate.

Curettage is performed on the tooth using Gracey curettes no. 5-6, 7-8, 9-10, 11-12, and 13-14. The curette is inserted into the gingival sulcus along the tooth axis, reaching the base of the pocket. The procedure is conducted laterally, with the blade facing the soft tissue. The outer surface of the gingiva is lightly supported with the finger not holding the instrument. The curette is used to remove the inner layer of the pocket wall along the soft tissue surface.



**Figure 4.** The curettage procedure uses a Gracey curette

Next, necrotic tissue at the junctional epithelium is removed. The curette is positioned below the junctional epithelium, between the base of the pocket and the alveolar crest. During subgingival curettage, adherent tissue between the pocket base and alveolar crest is lifted using a pulling motion. This process is repeated several times until all granulation tissue is removed, as indicated by the release of fresh blood. Throughout the procedure, the surgical area is irrigated with 0.9% NaCl to maintain cleanliness (Fig. 5).



**Figure 5.** The curettage procedure

After completing the surgical procedure, the area was irrigated with 0.9% NaCl solution or distilled water to cleanse the site (Fig. 6). Bleeding is controlled using sterile gauze. The gingiva is then adapted to the tooth surface by gently pressing it against the tooth for 1 to 3 minutes (Figure 7).



**Figure 6.** Irrigate the surgical area with 0.9% NaCl.



**Figure 7.** Control bleeding and adaptation of the gingiva to the tooth surface use sterile gauze.

After the surgery, the patient was given post-operative instructions to support healing and prevent complications. They were advised to avoid eating hot foods or consuming any food for approximately one hour after the procedure to minimize bleeding. Gentle mouth rinsing was recommended, and oral hygiene was emphasized, including regular tooth brushing and the use of 0.12% chlorhexidine mouthwash as directed. The patient was instructed to chew on the side of the mouth unaffected by surgery, refrain from smoking or consuming alcohol during the healing process, and take prescribed medications, including 500 mg amoxicillin (three times daily) and 500 mg mefenamic acid (three times daily).



Follow-up appointments were scheduled for 1 week and 1 month post-surgery to monitor recovery.

At the 1-week follow-up visit, both subjective and objective examinations were conducted. The patient reported experiencing pain in the surgical area for one day post-surgery, which had since resolved. Clinical examination revealed an OHI-S score of 0 (good), a plaque index of 25%, and erythema persisting in the interdental area.

At the 1-month follow-up visit, the patient reported no pain in the post-surgical area. Clinical examination showed an OHI-S score of 0 (good) and a plaque index of 14.65%. Probing depths were 2–3 mm, with no bleeding on probing observed in the treated teeth (24, 25, 26, and 27), and the interdental papilla appeared normal. The patient was provided with dental health education (DHE) on maintaining oral hygiene to ensure the gingiva remains healthy.

### **Discussion**

Generalized chronic periodontitis typically begins between the ages of 30 and 40, although it can also occur in younger individuals. This condition is often a progression from gingivitis.<sup>4,6</sup> Patients with generalized chronic periodontitis usually exhibit a quantity of calculus that correlates with the extent of periodontal damage. They often present with supragingival calculus and experience a slow to moderate rate of disease progression. Local predisposing factors are common in these cases, and more than 30% of teeth are typically affected.<sup>4,6</sup>

In the described case, the patient was diagnosed with generalized chronic periodontitis due to the presence of both supragingival and subgingival calculus. The amount of calculus was proportional to the bone damage observed, particularly in the cervical third of the root, which showed a horizontal pattern. The patient also had predisposing factors such as remaining roots, and nearly all teeth were covered in calculus.

Therapy for generalized chronic periodontitis consists of non-surgical and surgical therapy.<sup>6,7</sup> Surgical therapy includes curettage, flap surgery, and regenerative procedures, but in this case the surgical therapy chosen is gingival curettage.<sup>6,7</sup> Gingival curettage is a closed surgical procedure, involving the removal of inflamed soft tissue lateral to the pocket wall



with the aim of inducing the attachment of new connective tissue to the root surface by removing *pocket lining* and *junctional epithelium* by using a curette and to improve the condition of the gingiva to be healthy, both in terms of color, contour, consistency and surface texture.<sup>7,8</sup>

Gingival curettage was chosen as the treatment in this case because probing examination showed that the pocket was 4-6 mm deep, the procedure was simple and the treatment cost was affordable. The treatment results in this case showed good results. Treatment results were evaluated at 1 week and 1 month after surgery. Subjective examination of the patient did not feel any complaints then objective examination showed that clinically there was a decrease in edema and erythema in the gingival area, the color of the gingiva was paler than before treatment with a texture *stippling* good, the patient's OHI-S score is 0 (good) with a score *o'leary index plaque* 14.65%, accompanied by a probing depth of 2-3 mm, *bleeding on probing* negative on teeth that have been curetted, namely teeth 24, 25, 26, 27.

Good treatment results cannot be separated from good treatment procedures and medication. This patient was treated with the systemic antibiotic amoxicillin tab 500 mg 3 dd 1 pc. The use of antibiotics in this case aims to eliminate the causative factor, namely pathogenic bacteria. There are 8 groups of antibiotics that have been used and evaluated in the treatment of periodontitis, namely tetracycline, minocycline, doxycycline, erythromycin, clindamycin, ampicillin, amoxicillin and metronidazole. Amoxicillin is still useful in treating patients with aggressive periodontitis both systemically and locally. The recommended dose is 3x1 500 mg for 8 days. Bhat *et al.* studied 40 patients with chronic periodontitis who underwent scaling and root planning (SRP), divided into 2 groups, namely the group given metronidazole + amoxicillin, and the group given ciprofloxacin. Bhat *et al* get a decrease *periodontal index* better in the group given metronidazole + amoxicillin.<sup>8</sup>

### Conclusion

Chronic periodontitis is a condition that generally attacks individuals starting between the ages of 30 and 40 years, characterized by the presence of supragingival and subgingival calculus, periodontal pockets, and characterized by damage to the alveolar bone in a horizontal pattern. Gingival curettage using a Gracey curette is one of the surgical therapy options for this case because probing examination shows that the pocket is 4-6 mm deep, a





simple procedure and affordable treatment costs. In this case gingival curettage can reduce the pocket depth and make gingival looks normal. This prove that the gingival curettage can be effective for chronic periodontitis.

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