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**GINGIVECTOMY AND GINGIVAL DEPIGMENTASION
AFTER ORTHODONTIC TREATMENT**

Yenny Ismullah¹, Shafira Kurnia²

¹Student of Periodontic Residency Program, Faculty of Dental Medicine – Universitas Airlangga, Surabaya, Indonesia

²Departement of Periodontology, Faculty of Dental Medicine – Universitas Airlangga, Surabaya, Indonesia

ABSTRACT

Background : *Gingival enlargement, a terminology for an increase in the size of the gingiva, is a general feature of gingival diseases. Gingival melanin pigmentation does not present a medical problem, but is likely to generate a concern in aesthetic function. Although melanin pigmentation is not a chief complain, this condition still need to be corrected. Clinicians are often confronted with a challenge in achieving gingival esthetics.*

Purpose : *This case report aims to explain how to achieve esthetical and functional demands in gingival enlargement and gingival hyperpigmentation case with gingivectomy and gingival depigmentation. **Case:** This surgical procedure aim to retain esthetical and functional demands. **Case Management:** An 18-years-old male presenting with maxillary chronic inflammatory gingival enlargement associated with prolonged orthodontic therapy is reported. Orthodontic appliances are factors for irritation and plaque retention that interfere oral hygiene and regulate gingival inflammation. Surgical therapy was performed to provide a better aesthetic outcome and prevent plaque retention. **Conclusion:** The combination of gingivectomy and gingival depigmentation can resolve gingival enlargement and gingival hyperpigmentation perfectly with close proximity to the ideal gingival condition.*

Keyword : *Gingival depigmentation, Gingivectomy, Orthodontic*

Correspondence: Yenny Ismullah, Fakultas Kedokteran Gigi, Universitas Airlangga, Jl. Mayjend. Prof. Dr. Moestopo No. 47 Surabaya 60132, Indonesia. Email : yennyadiva@gmail.com

INTRODUCTION

Gingival enlargement, a globally accepted terminology for an increase in the size of the gingiva, is a general feature of gingival diseases.¹ Gingival enlargement can be caused by wide variety of etiologies. It may result from acute or chronic inflammatory changes but chronic changes are more common. Chronic inflammatory gingival enlargement is caused by prolonged exposure to dental plaque.² Plaque formation can be generated by the presence of fixed orthodontic devices that inhibit oral hygiene and form new areas for plaque and debris retention while increasing the number of microbes.^{3,4}

Gingival hyperpigmentation is presented as a diffuse deep purplish discoloration or irregularly shaped brown and light brown or black patches, striae or strands.⁵ Gingival hyperpigmentation is seen as a genetic trait in some populations and is more appropriately termed as physiologic or racial gingival pigmentation.⁶ Gingival hyperpigmentation is one of the problems that often occurs and is

immensely disturbing the aesthetic function, especially when the patients are smiling.⁷

Periodontal treatment begins with initial phase therapy which includes Dental Health Education (DHE), supra and subgingival scaling, and polishing. Initial phase therapy aims to eliminate local factor that cause gingival inflammation such as gingival enlargement.¹

Surgical phase can be done if initial phase can not eliminate gingival enlargement and hiperpigmentation condition. Gingival enlargement and hiperpigmentation elimination techniques that usually used are gingivectomy and gingival depigmentation.^{1,7} They have advantageous traits such as simple, visible, desirable and predictable in eliminating gingival enlargement and hyperpigmentation.⁸

This case report aims to explain how to achieve esthetical and functional demands for gingival enlargement and gingival hyperpigmentation case with gingivectomy and gingival depigmentation.

CASE

An 18-year-old man visited the Dental Hospital, Periodontics Department, with a referral from the Orthodontics Department, Faculty of Dentistry, Universitas Airlangga with complaints of enlarged and black-coloured gums that were visible in upper front region of the jaws at smiling since 1 year ago. This condition compelled him to feel less confident when smiling broadly. Because aesthetics were the main concern, patients wished to eliminate the enlargement and the black color of the gums. Intraoral examination revealed gingival enlargement and gingival hyperpigmentation involving the upper front gingiva. There is no marginal gingival inflammation. The patient's medical history presented the wearing of orthodontic bracket since 2 years ago, and he disclosed no complaint or discomfort. The patient was a non-smoker.

