



Research article

Surgical Incision Flap for the Management of a Patient With Gingival Enlargement Exacerbated by Malpositioned Teeth: A Case Report

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Abstract.

Background: Gingival enlargement is a disorder caused by plaque and calculus, exacerbated by malpositioned teeth and trauma from occlusion.

Objective: To discuss the management of gingival enlargement that exacerbates malpositioned teeth with surgical incision flap.

Case Report: A 26-year-old male patient presented with a complaint of enlarged gums in the lower front area with malpositioned teeth, food impaction, bleeding when brushing and discomfort because of the calculus for last six months. The patient had never been to a dentist before. The treatment given was scaling and root planning in the initial phase and gingival enlargement correction with surgical incision flap in the corrective phase.

Conclusion: The gingival enlargement cannot be done with surgical incision flap alone, the local secondary etiology has to be removed, therefore, a comprehensive treatment is required.

Keywords: gingival enlargement, incision flap, malpositioned teeth

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1. Introduction

Periodontitis is a condition of the gum tissue that surrounds the tooth. Both local and systemic etiological factors have an impact on the disease. One of the most frequent disorders affecting the mouth is periodontitis. It is important to treat the disease as soon as possible because it not only causes of the tooth loss but also has an impact on the patient's overall health[1]. Periodontal disease, which has plaque as its primary etiology agent, can be exacerbated by secondary etiology causes. The secondary etiology factor might be local or systemic, but local factors have a stronger influence because

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they facilitate the accumulation of plaque while simultaneously limiting entire clearance. Calculus, fracture, malocclusion, malpositioned, removable and fixed orthodontic appliances, overhanging restorations,

removable denture and poorly shaped crowns are examples of local secondary etiology causes[2].

Treatment planning and discussion of the necessity for orthodontic treatment benefit from a better understanding of the link between malpositioned teeth and periodontal loss. Malpositioned teeth causes improper contact between next teeth and make it difficult to clean the teeth mechanically[3]. The extent to which malpositioning has fundamental pathogenic effects on periodontal tissues is determined by the individual local findings: a traumatic deep bite results in a direct lesion, whereas in other malocclusions, there is a more indirect causal correlation, such as in cases of crowding, open contacts, or tooth tilting via plaque accumulation, and in ectopic tooth positions via the fragile structure of the covering soft and hard tissue[4].

It is critical to maintain dental and oral health from an early age in order to avoid gum disease and periodontal tissue. Dental Health Education (DHE) aims to raise public awareness about the importance of good dental and oral hygiene. Through this dental health education will also be able to raise public knowledge about the importance of dental health and oral cleanliness, as well as modify people's attitudes and behaviors. In addition, tartar cleaning treatment such as scaling and root planning are required. The techniques of scaling and root planning are not independent. After done, the microbiota change as a result of this treatment, and clinical inflammation decreases or disappears. If there is still inflammation, edema and a pocket with a depth of 3-5mm in the gingiva after initial phase treatment, curettage can be performed if there is no gingival enlargement, or with surgical incision flap if there is gingival enlargement[5].

2. Case Report

A 26 year old male patient came to the RSGM Prof. Soedomo FKG UGM and complained about his enlarged gums in the lower front area, food impaction easily slipped, bleeding when brushing and feeling uncomfortable because of the calculus for last 3 months. The patient has never been to dentist before. The patient denied having a history of systemic disease or allergies, and he did not smoke or drink alcohol. This patient was referral from clinical year student because of the gingival enlargement that is still there even though scaling root planing and control have been done.

Extra oral examination not found abnormality. On intraoral examination found a red area and inflammation of the malpositioned teeth in the mandibular anterior area. The patient's

objective examination revealed the presence of interdental papilla are enlarged area of teeth 33, 32, 31, 41, 42, and 43 which interfere with the patient's activities such as eating when food residue was easy to slip and bleeding when brushing the teeth. The probing depth in the interdental papilla area of this teeth was seen in the table 1.

TABLE 1: Mandibullary probing depth of patient's first visit (July 18, 2021).

Tooth	Mesiobuccal	Buccal	Distobuccal
33	4 mm	2 mm	3 mm
32	4 mm	2 mm	4 mm
31	4,5 mm	2 mm	4,5 mm
41	3,5 mm	2 mm	4,5 mm
42	5 mm	3 mm	4 mm
43	4 mm	2 mm	3 mm

Patient's bleeding on probing examined was positive for 13, 12, 33, 32, 31, 41, 42, and 43.



Figure 1: Showed gingival enlargement among 33, 32, 32, 42, 42, and 43.

The diagnosis is chronic periodontitis et causa plaque and calculus exacerbated by malpositioned teeth or classified using APP as periodontitis stage II grade B, the treatment plan should be initial phase therapy to eliminate etiologic factors, scaling root planning and surgical incision flap with excision new attachment procedure for corrective phase because of the fibrous gingival enlargement in interdental papilla. Radiography examinations showed that there was a horizontal bone loss among 43, 42, and 41 for 1,7 mm- 2 mm.



