



(CASE REPORT)



Gingivectomy using scalpel as a management of gingival enlargement in patient under orthodontic treatment

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Abstract

Gingival enlargement is a common condition in patients using fixed orthodontic appliances. In some patients, the use of fixed orthodontic appliances may trigger the condition. Gingival enlargement which can compromise oral hygiene and cause gingivitis and affect aesthetic function. One of the treatment for gingival enlargement or gingival overgrowth is gingivectomy. The purpose of this treatment is to remove the gingival tissue to enhance visibility and accessibility for self cleaning by cutting the gingival tissue by removing the lateral wall of the pocket which aims to eliminate pockets and gingival inflammation thus obtaining physiologically, functionally and aesthetically good gingiva. A 18 years old female patient presents gingival that overgrowth in the upper and lower anterior region since 6 months ago. No history of shrinkage, and no pain. The patient has a history of using fixed orthodontic appliances for 2 years since 2019 until now. At the time of the intra oral examination, the maxillary and mandibula gingiva also appears to cover part of the tooth surface although it did not appear to be swollen, but it caused the teeth to appear shorter. From panoramic radiography, there is no bone loss. The patient has no history of systemic disease. Gingivectomy has performed with conventional techniques using a scalpel.

Keywords: Gingivectomy; Gingival enlargement; Conventional techniques; Scalpel; Fixed orthodontic appliance

1. Introduction

Gingival enlargement is a common symptom of gingival disease. Gingival enlargement can be classified based on etiological factors and pathological changes [1]. Other factors like local factors as well as systemic factors, the most important of which is the local factors, namely bacterial plaque. Clinical signs that appear are enlarged gingiva, smooth, shiny, soft consistency, red color and the edges appear rounded [2].

Orthodontic treatment aims to improve dental aesthetics by correcting jaw position and tooth alignment deformities while maintaining gingival health. During treatment, changes may occur in soft tissue and hard tissue. However, when the teeth are moved may cause changes to the tissues that are less expected. The most common change found is gingival enlargement which results in gingival pockets with or without loss of attachment [3]. This is exacerbated by difficulty in maintaining oral hygiene associated with declining periodontal health in users of fixed orthodontic appliances [4].

Treatment that can be performed in patients with gingival enlargement is gingivectomy. Gingivectomy is the excision or removal of gingival tissue by removing the lateral wall of the socket which aims to eliminate the socket and gingival inflammation, to eliminate gingival enlargement and gingival inflammation, to obtain a gingival that is physiologically, functionally and aesthetically good. Advantages gingivectomy is a simple technique, that can eliminate the pockets completely, improve accessibility and visibility for thorough calculus elimination, gingival morphology thorough calculus elimination, predictable gingival morphology as we desired [5,6,7,8,9,10].

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2. Case Report

An 18 years old female patient came with the main complaint of enlarged gingiva in the entire maxillary and mandibula region since \pm 6 months ago, there was no disease. There was no history of shrinkage, and no pain. On intra oral examination found the gingiva maxillary and mandibula gingiva was also seen covering part of the tooth surface although it did not appear swollen, but caused the teeth look shorter. The patient used a fixed orthodontic device since \pm 3 years ago (Figure 1). The patient has no history of systemic disease.



Figure 1 Clinical features at first visit

In the examination of the probing depth index, gingival pockets were found in almost all maxillary and mandibula regions without bone loss confirm with panoramic radiography (Figure 2 and Figure 3).

