

GINGIVECTOMY IN ALTERED PASSIVE ERUPTION AS AN AESTHETIC GINGIVAL CORRECTION APPROACH: A CASE REPORT

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ABSTRACT

Introduction: Altered passive eruption (APE) is a mucogingival condition with the margin being positioned too far coronally, thereby covering a portion of the anatomical crown. This condition often leads to aesthetic concerns, specifically an excessive gingival display known as a gummy smile. This case report aims to demonstrate the effectiveness of gingivectomy as a single surgical procedure in aesthetic correction in cases of APE. **Case and Management:** A 23-year-old female patient presented with a chief complaint of short and small maxillary anterior teeth. Clinical examination revealed symmetrical gingiva with a rubbery consistency and slight bleeding on probing. Clinical crown length measurements showed a shorter-than-normal size. Periapical radiographs confirmed that the distance between the cemento-enamel junction (CEJ) and the alveolar crest was within normal limits, justifying a soft-tissue-only approach. After an initial phase of periodontal therapy to control inflammation, gingivectomy was performed using an external bevel incision technique. The procedure was followed by gingivoplasty to reshape the gingival contour for a more proportional outcome. Post-operative evaluation showed a significant increase in clinical crown length, improved plaque index, and a more harmonious gingival contour. The patient expressed high satisfaction with both the aesthetic and functional results. **Conclusion:** Gingivectomy is an effective and minimally invasive surgical option for correcting aesthetic issues resulting from altered passive eruption. The success of this case underscores the importance of a correct diagnosis and a clear understanding of the etiology before determining a treatment plan.

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INTRODUCTION

Harmonization between the crown and the

gingival tissue plays a crucial role in supporting an aesthetic smile. The components of an ideal smile involve a balance between healthy, symmetrical teeth, lips, and gingival contours.^{1,2} An imbalance in any of these elements, such as excessive gingival exposure, often leads to an aesthetic complaint known as a gummy smile.³

One condition that can cause the clinical crown of a tooth to appear shorter is the enlargement of the gingiva covering it. This condition can originate from various etiologies, including inflammation, fibrotic hypertrophy, or inhibited passive eruption.^{4,5} If excessive gingival display occurs in the absence of systemic disease or the use of certain medications, the condition is most likely related to altered passive eruption (APE)^{1,6}

Altered Passive Eruption (APE) is a variation in periodontal tissue development where the gingival margin does not undergo normal apical migration toward the cemento-enamel junction (CEJ). Consequently, it covers a portion of the anatomical crown, causing the clinical crown to appear short.^{2,3} Although not all cases of gingival enlargement require a specific classification such as APE, a proper diagnostic approach is essential to determine the need for corrective therapy.³

Gingivectomy is an effective soft tissue surgical procedure for correcting gingival contours, particularly when the enlargement is fibrotic and does not respond to non-surgical therapy.^{4,7} It is also a component of crown lengthening procedures used to achieve optimal clinical crown exposure without the need for bone recontouring.^{2,6} Furthermore, gingivectomy enhances visibility and accessibility for thorough calculus removal and root surface debridement, creating favorable conditions for gingival healing and the restoration of physiological gingival contours.⁸

This case report describes the application of gingivectomy as a surgical intervention for a patient presenting with short clinical crowns due

to gingival enlargement. This aesthetic correction aims to restore ideal proportions between the tooth crown and its supporting tissues.

CASE AND MANAGEMENT

A 23-year-old female patient presented with a complaint of gingival enlargement on her maxillary anterior teeth, which made them appear smaller. The patient had been experiencing these symptoms for the past three years and had never previously consulted a dentist. She reported no associated pain or sensitivity.

The patient brushes her teeth three times a day: during her morning shower, her evening shower, and before bed. She does not use mouthwash or floss. The patient reported a previous dental history of scaling (calculus removal) five months ago. She has no history of systemic diseases, has not been hospitalized in the past year, and is not taking any regular medications. There are no known drug or food allergies. Regarding family history, her father has hypertension, while her mother has no history of systemic disease.

Currently a student in Yogyakarta, the patient reports a low intake of fruits and vegetables. She rarely consumes tea, coffee, or sugary foods and maintains an adequate fluid intake of approximately two liters of water per day. She leads a sedentary lifestyle with infrequent exercise. She is a non-smoker (no cigarettes, vape, or pods) and has no deleterious oral habits.

The treatment plan for this case includes Communication, Information, and Education (CIE) regarding the patient's condition, etiology, and proposed intervention. The clinical phases

consist of initial therapy (scaling), followed by surgical gingivectomy, and conclude with post-operative control and evaluation.

