



## Research article

# Aesthetic Periodontal Surgical Approach for Preparing Direct Veneer: A Case Report

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### Abstract.

**Background:** Gingival enlargement is caused by cervical dental plaque accumulation and worsened by cervical caries. Gingivectomy, gingivoplasty and ablation procedures are the surgical techniques used to improve the aesthetics and physiologic functions of hyperpigmented fibrotic gingival tissues.

**Objective:** To provide aesthetic satisfaction to patients treated for direct veneer restoration.

**Case Report:** A 19-year-old male patient came to RSGM UNHAS with a chief complaint of caries on the right maxillary incisors, extending from labial to cervical sections, showing gingival enlargement of the teeth. Intraoral examination revealed caries and gingival enlargement with uneven gingival color. Gingivectomy, gingivoplasty and ablation were performed on the patient using a scalpel, then direct veneer restorations were performed.

**Results:** The two-week control period showed reduction in gingival enlargement and uniform gingival color.

**Conclusion:** A periodontal aesthetic surgery in the form of gingivectomy, gingivoplasty, and ablation maximizes esthetic results.

**Keywords:** ablation, direct veneer, gingivectomy, gingivoplasty

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## 1. Introduction

The need for aesthetics is a significant aspect in dentistry and dentists are faced with acceptable achievements in gingival aesthetics and can handle biological and functional problems. Dental care must be able to produce good oral health, comfort for patients, optimization of function and aesthetics [1].

Direct composite Veneers are a commonly used treatment following the developments in adhesives and dental restorations in recent years. This restoration is applied

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to prepared or even unprepared tooth surfaces, with adhesives and composite resins directly in one visit at the dental clinic [2].

Indications for direct composite veneers are tooth discoloration or restoration, tooth malformation or malposition, a diastema, crown fracture, and abrasive or erosive. A direct composite veneer is a good treatment option in these cases because it can cover all areas of the labial surface with resin [2].

Gingivectomy is the cutting of soft tissue on a pocket wall that aims to eliminate a pocket. Gingivoplasty is the reshaping of a gingival contour that loses its physiological shape by eliminating the pocket. Both of these procedures can be done simultaneously or separately [3,4,5,6].

Gingival enlargement in which the gingival tissue grows thicker and covers part or all of the crowns of the tooth to form pseudopockets. At first, the attachment loss is not found, but foreign bodies such as food and hair can become trapped in the pseudopockets. This can lead to an increase in the accumulation of plaque and calculus which results in periodontal disease. Treatment is focused on removing excess gingival tissue by gingivectomy with

gingivoplasty to restore normal physiologic gingival contours and at least 2 mm attached gingiva [7].

The level of gingival overgrowth can be graded by 5 that is Grade 0: There are no signs of gingival overgrowth. Grade 1: Overgrowth is limited to Interdental papillae. Grade 2: Overgrowth involves papilla and marginal gingiva. Grade 3: Overgrowth includes three quarters or more of the crown [8].

Gingival hyperpigmentation is caused by excessive deposition of melanin in the epithelial lining of the basal and suprabasal cells. Although the gingival melanin pigmentation is really benign, aesthetic problems often occur, especially in patients who have very high smile lines (gummy smile) [1].

The decision-making process for the treatment of aesthetic areas is based on achieving healthy, harmonious, and pleasant smiles. This condition is directly related to knowledge of tooth anatomy and proportion, as well as smile lines, soft tissue morphology, and bones. A multidisciplinary approach may be needed to create long-term harmony between the final restoration and neighboring teeth, and the health of the surrounding both soft and hard tissue [9,10].

Gingival enlargement in the case of labial to cystic caries and clinical crowns that look short and uneven gingival color make the veneer restoration of the tooth unesthetic

[2,10]. So that this case report will discuss gingivectomy, gingivoplasty after ablation before direct veneer restoration.

## 2. Case Report

A 19-year-old male patient came to the Hasanuddin University Dental and Mouth Hospital Department of Conservation with the main complaint of caries in tooth # 11 # 12 right maxillary. Intraoral examination showed that apart from caries in the right maxillary incisors that stretched from the labial to the cervical section, it also showed enlarged gingiva in the tooth and uneven gingival color.(Figure 1)



**Figure 1:** Clinical patient of patient's first visit.

Pulp sensitivity tests are performed on teeth and show positive results. The general condition is good and has no history of systemic disease and has never had previous treatment. The prognosis for this patient is good. Before final restoration, the patient is referred to the Periodontics Department for a gingivectomy, gingivoplasty and ablation using a scalpel.

