

## Treatment of dental polyclinic -induced gingivitis caused by secondary caries: a case report

Maisaroh Dinyati<sup>1\*</sup>, Surijana Mapanggara<sup>2</sup>, Andi M. Adam<sup>2</sup>, Sri Oktawati<sup>2</sup>

### Abstract

**Objective:** This case report aims to present gingival therapy with gingivectomy due to secondary caries and overhanging filling.

**Methods:** A 21-year-old male patient come to the periodontal clinic for treatment. The initial examination revealed deep probing pocket depth with sulcus bleeding at 11, 12, 21 and 22. Teeth 34, 36, 37 were extracted. Patients was in a good health, smoker, and didn't take any medication. The patient had scalling a week ago but the gingiva remains enlargement. Periapical radiograph showed bone in good density. Initial treatment performed by non-surgery treatment included Scalling and Root Planing (SRP) and 0.2% chlorhexidine solution twice daily for one week. Gingivectomy with conventional

blade.

**Results:** Gingivitis caused by secondary caries, because of bacterial invasion of caries to the gingival mucosa. Gingivitis therapy performed by gingivectomy, the removal of amount of the hyperplated gingival mucosa. Conventional gingivectomy is an option of gingival enlargement therapy.

**Conclusion:** The aim of gingival therapy is to eliminate inflammatory process and prevent the progression of gingival disease. Gingival disease including gingival enlargement or gingivitis. Gingivitis can be caused by various factors such as secondary caries and overhanging filling.

**Keywords:** Gingival enlargement, Gingivectomy, Seconder caries.

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Poly Dental, Salewangan General Hospital, Maros, Indonesia

### Introduction

This journal that are known gingival enlargement and the treatment by non surgical. Primary risks associated with increased dental decay and periodontal disease are also discussed. The etiology of bacterial in gingival enlargement remains unclear, although a statement to support the role of good oral hygiene in decreasing the incidence and severity of gingival enlargement and improving overall gingival health. Treatment planning and coordination of care between physician, dentist or dental hygienist when indicated are important factors determining whether a surgical or non-surgical course of treatment should be considered.

Gingival disease and dental caries are the most prevalent infections affecting the human dentition. Caries is a demineralized enamel/dentin with many bacteria and their by products that can act as stimuli to pulpal inflammation or gingival inflammation.<sup>1</sup> Gingivitis is a reversible dental plaque induced inflammation of the gingiva.<sup>2</sup> in Indonesia, gingivitis is the second largest, reaching 96.58%.<sup>3</sup> Gingivectomy is an excision or removal of gingiva tissue, with the aim of eliminating the pocket wall. Gingivectomy improve the visibility and accessibility

to lift the calculus overall, facilitate the smoothing the root surface, create a good environment for gingival healing process and the restoration of gingival physiologic contour.<sup>4</sup> The preservation of a healthy gingiva is critical for the long-term success of a restored tooth. Dentists must balance the restorative and esthetic needs of their patients with periodontal health,<sup>5</sup> like difficulties that are associated with gingival enlargement, aesthetics, tooth eruption, mastication, impaired nutrition, oral diseases and periodontitis.<sup>6</sup>

Gingival diseases are a group of different disease that are localized to the gingiva. They all manifest clinical signs of inflammation and are classified into two main groups: plaque-induced and non-plaque-induced gingival diseases.<sup>7</sup> Communication among the different species within biofilms appears to be the key to understanding how the plaque can act as a single unit, and how specific bacteria emerge and impair the balance with the host.<sup>8</sup> Gingivitis therapy aimed primarily at reduction of etiologic factors to reduce or eliminate inflammation, thereby allowing gingival tissues to health. Appropriate supportive periodontal maintenance that includes personal and professional care is important in preventing the inflammation.<sup>9</sup>

