"Case Report"

Management of Abnormal Frenulum and Gingival Enlargement in One Visit

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Abstract

Gingival enlargement or excessive gingival growth, is a common occurrence in gingival disease, characterized by an increase in the size of the gingiva. Inflammatory gingival enlargement or inflammatory gingival enlargement is an inflammatory response to local irritation related to the gingiva. The most frequently performed treatment for gingival enlargement is gingivectomy. A high frenulum makes it easier for the gingival margin to be pulled so that plaque is easily trapped in the sulcus which results in periodontal disease and can be corrected with a frenectomy procedure. A 22-year-old female patient came to RSGM UMY complaining that her upper front gums had become enlarged so she was lacking self-confidence. Intraoral objective examination revealed enlarged gingiva on the interdental papillae of the maxillary anterior teeth (12, 13, and 21) which were rounded, light red in color with the surrounding gingiva, and had a smooth surface. There is a high frenulum with a height of 8 mm. A blanching test was carried out to examine the frenulum and the results were positive (+). Gingivectomy can be performed with a conventional scalpel, electrosurgery, chemosurgery, and laser. Conventional gingivectomy surgery performed with a small scalpel has been considered the most common method due to its ease of use, accuracy, and minimal tissue damage. Frenectomy can also be performed using various methods, such as using a scalpel, electrosurgery, or laser. Gingivectomy and frenectomy surgical procedures are effective in managing enlarged gingiva with a high frenulum.

Keywords: frenectomy; Gingivectomy; high frenulum; enlargement gingiva

INTRODUCTION

Gingival enlargement is a common occurrence in gingival disease, characterized by an increase in the size of the gingiva. Based on etiopathogenesis, enlargement can be caused by inflammation, drug influence, associated with systemic conditions or diseases, neoplastic enlargement, or false enlargement. According to its location, the enlargement can be marginal, papillary or diffuse. Based on its distribution, it can be divided into local (localized) or general (generalized).1

Inflammatory gingival enlargement is an inflammatory response to local irritation related to the gingiva. Irritation can come from microbial deposits (plaque and calculus) from fractured teeth, overhanging restorations, ill-fitting prosthesis, orthodontic brackets, etc. The appearance of gingival enlargement begins with a slight swelling of the papilla or marginal gingiva depending on the location of the irritant. Enlargement of the gingiva may increase in size and extent.1

Enlargement of the gingiva can cause functional disorders such as altered speech, masticatory difficulties, aesthetic abnormalities, and psychological problems. The most frequently performed treatment for gingival enlargement is gingivectomy.2

The frenulum is a small fold of mucous membrane that binds the lips or cheeks to the alveolar process and functions to limit the movement of the cheeks or lips.3

High frenulum attachment occurs if the peak of the frenulum attachment is located at the margin or on the interdental papilla. A high frenulum makes it easier for the gingival margin to be pulled so that plaque is easily trapped in the sulcus, resulting in periodontal disease. Frenectomy is a surgical procedure that must be performed to eliminate
predisposing factors for periodontal
disease.4

The aim of this case report is to report the course of gingivectomy and
frenectomy treatment in the case of a patient with enlarged gingiva and high
frenulum attachment.

CASE REPORT

A 22-year-old female patient came to RSGM UMY complaining that
her upper front gums had become enlarged, making her feel less self-
confident. The patient felt that his gums had enlarged since last year. Complaints
in the upper front teeth on several teeth. Complaints are not accompanied by pain
or do not interfere with activities. The patient has had scaling treatment, but the
gum enlargement has not reduced. The patient's dental history, 2 years ago, had
windowing surgery for impacted anterior teeth and installation of fixed orthodontics. The anterior teeth that were
impacted were teeth 11, 13, and 23. After
the windowing procedure was carried
out, only tooth 13 could be withdrawn
and occupy the position of tooth 11. Meanwhile, teeth 11 and 23 were
extracted. Then tooth 13 was reshaped to resemble tooth 11. Currently the patient
has stopped undergoing fixed orthodontic treatment.

Intraoral objective examination revealed enlarged gingiva on the
interdental papillae of the maxillary anterior teeth (12, 13, and 21) which were
round, pink in color with the surrounding gingiva, and had a smooth surface. There
is a high frenulum with a height of 8 mm. A blanching test was carried out to examine the frenulum and the results were
positive (+). The patient also underwent an OPG X-ray examination.

Based on the results of subjective and objective examinations of the patient,
a diagnosis of gingival enlargement et
causa plaque-induced was made. The
predisposing factors for this condition are

Table 1. Probing Depth (PD) dan Bleeding on Probing (BOP) Before Surgical Procedure

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Before the periodontal surgical
procedure, at the first visit initial therapy is carried out in the form of scaling with
an ultrasonic scaler (USS). The patient was instructed to come again a week later
to evaluate the results of scaling and
gingivectomy and frenectomy treatment.

The second visit took place a week after the previous visit. A post-scaling control was carried out and it was seen that the gingiva was still enlarged, so a periodontal surgical procedure was carried out in the form of a gingivectomy on teeth 12, 13 and 21 as well as a frenectomy on the high labial frenulum.