The treatment plan, in this case, was to do gingivectomy and gingival depigmentation using scalpel and gingivoplasty using Kirkland and Orband knife to get maximum results. DHE, scaling and root planing were performed in the patient to eliminate local factor. Patient was instructed to come back a week after scaling and root planing. Patient came back to Dental Hospital a week after previous treatment. The patient's gingiva was evaluated. Gingival enlargement and gingival hyperpigmentation still persisted. The patient was directed to proceed with the surgical phase.

Patient had blood pressure examination before operation. The blood pressure was 120/80 mmHg. Periodontal plastic surgery procedures initially included aseptic action, infiltration anesthesia on mucobuccal folds from 13 to 23 (scandonest 2% with adrenaline in a ratio of 1:100,000). Gingivectomy and gingival depigmentation were performed in the anterior maxillary area using a scalpel and Kirkland knife #15. Orban knives were used to form interdental areas, followed by saline irrigation. The periodontal pack was placed around the surgical area. After surgery, patient was given antibiotics (amoxicillin 500 mg 3 times a day) and analgesics (Mefinal 500 mg 3 times a day) for 5 days. Patient was advised not to consume hot foods/beverages and not to brush their front teeth. Patient was asked to control after 1 week for periodontal pack removal and postoperative observation. After the periodontal pack was removed, the patient was instructed to use chlorhexidine mouthwash for 1 week. The seventh-day postoperative evaluation showed the size and the color of the gingiva was gradually returned to

normal, the black color disappeared. Evaluation on the fourteenth-day post surgery demonstrated good results with no pain or infection and a colour of normal gingiva. The patient felt very comfortable.

On the final control, the patient was returned to the Orthodontics Department to continue treatment. Patient was also instructed to always routinely examine the teeth and mouth every 6 months to maintain their hygiene and health.



Figure 1 . Before treatment



Figure 2 . Gingivectomy and depigmentation



Figure 3. The seventh-day postsurgical evaluation



Figure 4. The fourteenth-day postsurgical evaluation

DISCUSSION

Gingival enlargement in fixed orthodontic appliance users can occur due to several factors, namely the retention of ongoing plaque, irritation from the use of orthodontic bands, chemical irritation from the cement used, or due to the pressure of orthodontic appliance itself.⁶ The existence of fixed orthodontic appliance components in the oral cavity allows food retention and accumulation of plaque which complicate the users to clean the plaque completely.⁹ Gingivectomy is a periodontal surgery that aims to eliminate gingival enlargement to obtain good physiological, functional and aesthetic gingiva.⁵

Gingival hyperpigmentation is caused by exogenous and endogenous factors. Exogenous factors include contact with heavy metals and smoking habits. Endogenous factors are endocrine and genetic disorders.¹⁰ Clinical hyperpigmentation of the gingiva does not present a medical problem, although complaints of black gums may cause esthetic problems and embarrassment, particularly if the pigmentation is visible during smiling and speech. Gingival depigmentation is a periodontal plastic surgical procedure whereby the gingival hyperpigmentation is removed or reduced by various techniques.¹¹

The combination of gingivectomy and gingival depigmentation with scalpel, Kirkland and Orban knife, provides advantages including the establishment of good gingival contour and shape, and the quickening of the surgical process. Malhotra

et. al said that the use of scalpel in gingivectomy and gingival hyperpigmentation demonstrated satisfactory results. This technique is simple and versatile, requiring minimum armamentarium that is mostly available in all dental clinics.⁶

Combination between gingivectomy and gingival depigmentation can resolve gingival enlargement and gingival hyperpigmentation perfectly with close proximity to ideal gingival condition

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