Initial treatment for this case is scaling and root planing, followed by occlusal adjustments and measurement with the chu's gauge. After scaling and root planing is done and teeth are polished using pumice at low speed. After that, dental measurements using the chu's gauge to obtain the crown length and mesiodistal width so that the aesthetic proportion of teeth is obtained. The Chu's gauge can also be an operator guide to how much gingival tissue is excised.(Figure 2)

One week after initial treatment. Gingivectomy, gingivoplasty and ablation are performed together. But first, the patient is explained about the procedure to be carried out and asked to sign an informed consent. The anterior teeth are disinfected using povidone- iodine and then anesthetized. The depth of the pocket was measured with a probe and the gingivectomy incision line was made using a marker probe. The marker



**Figure 2:** Measure with chu guide.

probe is inserted into the gingival pocket to the bottom of the pocket so that a bleeding point is found to guide the incision. Then the incision is made 1 mm above the bleeding point at an angle of 45 using knife no. 12 and 15. The pocket wall is cleaned as well as the deposits on the root surface.(Figure 3 & 4)



**Figure 3:** Disinfect and Anesthesia of working area.



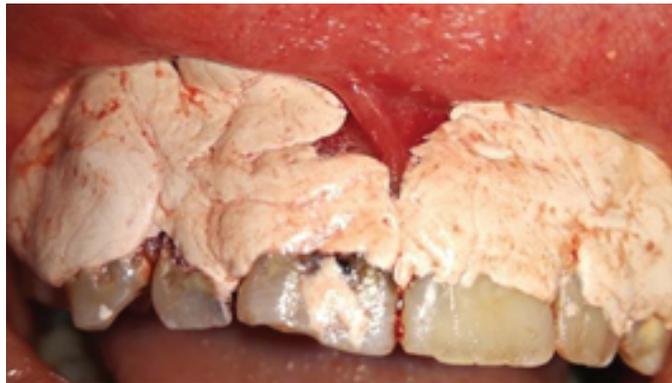
**Figure 4:** Excision using blade no. 15.

Granulation tissue and sub-gingival calculus and necrotic cementum are removed using a Gracey curette no. 1-2, 3-4 and ultrasonic scaler to achieve finer roots. Then the gingival margins and the interdental papilla are reshaped and the pigmented gingival color is scraped off slowly until bleeding points are seen. At the end of the operation, a periodontal pack is applied.(Figure 5 & 6)

The patient was instructed to consume amoxicillin + potassium clavulanate three times a day for 5 days, mefenamic acid twice a day for 5 days. The patient was recalled



**Figure 5:** Depigmentation gingiva (ablation).



**Figure 6:** Application Periodontal Pack.

after 1 week to remove the periodontal pack. Clinical examination was performed, tissue healing was good but there was still a slight gingival enlargement around cervical tooth # 12. Patients are referred back to the conservation department for direct veneers.(Figure 8)



**Figure 7:** Control for 2 weeks.

After 2 weeks of follow-up, direct veneer restoration was performed, no gingival enlargement was found and the gingival color was evenly distributed. Complications after surgery were not found and the patient was satisfied with the results obtained.(Figure 7)



**Figure 8:** After direct veneer.

### 3. Discussion

Treatment of aesthetic areas is based on achieving healthy, harmonious, and pleasant smiles. This condition is directly related to knowledge of tooth anatomy and proportion, as well as smile lines, soft tissue morphology, and bones. A multidisciplinary approach may be needed to create long-term harmony between the final restoration and neighboring teeth, and the health of the surrounding both soft and hard tissue [9,10] as is the case this time, before the direct veneer restoration was carried out, gingivectomy, gingivoplasty and ablation were performed first.

Before surgery, pre-surgical preparation is done to reduce severe inflammation and eliminate local factors (calculus, plaque, or changing restorations) with scaling and root planning [11]. After initial healing, tissue adhesion zones can be assessed correctly. During surgery, adequate local anesthesia is given. Vasoconstrictors can be used to control bleeding, especially in healing with secondary intentions [5,12].

Gingivectomy can be performed only with a cold-cutting technique (scalpel) or with a combination of tapered diamond-shaped burs and a scalpel. Frequent bleeding with these techniques. Gingivectomy can also be done using the only electrosurgery [7]. Gingivectomy/gingivoplasty can be performed with radiosurgery and/or diamond bur water-cooled with high speed. Use of cooling water to avoid thermal injury to the tissue. Thermal injury to bone tissue can be avoided by limiting the procedure to soft tissue, and continuous bone [13].

Various depigmentation techniques have been used, such as surgical scalpel surgery, gingivectomy, gingivectomy with free gingival autograft, cryosurgery, electrosurgery, chemicals such as 90% phenol and 95% alcohol, abrasion with a diamond bur, Nd: YAG laser, semiconductor diode laser, and CO<sub>2</sub> laser [1].

The incision is made with a scalpel or a gingivectomy knife, but a gingivectomy knife is easier to use because of the angulation and shape of the blade. The knife is used for the primary incision, which starts from apical to the point of bleeding. The knife is held in such a way that the incision is as close as possible to the bone for total pocket expenditure and 45 ° tissue bevel production. The knife must pass completely through the tissue to the teeth [5].

The final contour (gingivoplasty) tissue is made using scissors, tissue clips, or diamond stones. Gingivoplasty used to thin tissue on interradicular surfaces and form more fluid contours. The healing tissue will become thin, with smooth toothed architecture from the interdental area to the inter radicular surface to facilitate food travel. The final stage is carried out ablation using blade number 15 so as to produce an even gingival color [5].

In this case, there was still a slight enlargement of the gingiva around the cervical tooth # 12. This may be due to the incision that is not sufficiently tilted and the incision is right at the bleeding points that should be 1 mm above the bleeding points and could also be due to incomplete marking and elimination of the pocket. So the aesthetic surgical approach must be a serious concern of a periodontist [3,5].

## 4. Conclusion

A periodontal aesthetic surgical in the form of gingivectomy, gingivoplasty, and ablation will maximize the esthetic results.

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