![Picture 4. Gingivectomy procedure](image)

A. Bleeding Point with Pocket Marker; B. Facial Incision with Kirkland Knife; C. Interdental Incision with Blade No. 12

The treatment stages begin with preparation of the operator, patient, as well as tools and materials. The patient was instructed to rinse his mouth with povidone iodine. Aseptic treatment is carried out extraorally and intraorally by applying povidone iodine with a cotton ball. Local anesthesia with infiltration anesthesia in the mucobuccal fold and sulcus of teeth 12, 13, and 21 using Citoject with the anesthetic agent Articaine. After the anesthesia has worked, continue with determining the bleeding point using a pocket marker. The gingivectomy incision uses a Kirland knife or scalpel blade No. 15 for the facial part of the tooth, while for the interdental part uses an orban knife. Bevel external incision with an angulation angle of 45° in the coronal direction. Cleaning the gingiva from granulation tissue using a Gracey curette. Then do gingivoplasty using a scalpel blade no. 15c or Kirkland knife.

![Picture 5. Frenectomy Procedure.](image)

A. Superior Clamp Incision; B. Inferior Clamp Incision; C. Blunt Dissection; D. Palatal Incision with Blade No. 12

After the gingivectomy procedure is carried out, it continues with the frenectomy stage. The frenulum is clamped using clamps. Incise the labial frenulum using scalpel blade number 15. The incision is superior (top) and inferior (bottom) of the clamp. Next, perform a blunt dissection using curved surgical scissors to remove fibrous adhesions. The periosteum tissue was removed up to the palatine using blade number 12. The surgical area was irrigated using saline and the mucosa was sutured using atraumatic thread size 3.0 using interrupted suturing technique.

![Picture 6. Post-Operation.](image)

Control after 1 month of gingivectomy and frenectomy. The patient did not have any complaints. The gingiva appeared normal on the interdental papilla of teeth 12 to 21 and there was a new attachment on the maxillary labial frenulum.

Objective examination showed that patient 1’s Oral Hygiene Index (OHI) was good. PD and BOP measurements were performed to evaluate the results of surgical treatment. Blanch test on the frenulum was negative (-) and there was a decrease in the height of the frenulum from the previous 8 mm to 4 mm.

**Table 2. Probing Depth (PD) and Bleeding on Probing (BOP) After Surgery Procedure**

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DISCUSSION

The patient's case was gingival enlargement caused by plaque (enlargement gingiva et causa plaque induced). There are two predisposing factors in this patient's condition, which are the use of orthodontic appliances and a high frenulum. The treatment began with initial non-surgical treatment therapy, namely scaling, then continued with the surgical procedure of gingivectomy on the 3 maxillary anterior teeth, and frenectomy of the maxillary labial frenulum.

Gingivectomy can be performed with a conventional scalpel, electrosurgery, chemosurgery, and laser. Elimination of pseudo pockets is the therapeutic end point of all gingivectomy procedures. Conventional gingivectomy surgery performed with a small scalpel has been considered the most common method due to its ease of use, accuracy, and minimal tissue damage.5

Stages of treatment for gingivectomy with conventional techniques. First, the gingival pocket is examined and bleeding points are made. Then, the main incision is made with a Kirkland knife, while the second is made with an Orban knife. After removing the tissue that has been incised with a No. 15 blade, the gingival contour is corrected by ginvoplasty using fine gingival scissors.6

The maxillary midline frenulum is an anatomical structure that connects the mucosa of the alveolar process to the upper lip. The frenulum can limit the mobility of the lips, thereby affecting chewing and speaking. In addition, the frenulum is sometimes too tightly attached to the marginal gingiva and prevents optimal tooth brushing. This condition is susceptible to harm because of the risk of inflammation and enlargement due to plaque accumulation.7

Frenectomy can also be performed using various methods, such as using a scalpel, electrosurgery, or laser. Conventional frenectomy using a scalpel is the most commonly performed procedure because it is simple, cheap and practical. However, there are complications that arise from this...
procedure in the form of a larger incision wound, followed by excessive bleeding.\(^8\)

The conventional classical frenectomy technique or scalpel technique was proposed by Archer (1961) and modified by Krugger (1964). The frenulum area was anesthetized with 2% lignocaine with 1:80,000 adrenaline. The frenulum is clamped with a pair of hemostats, and the entire tissue along with its alveolar attachments is cut with a No. 15 blade. After removing remaining fibrous adhesions of the underlying periosteum, the wound is closed with interrupted sutures using 3.0 silk thread.\(^9\)

After the surgical procedure, the patient was prescribed antibiotics, diclofenac potassium, minosep mouthwash, and gengigel (hyaluronic acid/HA). Research shows that the additional use of 0.8% HA gel in periodontal surgery does not alter the growth of new blood vessels in the early phase of gingival wound healing. However, the use of HA results in increased extracellular matrix (ECM) remodeling and collagen maturation, which may serve as key drivers of early tissue wound healing.\(^10\)

Gingivectomy can be accompanied by crown lengthening to increase retention in cases of tooth fracture under the cemento-enamel junction.\(^11\)

CONCLUSION

Gingivectomy and frenectomy surgical procedures are effective in managing enlarged gingiva with a high frenulum and can be performed in one visit thereby saving time and costs.

REFERENCES


