

Frenectomy with Classical Technique

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Abstract

Objective: A 16-year-old man came to RSGMP Airlangga University with a complaint of a midline diastema in the maxilla which interfered with his appearance when smiling. After examination, it was found that there was an abnormal attachment of the superior labial frenulum so a frenectomy was needed.

Methods: Anesthetize the operating area with a local anesthetic. The lips are retracted upwards. The frenulum is clamped using a hemostat until released. Irrigate the surgical area with saline. Perform suturing of the operating area with the interrupted technique using silk thread size 4 – 0.

Result: one week post frenectomy shows redness, and slight edema in the mucobuccal fold region 11 21. One month post frenectomy it appears that wound healing is good, there is no pull from the frenulum.

Conclusion: Frenectomy with the classical technique can correct the abnormal attachment of the frenulum

Keywords: Abnormal; Anesthetize; Frenectomy; Frenulum

1. Introduction

The frenulum is a fold of mucous membrane surrounded by muscle and serves to connect the mucosa of the lips, cheeks, and tongue with gingival tissue ⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾. The frenulum in the oral cavity consists of 3 types, namely labial, lingual, and buccal frenulum. Normally, the frenulum labialis is present between the incisor teeth. Based on the extension of attachment of its fibers, the frenulum is classified as follows:

- Mucosa, when the frenulum fibers are attached to the mucogingival junction;
- Gingiva, when frenulum fibers are attached to the fixed gingiva;
- Papillae, when the frenulum fibers of attachment extend to the interdental papillae;
- Papilla penetration, when the frenulum fibers pass through the alveolar and extend to the palatine papilla⁽⁵⁾⁽⁶⁾⁽⁷⁾

A smile is a way to express and communicate with others. Therefore, an attractive smile is very necessary to socialize well in the community. The balance of the smile can be affected by the position of the teeth and the condition of the frenulum labialis. The abnormal frenulum is the attachment of the frenulum that is too close to the cervical line of the tooth, thus affecting the location of the teeth or blocking the movement of the tongue in the lower jaw ⁽⁸⁾. The abnormal frenulum is attached close to the alveolar crest. The frenulum is said to be abnormal if it adheres to the soft tissue between the central incisors or the tissue in the palatal part of the incisors, wider on the insertion side, and if the tissue between the central incisors moves and blanches as the frenulum of the upper lip is stretched.

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Abnormal frenulum attachment often occurs at preschool age and during times when teeth are mixed in both the labial frenulum and lingual frenulum⁽⁹⁾. The frenulum is thick, extensive, and there is fibrous tissue with papillary penetrating attachment; It may interfere with the normal functioning of the upper lip, interfere with the process of breastfeeding, oral hygiene, aesthetics, cause diastema, and gingival recession. The central diastema of the upper jaw is a physiological image of both deciduous and mixed teeth, usually at 7–12 years of age⁽¹⁰⁾. Gardiener reports that the prevalence of central diastema in children is approximately 48% in 7-year-olds and 18% in 12-year-olds and 7% in 15-year-olds⁽¹⁰⁾.

Diastema is an aesthetic complaint of patients and is often found in children, especially in the mixed dentition phase. Although the midline diastema is 2 mm wide, it rarely closes on its own during the developmental process⁽¹¹⁾. Common indications for abnormal upper jaw frenulum removal in children include; difficulty performing oral hygiene, improving aesthetic appearance, and performing diastema closure⁽¹²⁾. Treatment of abnormal frenulum cases can be done with frenectomy with classical techniques.

2. Case Management

A 16-year-old male patient came to RSGMP Universities Airlangga complaining of a midline diastema on the upper jaw that interfered with the appearance when smiling. After the examination, there is a diastema between the central incisor teeth as much as approximately 4 mm.



Figure 1 Intra-oral photograph

After examining the abnormality of frenulum attachment visually by providing tension/tension when pulling the frenulum and obtained from the observation that the area drawn is the ischemia area (pale). This procedure is called the Blanch Test.



Figure 2 Blanch Test

Before surgery, it is necessary to prepare the patient and prepare the material tools. Patient preparation, namely checking the general condition, blood pressure, and informed consent. Frenectomy begins with asepsis of the work area using 10% povidone-iodine. Local anesthesia on mucolabial fold with lidocaine + adrenaline 2 cc using cytoject. Clamp the frenulum with a hemostat parallel to the bone. Frenulum incision with scalpel no.15, starting with the upper incision of the hemostat followed by the lower incision of the hemostat until the frenulum clamped by the hemostat is released.