Figure 2: Horizontal bone loss among 43, 42, and 41 for 1,7 mm- 2 mm.



Figure 3: Angle Class I malocclusion with mandibular anterior crowding.

The initial therapy was reducing the inflammation with scaling root planning and control have been done by clinical year student. For the corrective phase, the patient had been explained before about the treatment planning and agreed for the procedure.

To begin, take pocket measurement in the operating area with probe UNC15. Asepsis of the work area with povidone iodine, then anesthesia infiltration in the mucobuccalfold work area. To determine the 33, 32, 31, 41, 42, 43, make bleeding point with pocket marker based

on the depth of the sulcus. Internal bevel incision in the interdental 33, 32, 31, 41, 42, and 43 with 15c scalpel to the base of the sulcus, following the bleeding line. Clean the granulation tissue on both the hard tissue and pocket walls with currete of interdental pockets. Saline is used to irrigate the surgical region. Scaling root planing was completed in the operating area. Irrigation with saline was repeated, followed by a rinse with destillad water. Control bleeding by pressing sterile gauze soaked with saline on the surgical area for tissue adaptation. Interproximal suturing with blu nylon 5-0 utilizing the sling suture technique at 33, 32, 31, 41, 42, and 43. Cover the operative region with a periodontal dressing after drying it.



Figure 4: Surgery procedure; a. incision design with internal bevel incision using 15c; b. clean the granulation tissue with curette; c. performed scaling root planing; d. tissue adaption; e. interproximal suturing; f. periodontal dressing application.

After surgery, the patient was given the following drugs: antibiotics (amoxicillin 500 mg, 3x daily for 5 days), analgesics (mefenamic acid 500 mg, 3x daily for 5 days). Postoperative instructions are avoid hot, spicy, sour and hard food. Take medication regularly as recommended. Avoid brushing teeth in the surgical area. Cleaning the surgical area covered with periodontal dressing. Control one week postoperatively to see tissue reponse and control two weeks postoperative to suturing removal.

A week after surgery, the patient complained there is thrush in the surgical area since the periodontal dressing was loss or about 3 days after surgery. Clinical shows there is traumatic lesion on the suture area. The patient was given the antiseptic mouthwash (tantrum verde 120ml, 2x daily for 5 days). Gave patient motivation again to maintain oral and dental hygiene.



Figure 5: Traumatic lesion on suturing area in 3rd days post surgery.

A follow-up comes two weeks after surgery. The patient has no complained, the operating area has improved, the color of the tissue is almost the same as the surrounding tissue. Gingival enlargement was slightly visible even though the periodontal pocket has reduced.

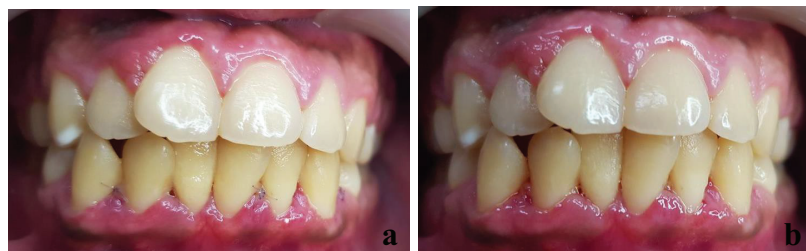


Figure 6: two weeks after surgery. a. before up hecting; b. after up hecting.

TABLE 2: Mandibullary probing depth two weeks after surgery (September 30, 2021).

Tooth	Mesiobuccal	Buccal	Distobuccal
33	1 mm	0 mm	1 mm
32	2 mm	0 mm	1 mm
31	1 mm	0 mm	2 mm
41	1 mm	0 mm	1,5 mm
42	1 mm	1 mm	1.5 mm
43	1.5mm	1 mm	1.5 mm

3. Discussion

Periodontitis is a common condition that affects practically every adult. Because coronal displacement of the gingival edge and apical migration of epithelial attachment are the most prominent clinical symptoms of this illness, the majority of periodontal disease treatment is focused on eradicating the periodontal pocket. Because the gingival wall decreased after the

inflammation was gone, periodontal pocket therapy resulted in soft tissue reattachment and apical migration of the gingival margin[6]. Scaling root planning is important because it is a non-surgical, causative therapy for bacterial infection prevention, and it is always the first phase of periodontal treatment. Irradiation of periodontal pockets with excisional new attachment procedure (ENAP) is an addition to scaling root planning in the treatment of chronic periodontitis are among more recent causative therapies [7].

Malpositioned teeth, a type of malocclusion, makes it difficult to clean between the teeth, reduce plaque, and maintain periodontal health. The consequence is that the majority of people with crowding have poor dental hygiene, and the accumulated plaque will lead to periodontal disease, which will usually begin with gingival inflammation[2]. Diedrich [3] in his study said that better access for oral hygiene, improved morphology of the marginal and interdental soft and hard tissue, simplified mechanical periodontal therapy, and more favorable conditions for periodontal regeneration are all positive effects of orthodontic malpositioned teeth correction.