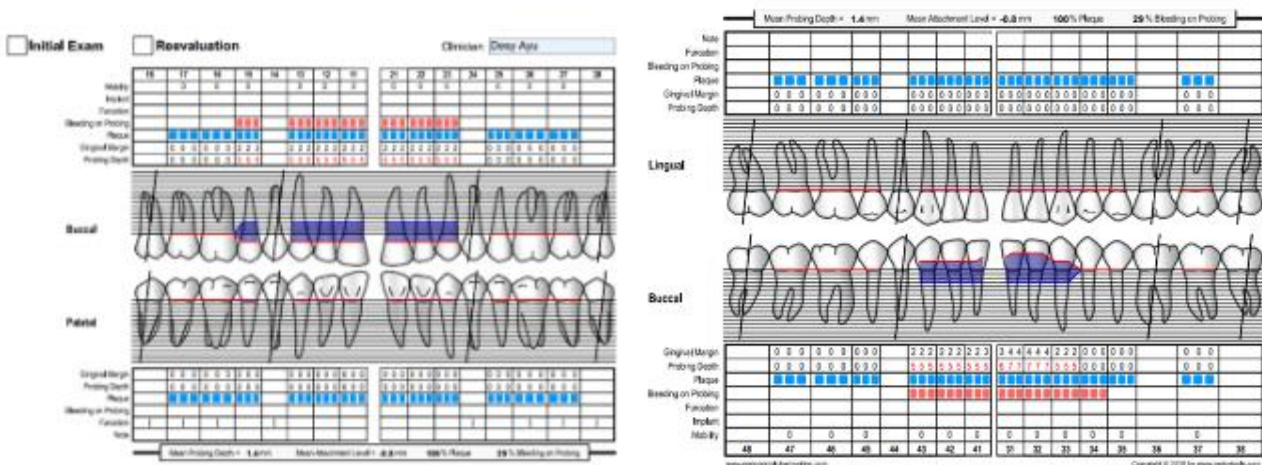


Figure 2 Periodontal chart maxillary teeth and mandibula teeth

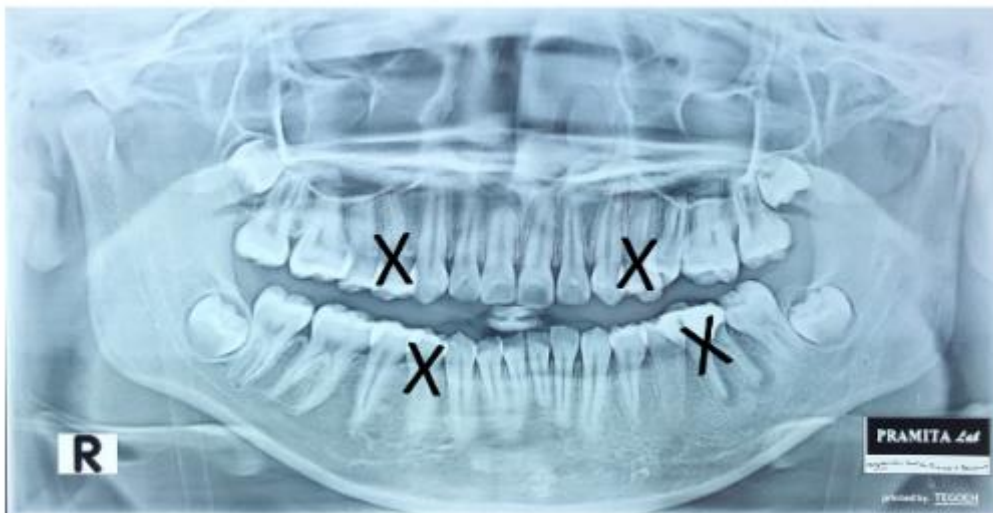


Figure 3 Panoramic radiography

Objective examination showed good oral hygiene, gingival enlargement on the anterior teeth of the labial part of the maxillary and mandibula (teeth 13-23 and teeth 33-43). The gingiva appeared enlarged, dense, pink color like the surrounding gingiva, and the gingival margin was blunt. there was a pseudo pocket with an average of 5 mm in the upper teeth and 5-7 mm in the lower anterior region with a Gingival Overgrowth Index 2 (Figure 4).