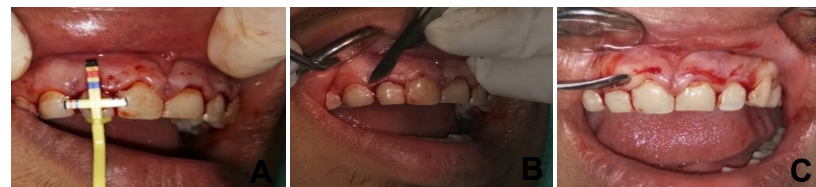
\*Correspondence to:  
mdinyati@yahoo.com



**Figure 1.** A. Intra oral, B. Periapical radiographic



**Figure 2.** A. Local anesthesia, B. Pocket marker, C. Series of bleeding points marked



**Figure 3.** A. Chu's periodontal to examine the area for insision, B. Incision was made using surgical blade no. 15c, C. Remove the gingiva with raspatorium



**Figure 4.** A. Kirkland knife to make a bevel, B. Enlarged was removed from the maxilla anterior region, C. Remove the composit filling



**Figure 5.** Control I week after surgery

## Case report

A 22-year-old male patient came to a periodontal clinic with complaints of long-time gingival hyperplasia. Initial examination showed pockets with sulcus bleeding on 11, 12, 21, 22. Teeth 11, 12, 21, 22 had been filling with composite and secondary caries [figure 1A](#). Patients was in a good health, smoker and did not take any medication. Periapical radiograph showed no destruction on root and alveolar bone [figure 1B](#).

Pre-Surgical therapy: initial treatment was performed with non-surgical treatment of Scalling Root Planing (SRP) and 0.2% chlorhexidine solution twice daily. Surgical procedure: intra-oral antiseptis and iodine solution is used for extraoral antiseptis. After determining the problem, the amount of planned soft resection, the extent to which bone resection might be required and the surgical technique could be determined. If only soft tissue removal was needed (no bone resection) then there are two options, gingivectomy (beveled incision) or apically positioned flap (reverse beveled incision).<sup>10</sup>

Under strictly aseptic conditions, 2-3 ml of local anaesthesia was administered in the maxilla anterior region and gingivectomy was performed for the lower anterior. First, pocket marker was used to mark the deepest point in each pocket on the radicular and interproximal surfaces. A series of bleeding points were obtained after marking the pockets which served as a guideline for initial external bevel incision (using 15 no.blade). This incision was followed by a sulcular incision and orban's knife was used to remove the interproximal tissue. After removing the enlarged tissue, gingivoplasty was done with periodontal knives. Periodontal dressing was applied to the surgical area, postoperative instructions were given, analgesics (paracetamol 500 mg after meals for 3 days) and antibiotics (amoxicillin 500 mg for 5 days) were prescribed and patient was recalled after 7 days. After 7 days, surgical site showed healing process. [Figure 2A-2C](#), [figure 3A-3C](#), [figure 4A-4C](#). Post-surgical postoperative instruction was given to the patient. Subsequent periodic evaluations of the maintenance program were undertaken. [Figure 5](#). Patient will get restoration with composite filling in teeth 11, 21.

The increasing demand for aesthetics, especially in anterior teeth, suggested that restorative needs and reasons for restoration failure other than caries and fracture might occur in a large extent in anterior restorations. Patients factors and operator characteristics might affect the long-term performance of anterior composite restorations.<sup>11</sup>

## Discussion

Gingivitis is a mild form of periodontal disease with clinical signs of red, swollen and bleeding gingiva without amount of alveolar bone damage.<sup>6</sup> Gingival diseases are classified into two main groups: plaque-induced and non-plaque-induced gingival diseases. The plaque microorganism can exert its effect on periodontium by realizing certain products (e.g. collagenase, hyaluronidase, protease, chondroitin sulfatase) which can cause damage to the epithelial and connective tissue constituents.<sup>12</sup> The causes of non-plaque-induced gingival diseases like traumatic tooth brushing and allergic reactions to drugs are other possible causes, another such as tooth anatomy, tooth restorations.<sup>7</sup> Hyperplasia and/or overgrowth of the gingiva is rather common and related to a variety of etiologic factors and pathogenic processes, (e.g., dental plaque, mouth breathing, hormonal imbalance, medications).<sup>13</sup>