First Visit

On physical examination, vital signs showed normal numbers, with blood pressure 118/92 mmHg, pulse 88 beats/minute, respirations 20 breaths/minute, and a temperature of 36.2°C. Clinical examination revealed gingival enlargement in the maxillary anterior region. The initial Simplified Oral Hygiene Index (OHI-S) score was 4.0 (Poor), and the Plaque Index (PI) was recorded at 35%



Figure 1. Post-scaling condition: teeth 12, 11, 21, 22 appear shorter

During the first visit, full-mouth scaling was performed as Phase I periodontal therapy. The length and width of the maxillary anterior teeth were measured and compared with the standard anatomical proportions for each tooth element. Subsequently, the patient was referred for a panoramic radiograph to determine the distance between the cemento-enamel junction (CEJ) and the alveolar crest. The measurements of tooth dimensions and the CEJ-to-alveolar crest distance are summarized in Table 1.



Figure 2. Patient's orthopantomogram

Based on the examination, the clinical diagnosis for this case is gingival enlargement associated with altered passive eruption (APE). The patient was instructed to return one week later to evaluate the gingival condition following the scaling and gingivectomy procedures.

Table 1. Size tall and wide, as well as the distance of CEJ to the alveolar crest of the maxillary anterior teeth (mm)

Tooth Element	Height	Normal Height	Width	Normal Width	CEJ- AC
13	8.8	10.3	8.1	8	0
12	8.4	9	6.8	7	1.11
11	8.3	11.5	9	9	0
21	8.7	11.5	9.1	9	0
22	7.4	9	7	7	0.6
23	9.1	10.3	8.4	8	0

*CEJ: Cementoenamel Junction
AC: Alveolar Crest

Second Visit

On the second visit, the procedure was performed, a surgical gingivectomy with a scalpel and blade on anterior maxillary gingiva. The procedure begins with the aseptic application of povidone-iodine to the work area. Local anesthesia is injected using an infiltration technique. On the mucobuccal fold from 13 to 23, as well as on the palatal part apical to teeth 13 to 23. Then, marking was done using a pocket marker as a guide in making the incision. The incision was made apical to the bleeding points

using #12 and #15 blades, or a Kirkland knife for the vestibular area. In the interdental regions, an Orban knife was utilized to ensure precise tissue management. A continuous incision was performed following the base of the pocket. Subsequently, the excised pocket walls were removed using a curette. This was followed by thorough scaling and root planing (SRP) using an ultrasonic (USS) scaler. To refine the gingival architecture, a gingivoplasty was performed using a #15 blade to achieve a physiological contour and reshape the interdental papillae. The surgical site was irrigated with a combination of saline and povidone-iodine.

At the end of procedure, a periodontal dressing was applied to cover the wound and was adapted through muscle trimming to ensure stability and patient comfort.

For post-operative care, the patient was prescribed Amoxicillin (500 mg) and Paracetamol (500 mg) to be taken three times daily. Post-surgical instructions were provided, and the patient was scheduled for a follow-up evaluation one week after the procedure.



Figure 4. Periodontal pack application



Figure 5. Post-gingivectomy visit: the crowns of 12, 11, 21, and 22 appear longer and the gingival contour is more symmetrical.



Figure 3. Tools and materials used

Third Visit

The patient returned one week later for a post-operative follow-up. She had completed the prescribed. Upon objective examination, the gingiva appeared healthy, although slight erythema (redness) was observed on the mesial aspect of tooth 11. The Simplified Oral Hygiene Index (OHI-S) score had improved significantly to 1.67 (Good), with a Plaque Index (PI) of 38%. During this visit, hyaluronic acid gel

(Gengigel) was applied to promote tissue healing, and chlorhexidine mouthwash (Minosep) was prescribed for continued plaque control.



Figure 6. One week after gingivectomy, there was still inflammation on the mesial of 11.

Fourth Visit

The patient returned one month later for a follow-up evaluation. There were no subjective complaints at this visit. Upon objective examination, the gingiva in the maxillary anterior region appeared coral pink with a healthy stippling texture. The gingival contour was well-defined and aesthetic. The OHI-S score remained stable at 1.67, while the Plaque Index (PI) had significantly improved to 14%. A comparison of the maxillary anterior tooth height measurements at baseline, one week post-surgery, and the one-month follow-up is presented in Table 2.

Table 2. The results of tooth height measurements before the procedure, moment 1 week and 1 month follow up (mm).