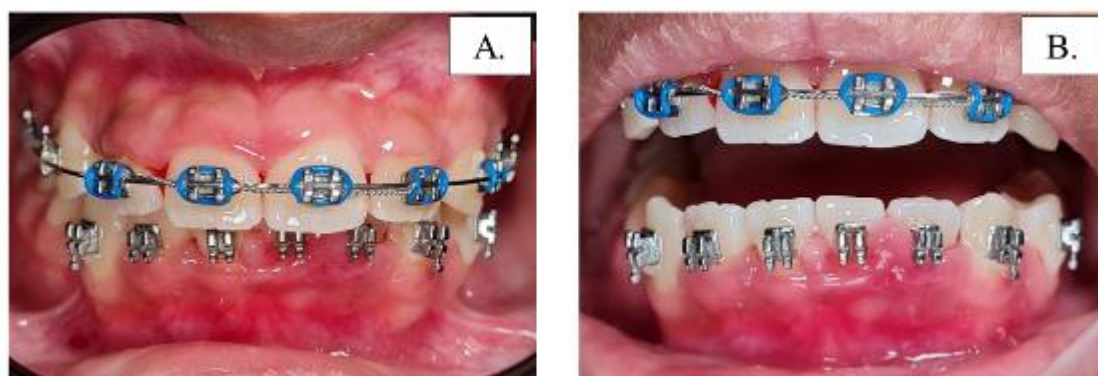


Figure 4 Closer look of clinical features anterior teeth (A). Maxillary anterior teeth; (B). Mandibula anterior teeth

Treatment was started after checking vital signs and informed consent patient. It was found that the patient vital signs were within normal limits. The gingivectomy procedure began by performing work area asepsis with povidone iodine 10% as antiseptic material. Anesthesia began with topical anesthesia application, then labial and palatal/lingual infiltration anesthesia at the mucosa border of immobilized teeth 13-23 and teeth 33-43 with citoject. Bleeding point creation with pocket marking forceps was performed by inserting the blunt end of the blunt tip parallel to the tooth axis into the socket. After touching the base of the socket, clamping is done to create a bleeding point as a projection of the base of the of the socket (Figure 5 and Figure 6). External bevel incision using scalpel blade No.15C at a position 1-2 mm apical of the bleeding point forming a 45 degree angle coronal direction to form a zero pocket. Incision on the marginal area is done dis-continuously and followed by incision of the interdental area using an orban knife (Figure 7). The excised gingival tissue was removed with a gracey curette. Gingivoplasty was performed to smooth, thin, and obtain a physiologic contour of the gingiva with the physiologic contour of the gingiva with a scalpel blade No.15C and a kirkland knife. Scaling Root Planing (SRP) was performed to remove the remaining calculus and followed by irrigation with saline solution. Application of periodontal dressing (ora aid) to maintain the post gingivectomy wound from irritation (Figure 8 and Figure 9). The same was done in regions 13-23. (Figure 12 -Figure 18). Patient was then medicated with amoxicillin 500 mg every 8 hours for 5 days and mefenamic acid 500 mg if needed when patient feel any pain, as well

as chlorhexidine gluconate 0.12% mouthwash (Minosep 0,12%) 2 times a day after brushing the teeth in the morning after having a breakfast and at night before going to bed. The 2-weeks control did not show gingival enlargement.