Figure 3 Anesthesia of the anterior region



Figure 4 Hemostat placement



Figure 5 Frenulum incision



Figure 6 Suturing

The one-week post-frenectomy control obtained periodontal pack is still in good condition. After removing the periodontal pack, the sutures are still complete, reddish, slightly oedematous, and there is debris. Then aff stitching and debridement are performed. One month after surgery, the patient had no complaints, scars appeared, wound healing was good, and there was no pulling from the frenulum.



Figure 7 1-week post-frenectomy control



Figure 8 1-month post-frenectomy control

3. Discussion

Cases of the central diastema of the maxilla caused by the high attachment of the superior labial frenulum can be treated with frenulum resection also known as a frenectomy. Frenectomy in this condition is followed by orthodontic treatment to close the gap between the central incisor teeth. In some cases, spontaneous closing of the gap can occur after frenectomy, usually when the distance between the central diastema is very small⁽¹³⁾. But in this case, the central diastema is approximately 4 mm apart, so orthodontic treatment is necessary afterward.

The superior frenulum labialis is the remnant of the embryonic structure that connects the tubercle of the upper lip to the papilla palatine. In the period of the decidua teeth, the superior labial frenulum is often seen attached to the alveolar process between the central incisor teeth of the upper jaw. Under normal conditions, along with dentoalveolar growth, the alveolar process will grow to the occlusal and the attachment area of the superior labial frenulum will be more towards the apical or near the vestibule⁽³⁾. It is this failure of frenulum attachment to move towards the apical that causes the central diastema to occur. As in the case of the case, it is thought that this is what causes the central diastema in the patient.

The diagnosis of an abnormal frenulum is detected visually by pulling the pressure of the frenulum and looking at the movement of the tip of the papilla or the blanching of the frenulum caused by ischemia⁽¹⁴⁾. The frenulum is pathologic when it has an abnormal width or when the gingival attached zone in the midline or interdental papilla shifts when the frenulum is pulled⁽⁸⁾. High frenulum attachment occurs when the insertion apex of the lip band is located at the margin or on the interdental papillae. This condition makes it easier for the gingival margin to be attracted so that plaque is easily entangled in the sulcus resulting in periodontal disease⁽¹²⁾. Another impact of high frenulum attachment is the presence of diastema⁽¹⁵⁾.

Frenectomy is a minor surgical procedure, which is a surgical procedure to remove a thin layer of tissue called the frenulum⁽¹⁵⁾. This is done to correct abnormal frenulum attachment by cutting the frenulum attachment at the place of inertia to attract it to the lips, cheeks, or tongue⁽⁸⁾. Labial frenectomy is a standard surgical procedure that is routinely performed in dentistry and can be performed using scalpels, electrosurgery, or lasers. Surgical techniques in frenectomy using scalpels include Conventional (Classical) frenectomy, Miller's technique, V-Y Plasty, and Z Plasty⁽²⁾.

Each technique has advantages and disadvantages⁽⁴⁾. Frenectomy using a blade is still considered the gold standard and can be widely applied. The choice of frenectomy method using a scalpel and conventional or classical techniques, in this case, is done because this technique is simple, easy to apply, cheap, effective, and efficient⁽⁶⁾. In addition, although it causes the removal of the fibrous structure edges, it does not cause necrosis in the tissue when compared to using laser techniques⁽¹⁶⁾. Classical techniques are still widely used⁽¹⁴⁾. The disadvantages of this technique are the formation of scar tissue, bleeding, pain⁽¹⁷⁾, and debris sticking to the suture thread⁽¹⁸⁾.

In classical techniques, Most patients are more comfortable and the patient's perception of pain, aesthetically, is quite good⁽¹⁹⁾. In addition to conventional techniques, a frenectomy can also be performed using electrocautery in this technique the advantages are minimal bleeding⁽²⁰⁾, relatively faster processing time, reduced pain, and reduced discomfort due to stitches at the end of surgery⁽¹⁴⁾⁽²¹⁾. The disadvantage of this technique is that it tends to be more expensive than conventional techniques⁽¹⁴⁾. In this case, there is a hypertrophic frenulum which can inhibit the space closing of orthodontic treatment and can cause trauma and pain.

Frenectomy is performed before orthodontic treatment to speed up the movement of the central incisors⁽²²⁾. Frenectomy using conventional or classical techniques shows good results. Good wound healing was seen after the patient came to control day 7. The general state is healthy, the extra-oral state has no complaints, the intra-oral state appears normal mucosal color, there is no bleeding, and the operating area is tightly closed with stitches that are still well attached. The patient also does not feel any complaints including pain.

4. Conclusion

Frenectomy with classical techniques can correct abnormal frenulum. Frenectomy treatment can also correct aesthetic problems, simplify the process of cleaning the anterior area of the upper jaw, and help orthodontic treatment.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare no competing interest

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