Tooth	13	12	11	21	22	23
Before	8.8	8.4	8.3	8.7	7.4	9.1
1 week FU	10.2	8.5	10.57	10.3	8.5	10.3
1 month FU	9.9	8.4	10.3	10	8.4	9.5

*FU: follow up



Figure 7. One month post gingivectomy (smiling): 12, 11, 21, and 22 appear longer, symmetrical, and aesthetic.

DISCUSSION

The patient in this case report is a young woman who presented with a long-standing complaint of small maxillary anterior teeth. She reported no history of pain, systemic disease, or the use of medications known to induce gingival enlargement. Clinical examination revealed localized gingival enlargement covering a portion of the anatomical crowns, with symmetrical contours and no signs of active inflammation. These aesthetic concerns were the primary motivation for seeking treatment.

This condition of gingival enlargement without inflammation suggests a non-inflammatory etiology, which is quite common. is altered passive eruption (APE). Although the diagnosis of APE was not fully established, the patient's clinical characteristics were consistent with a mild case of APE that did not require bone correction.^{9,10} In this context, the treatment approach was not focused on a detailed classification of APE, but on clinical indication in the form of soft tissue contour correction.

Initial evaluation showed that the patient's clinical crown length was still below the reference value. Based on the literature, the

clinical crown of the maxillary central incisor is generally around 10 mm long, while in patient this length only around 8.3 mm, which show existence limitations of the appearance of the tooth crown.¹¹ Radiographic examination in this case shows that the distance of the CEJ to the alveolar bone is parallel or close to the CEJ, so that soft tissue procedures such as gingivectomy are recommended accompanied by ostectomy or partial bone removal.¹²

Following crown lengthening procedures involving both gingivectomy and ostectomy, the gingival tissue generally exhibits favorable initial healing within two weeks to one month post-operatively, with optimal stabilization occurring between 3 and 6 months later.¹² In cases where only a gingivectomy is performed without ostectomy for Type 1B APE—though typically not recommended—tissue maturation and stability can be achieved within 4 to 6 weeks. However, the risk of gingival rebound or relapse is significantly higher due to the lack of adjustment to the alveolar bone, which results in suboptimal biological width.^{11,12}

In this case, the gingivectomy was performed using an external bevel incision technique with a conventional surgical scalpel, following the establishment of bleeding points with a pocket marker. This procedure was followed by a gingivoplasty to refine the gingival contours and reshape the interdental papillae. This technique is highly effective for correcting disproportionate gingival margins and increasing the length of the clinical crown.^{13,14} Although alternative methods, such as electrocautery and lasers, offer advantages in hemostasis and patient comfort, the conventional scalpel technique

remains the gold standard because of its lower costs and predictable results.¹³

Following the procedure, the patient was provided with post-surgical instructions, and follow-up evaluations were conducted at one week and three months. The one-week follow-up revealed mild erythema, which was resolved through the application of an antiseptic and hyaluronic acid gel (Gengigel). At the three-month evaluation, the gingival condition had improved significantly. The Plaque Index (PI) also decreased from 38% to 14%, indicating a substantial improvement in oral hygiene following dental health education.^{10,14}

Regarding aesthetic outcomes, the patient reported increased self-confidence due to the noticeable visual changes. The maxillary anterior teeth appeared longer and more balanced, resulting in a more harmonious smile. These findings are consistent with studies by Sharma et al.(2021) and Qali et al.(2024), which stated that gingival margin correction via gingivectomy can significantly enhance the clinical appearance of the teeth and overall aesthetic perception.^{2,15}

Clinically, gingivectomy proved to be an effective solution in this case for non-inflammatory anterior gingival enlargement, addressing the patient's primary complaint of short-looking teeth. Much of the literature suggests that cases of this nature do not always require complex diagnostic classifications, such as in-depth sub-typing of APE. Prioritizing the outcome—specifically harmonious crown proportions and symmetrical gingival margins—can serve as a practical basis for treatment planning.^{1,11,15.}

CONCLUSION

Gingivectomy is a simple yet effective soft-tissue surgical procedure for addressing aesthetic concerns caused by non-inflammatory anterior gingival enlargement. In this case, the procedure successfully improved clinical crown proportions and gingival contours. The final results demonstrated significant visual enhancement, a better oral hygiene index, and high subjective patient satisfaction regarding the post-operative smile. This approach illustrates that aesthetic improvements can be achieved without complex interventions, provided that an accurate diagnosis is made and the treatment indications are properly enforced.

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