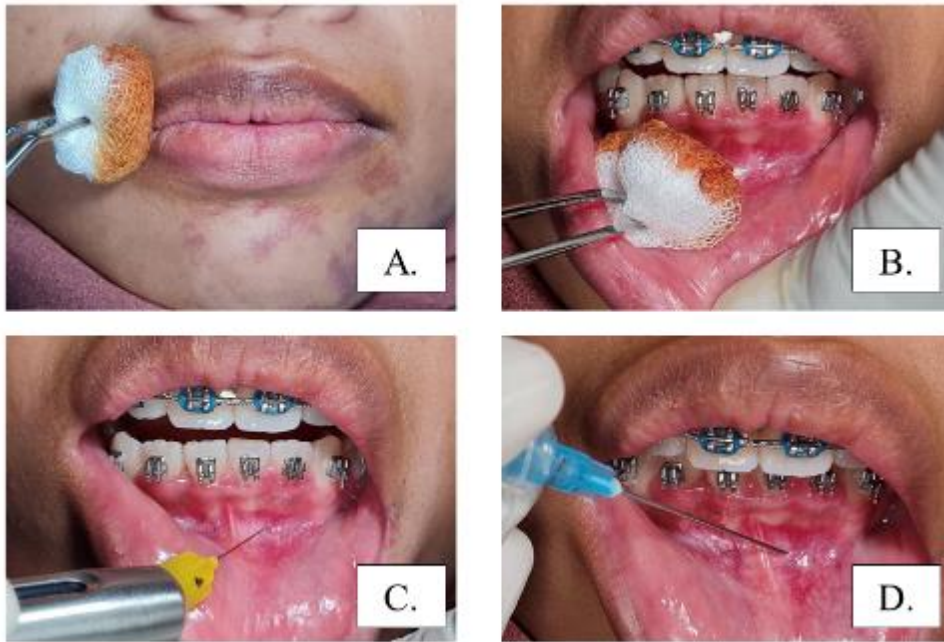


Figure 5 (A) Ekstra oral asepsis with povidone iodine 10% as antiseptic material; (B). Intra oral asepsis with povidone iodine 10% as antiseptic material; (C.D). Labial infiltration anesthesia at the mucosa border anterior lower teeth

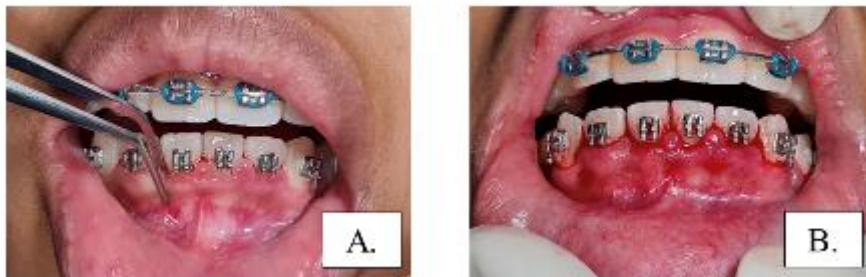


Figure 6 (A). Bleeding point creation with pocket marking; (B). Bleeding point as a projection of the base of the of the socket



Figure 7 (A). External bevel incision using scalpel blade No.15C at a position 1-2 mm apical of the bleeding point forming a 45 degree angle coronal direction to form a zero pocket; (B). Gingivoplasty was performed to smooth, thin, and obtain a physiologic contour of the gingiva with the physiologic contour of the gingiva with a scalpel blade No.15C and a Kirkland knife; (C). Followed by incision of the interdental area using an Urban knife

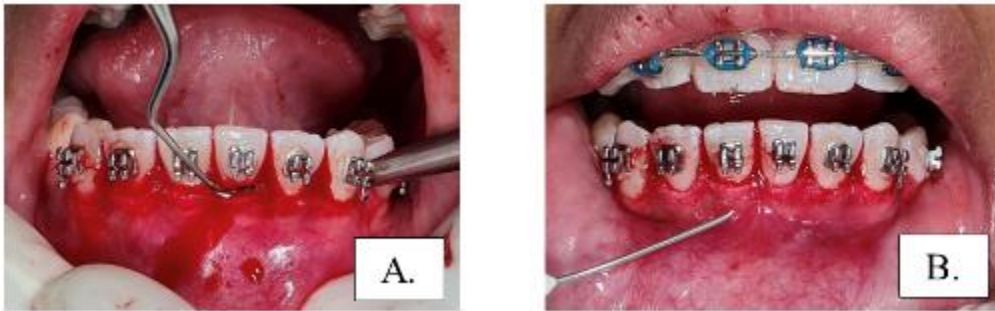


Figure 8 (A). The excised gingival tissue was removed with a gracey curette; (B). Scaling Root Planing (SRP) was performed to remove the remaining calculus and followed by irrigation with saline solution

