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**GINGIVECTOMY AS A CROWN LENGTHENING PROCEDURE FOR ALTERED  
 PASSIVE ERUPTION TREATMENT**

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**ABSTRACT**

**Background:** Altered passive eruption is a condition that can make clinical crown of teeth seems shorten. The excessive gum or dentogingival junction level that overlap to enamel become causal factor for altered passive eruption. Crown lengthening is one of treatment that can treat altered passive eruption. One of crown lengthening procedure is gingivectomy. **Purpose:** To correct excessive gingiva and achieve ideal teeth appearance by using gingivectomy as crown lengthening procedure. **Case:** A 21-years-old, systemically healthy, non-smoking female, referred from orthodontist to treat patient's overlap gingiva. From the patient's point of view, her upper front teeth were unpleasant to see. There were no abnormalities in extraoral. Intraoral, there were upper front clinical crown of teeth that seem shorter. **Case management:** The treatment started from administration of anesthetic agent, application of pocket marker forceps, gingival cutting and trimming process, then periodontal pack application. Treatment results were quite good. The appearance of upper front teeth became ideal in width and length ratio. **Conclusion:** Gingivectomy is one of crown lengthening method that can solve excessive gingiva in altered passive eruption.

**Keywords:** Altered passive eruption; Crown lengthening; Dentogingival junction; Gingivectomy

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**INTRODUCTION**

Gingival margin, normally, are located near to dentogingival junction (DGJ). There are various level dentogingival junction in different individuals that can be related by two phase of tooth eruption, active eruption and passive eruption. Active eruption means that the teeth will move to occlusal plane. Some studies conclude that the teeth will reach the occlusal balance and the moving teeth are regulated by occlusal contiguity, periodontal ligament, and complex of supracrestal fibers. Passive eruption, contrary to active eruption, is the moving of gingival margin to incisal aspect of tooth.<sup>1</sup>

Altered passive eruption (APE), known as retarded or delayed passive eruption, is the condition which gingival margin position farther to incisal than cementoenamel junction. There are two possible ways that can lead to altered passive eruption, the first APE, type 1, where the teeth can emerge normally, but gingival margin go further leaving cementoenamel junction to incisal. The second APE, type 2, where the teeth erupt inadequately that can cause the distance between

the cementoenamel junction and alveolar crest is close.<sup>1</sup>

Crown lengthening is the procedure that can eliminate excessive gingiva in altered passive eruption. There are four possibilities to treat altered passive eruption and depend on sufficiency level of soft tissue.<sup>2</sup> The first is type I, when the soft tissue is adequate and gingival excision can be performed without carry out the bone reduction. The second is type II when the soft tissue is adequate and gingival excision still can be performed without performing bone reduction, but it can harm the biological width of soft tissues that consist of junctional epithelium and connective tissue attachment to the root surface. The third is type III, when soft tissue is inadequate and gingival excision must interfere the bone by performing bone reduction. And the last one is type IV, when soft tissue is inadequate and excision will be decreasing quantity of attached gingiva.<sup>2</sup>

Gingivectomy is a kind of crown lengthening procedure that can solve excessive gingival problem with simple method and without bone reduction.<sup>3</sup> In this case, we used

gingivectomy as treatment choice to correct excessive gingiva in altered passive eruption and to achieve ideal teeth appearance.

The aims of this procedure are to correct excessive gingiva in altered passive eruption and to achieve ideal teeth appearance.

### CASE AND MANAGEMENT

A 21 years old, systemically healthy, non-smoking female, referred from orthodontist to treat patient's overlap gingiva. From the patient's point of view, her upper front teeth were unpleasant to see. The patient admitted that she visited her dentist to clean her calculus 1 month ago. Clinical examination revealed that there were no abnormalities in extraoral. Intraoral, there were upper front clinical crown of teeth that seem shorter with score 1 in width and length ratio, coral pink in color, bleeding on probing was absent, plaque was on entire teeth surfaces (figure 1)



Figure 1. The appearance of gingiva and was shown in 1:1 width/length teeth ratio.

Based on the results of subjective and objective examinations which mentioned above, the treatment plan started with scaling and root planning as phase I therapy. The patient was instructed to control one week later to evaluate tissue response after receiving phase I therapy.

The patient came back a week after phase I therapy. The gingival inflammation was absented, but excessive gingiva still present. The patient was prepared for gingivectomy. Patient first filled out informed consent in advance and had a blood pressure examination to make sure their blood pressure was normal. The patient entered the operation room and the treatment began with asepsis and anesthesia. Probing depth was 3 mm and the bone sounding measurement was 5 mm. Excision marking was made by using a pocket marking forceps which inserted into the gingival sulcus. Excision used with blade number 15C.

Contouring in gingival margin and interdental papille were using Kirkland knife (figure 2) and Orban (figure 3).



Figure 2. Gingival margin contouring with Kirkland knife.



Figure 3. Interdental papilla contouring with Orban.

Periodontal dressing was applicated to the wound and checked for its adaptation. The patient was instructed to maintain her oral hygiene, prohibited to consume spicy and hot foods and beverages, and to come for control after 7 days post operation. The patient was prescribed amoxycillin 500 mg 3 x 1 for 5 days and mefenamic acid for pain relief.

After 7 days, the patient came for control. Periodontal dressing still persisted after unpacking of periodontal dressing, and no pain (figure 4). The patient was instructed to maintain oral hygiene.



Figure 4. Condition of gingiva after 7 days post operation

## DISCUSSION

Excessive gingiva, according to the American Academy of Periodontology, is included in mucogingival deformity around teeth that are described by the condition of margin gingiva further incisally to the crown. Excessive gingiva can cause short clinical crown.<sup>1,4</sup> In this case, the patient felt that her upper front teeth shorten.

One of conditions that can cause excessive gingiva is altered passive eruption. Altered passive eruption, clinically, has short teeth crown appearance. Marcushamer et al have observed the range of width and length ratio of Asian and the results were central incisivus (0,65-0,81), lateral incisivus (0,57-0,77), caninus (0,57-0,77).<sup>3,6</sup> In this case, the patient has score 1 in width and length ratio.

Altered passive eruption does not have sign of periodontal disease such as inflammation, suppuration, and bleeding on probing.<sup>6</sup> In this case, clinical examination has not shown any sign of periodontal disease in her short teeth crown appearance.

The treatment choice in excessive gingiva in altered passive eruption case depends on some examinations, such as probing depth, detection of cementoamel junction and bone sounding. The aims of this examination are to observe soft tissue sufficiency and to determine bone reduction need.<sup>2,7</sup> In this case, we found that probing depth result was 3 mm and bone sounding result was 5 mm.

Gingivectomy can be the choice to treat excessive gingiva which caused by altered passive eruption in this case. Garber and Salama said that simple gingivectomy can be done to expose hidden areas that induced by excessive gingiva in type I A, based on classification about CEJ and bone crest relationship. Type IA means that margin gingiva further to incisal aspect of crown, width of keratinized gingiva is wider than usual, short clinical teeth crown, there is space 1,5 mm more or less between cementoamel junction and alveolar crest.<sup>8</sup>

We chose conventional gingivectomy technique by using scalpel number 15C. Berceste et al said that nowadays study expressed that gingivectomy that using scalpel has faster wound healing.<sup>9</sup>

Gingivectomy is one of crown lengthening method that can solve excessive gingiva in altered passive eruption case.

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