Malpositioned teeth contribute to gingival inflammation by increasing the accumulation of bacterial plaque establishing physical barriers to self-cleansing. When compared to non-malpositioned teeth, malpositioned anterior dentition had more plaque accumulation, a higher number of periopathogens present in subgingival plaque[8]. Study from Gusmão, et al [9] that occlusion damage caused by dental malpositioning, such as excessive mandibular incisor proclination, is a damaging factor for the tissue that support the periodontium. Patients need periodontal treatment, both basic and surgical, as well as orthodontic treatment. As a result, the function of orthodontics and periodontics in tooth position correction should lead to improved oral health. In some circumstances, orthodontic encroachment might result in significant root resorption. In periodontally challenged patients, the force should be light, steady, continuous, and directed in the desired direction [11].

Orthodontic therapy is the greatest technique to overcome malpositioned teeth, in addition to maintaining oral hygiene with various methods. Correct orthodontic therapy can help malpositioned teeth return to their natural position. When the teeth are in their

proper place in the arch, plaque control is much easier. The normal configuration of teeth allows the tooth brush to reach every surface of the tooth and remove all plaque and calculus. Regular dental checkups, at least once every six months, are essential for maintaining good oral hygiene. Early detection is possible with regular dental checkups. Regular scaling can remove inaccessible

plaque and calculus during at home plaque control, which is beneficial for people with normal or crowded teeth to maintain good dental hygiene[10].

The pocket can be minimized in this case, although the enlarged tissue is still slightly visible. This is because one of the etiological factors that caused treatment was not treated, resulting in less-than-optimal surgical outcomes. The correct diagnosis of the etiology of the enlargement is critical to the appropriate and successful treatment of gingival enlargement[12].

4. Conclusion

This case report shows that treatment of gingival enlargement should not be done alone with surgical incision flap only, but it has to remove the local secondary etiological factor, which mentioned in this study was teeth malpositioned, and should be correct with orthodontic treatment. This condition could be recurrent as the plaque and calculus will easily formed in teeth malpositioned and causing gingival enlargement to appear again. Therefore comprehensive treatment is required.

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References

- [1] Mehrotra N, Singh S. Periodontitis. Treasure Island, StatPearls Publishing; 2021.
- [2] Umoh AO, Raphael OD. Periodontal status of patients with mandibular anterior crowding. Nigerian Journal of Research in Orofacial Infections and Oncology. 2020;3(1):1-6.
- [3] Jensen BL, Solow B. Alveolar bone loss and crowding in adult periodontal patients. Community Dentistry and Oral Epidemiology. 1989;17:47-51.

- [4] Diedrich P. Periodontal relevance of anterior crowding. *The Journal of Orofacial Orthopedics*. 2000;61(2):69-79.
- [5] Asykarie INA, Faizah A. Perawatan kuretase gingiva pada gigi incisivus lateral rahang bawah (Laporan kasus). *Jurnal Ilmu Kedokteran Gigi*. 2017;1(1):64-70.
- [6] Haryanto N. Perbedaan hasil perawatan poket periodontal antara kuretase dan excisional new attachment procedure (ENAP). Yogyakarta: Universitas Gadjah Mada; 2004.
- [7] Gudakuwala A, Ansari WN, Badaam H, Hegde R, Muglikar S, Sheikh S. Excisional new attachment procedure versus laser-assisted new attachment procedure - A split mouth study. *International Journal of Preventive and Clinical Dental Research*, April-June (Suppl) 2018;5(2):6-10.
- [8] Viazis AD, Pagonis TC. Orthodontitis: The distinct gingivitis around malpositioned teeth. *Journal of Dental Health, Oral Disorders and Therapy*. 2019;10(2):171-177. <https://doi.org/10.15406/jdhodt.2019.10.00479>
- [9] Gusmão Estela, Queiroz R, Coelho R, Cimões R, Santos R. Association between malpositioned teeth and periodontal disease. *The Dental Press Journal of Orthodontics*. 2011;16:87-94. <https://doi.org/10.1590/S2176-94512011000400015>
- [10] Bhatia S. Managing a case of crowding with associated severe periodontitis. *Medical Journal Armed Forces India*. 2018;74(1):78-81.
- [11] Bahirrah S. Relationship of crowded teeth and oral hygiene among urban population in Medan. *IOP Conference Series: Earth and Environmental Science*. 2018. doi:10.1088/1755-1315/126/1/012188.
- [12] Barbe, Anna Greta & Röhrig, Gabriele & Hieggelke, Lena & Noack, Michael & Derman, Sonja. (2020). Interdisciplinary assessment and management of a patient with a fibrous gingival enlargement of unknown origin: A case report. *Clinical Case Reports*. 2019;8(1):159-165. <https://doi.org/10.1002/ccr3.2605>