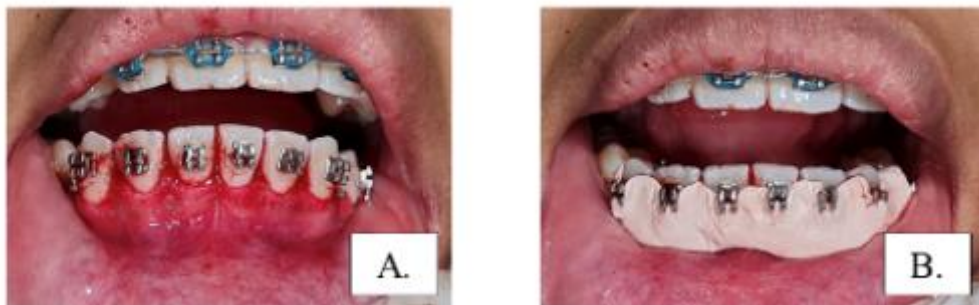


Figure 9 (A). Result after gingivectomy procedure done on anterior lower teeth; (B). Application of periodontal dressing (ora aid) to maintain the post gingivectomy wound from irritation



Figure 10 2 Weeks control post gingivectomy did not show gingival enlargement

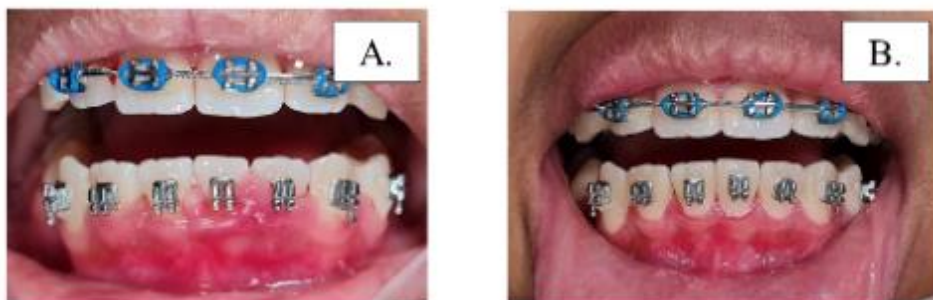


Figure 11 (A). Before gingivectomy procedure on anterior teeth; (B). 2 Weeks control post gingivectomy procedure on anterior teeth

The same was done in regions 13-23

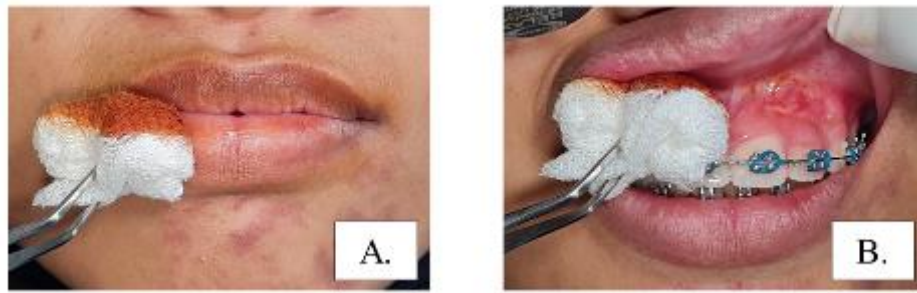


Figure 12 (A). Ekstra Oral Asepsis with povidone iodine 10% as antiseptic material; (B). Intra Oral Asepsis with povidone iodine 10% as antiseptic material



Figure 13 (A). Anesthesia began with topical anesthesia application; (B.C). Labial infiltration anesthesia at the mucosa border anterior upper teeth



Figure 14 (A). Bleeding point creation with pocket marking; (B). Bleeding point as a projection of the base of the of the socket



Figure 15 (A). External bevel incision using scalpel blade No.15C at a position 1-2 mm apical of the bleeding point forming a 45 degree angle coronal direction to form a zero pocket; (B). Gingivoplasty was performed to smooth, thin, and obtain a physiologic contour of the gingiva with the physiologic contour of the gingiva with a scalpel blade No.15C and a kirkland knife; (C). Followed by incision of the interdental area using an orban knife