Bad restorations with un-fitting margins can negatively influence the health of adjacent gingival tissues. It has been hypothesized that restorations violating the so-called "biological width" can produce an inflammatory response that may result in the loss of bone and connective tissue attachment and the migration of epithelial attachment. In most cases, the amount of damage to the periodontium is influenced by the severity and duration of the marginal discrepancy and the ability of patients to maintain the areas free of plaque.<sup>7</sup> study by Mo et al.<sup>14</sup> Shown the microflora of secondary caries biofilm around class I and class II composite fillings mainly included *Prevotella*, *Veillonella*, *Lactobacilli*, *Streptococci mutans* and *Neisseriae*. The next most prevalent group of bacteria included *Actinomyces*, *Peptostreptococcus*, *Fusobacterium* and *Porphyromonas gingivalis* and occasionally *Campylobacter*. The proportion of obligately anaerobic species was much greater than that of facultatively anaerobic species. This bacterial spectrum was similar to the microflora in subgingival plaque of periodontal disease and in the infected root canals with potentially pulp pathogenic microbes.<sup>14</sup>

Therapy for individuals with chronic gingivitis is initially directed at reduction of oral bacteria and associated with calcified and noncalcified deposits.<sup>7</sup> Mucogingival surgery was proposed to describe any surgery designed to preserve attached gingiva, to remove gingival attachment, and to increase the depth of the vestibule. Mucogingival surgery is important not only for any health reasons, but also for cosmetic purposes. One technique for these surgical procedures is the conventional one, with scalpels and periodontal knives.<sup>15</sup>

Gingivectomy means excision of the gingiva. By removing the pocket wall, gingivectomy provides visibility and accessibility for complete calculus removal and thorough smoothing of the roots. This creates a favorable environment for gingival healing and restoration of a physiologic gingival contour. The gingivectomy technique was widely performed in the past, it remains an effective form of treatment when indicated.<sup>16</sup> Gingivectomy is indicated only for teeth with more than 3-4 mm of attached gingiva.<sup>17</sup>

The healing after gingivectomy is based on the activity of the fibroblasts, keratinocytes and immune cells, thus, a few days after the surgical procedure, the epithelial cells start to migrate towards the borders of the lesion, while the fibroblasts proliferate consequently, a new junctional epithelium is formed. Meanwhile, the cytokines and growth factors expressed by the neutrophils and macrophages control and regulate the healing process.<sup>17-20</sup>

After surgery, we choose the restoration for anterior teeth caries with the composite filling. Composite fillings are a mixture of powdered glass and plastic resin, sometimes referred to as white, plastic, or tooth-colored fillings. It is used for fillings, inlays, veneers, partial and complete crowns, or to repair portions of broken teeth. Several advantages of composite fillings are : strong and durable, tooth colored, single visit for fillings, resists breaking, maximum amount of tooth preserved, small risk of leakage if bonded only to enamel, does not corrode, generally holds up well to the forces of biting depending on product used, resistance to further decay is moderate and easy to find, frequency of repair or replacement is low to moderate.<sup>18</sup>

## Conclusion

Gingivitis may be caused by secondary caries, because of caries bacterial invasion to the gingival mucosa. Overhanging fillings can lead to impacted debris and difficult to clean, becoming a place of bacteria in cervical area so that the body forms a defense by means of gingival enlargement or gingivitis. Gingivitis therapy may be performed by gingivectomy, in the removal of a portion of the hyperplated gingival mucosa. Conventional gingivectomy may be an option of gingival enlargement therapy.

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## Conflict of Interest

The authors report no conflict of interest.

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