Figure 16 (A). The excised gingival tissue was removed with a gracey curette, Scaling Root Planing (SRP) was performed to remove the remaining calculus and followed by irrigation with saline solution; (B). Result after gingivectomy procedure done on anterior upper teeth; (C). Application of periodontal dressing (ora aid) to maintain the post gingivectomy wound from irritation



Figure 17 2 Weeks control post gingivectomy did not show gingival enlargement

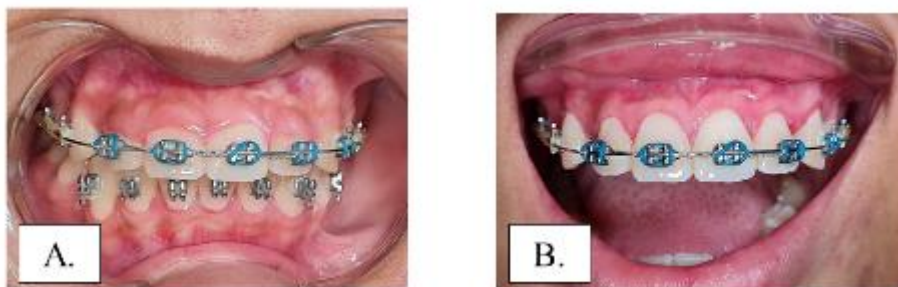


Figure 18 (A). Before gingivectomy procedure on anterior teeth; (B). 2 weeks control post gingivectomy procedure on anterior upper teeth

3. Results and Discussion

Treatment of gingival enlargement is based on the cause and pathological changes. The etiology of gingival enlargement is different, so the best treatment is based on case considerations that are individualized [1].

Gingival enlargement in this patient was treated with periodontal therapy phase 1, followed by gingivectomy. According to Peres, et al. (2019), gingivectomy improves visibility and accessibility to remove superficial deposits and smoothing the root thoroughly, creating a favorable environment for healing and restoration of the physiological contour of the gingival. One of the major advantages of a gingivectomy is the transformation of hard to clean gingival pockets which are difficult to clean into a gingival sulcus that is easy to clean. The surgical success rate is high because does not involve dissection of hard/bone tissue, the patient oral hygiene is controlled with improvement in oral hygiene condition oral hygiene, no systemic disease and the patient is cooperative [7].

Gingivectomy on the patient maxillary and mandibula is performed conventionally using scalpel. Gingivectomy and gingivoplasty are two common dental procedures that are frequently performed together. In contrast, to cut the tissue, which is recommended to reduce gingival expansion, gingivoplasty involves reshaping the gingival crest so that it is more in line with the gingival contour. The procedure for gingivectomy is typically performed after scaling and root planing, as well as curettage, have been completed and there has been no evidence of gingival recession [6,11,12].

In this case, gingival enlargement as the primary symptom occurred as a result of a plaque build up that was caused by an orthodontic treatment that was too aggressive, which led to persistent inflammation.

4. Conclusion

Gingival enlargement is inflammation that occurs in the gingiva due to local factors, namely bacterial plaque. Treatment gingival enlargement that does not shrink after scaling, root planing, curettage and polishing then a gingivectomy which will result in good gingival morphology and aesthetics morphology and gingival aesthetics. Plaque control is the key to the success of gingivectomy so that there is no recurrence of gingival enlargement. Determination of the etiologic factor is very important in order to determine the management of gingival enlargement. Gingivectomy is an action to remove gingival enlargement and to make it easier for patients to maintain oral hygiene in maintaining oral hygiene, supportive periodontal therapy periodically to see if there is a recurrence in the future. Gingivectomy treatment in cases of gingival enlargement in patients who use orthodontic appliances is effective restore the physiological anatomy of the gingiva so as to improve the masticatory function and aesthetic function.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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