Frenectomy using Two Clamps Technique: A Case Report

Arni Irawaty Djais[1], Fuad Husain Akbar[2]*, Mardiana Adam[1], Sri Oktawati[1], Hasanuddin Tahir[1], Asdar Gani[1], Supiaty[1], Muliati Yunus[3], Dwi Putri Wulansari[3], Nur Indah Sari[4]

1. Department Periodontology, Faculty of Dentistry Hasanuddin University, Makassar, Indonesia.
2. Department Dental Public Health, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia.
3. Department Dental Radiology, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia.
4. Dental Hospital, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia.

Abstract

Frenulum is a tissue fold or a muscle that attaches to lip and check on alveolar mucosa, gingiva and periosteum. Frenulum could cause orthodontic problems such as centralis diastem. The abnormal frenulum can be managed by frenectomy. In this report, we did frenectomy used two clamps technique. This case report aims to describe frenectomy using two clamps technique. A male patient aged 23 yeras old was referred by Departement of Orthodontic, Dental Hospital of University of Hasanuddin for frenectomy due to relaps after orthodontic treatment. On clinical examination, there was a diastem on maxillary insicivus centralis and frenulum attachment on the gingiva. Then, we did frenectomy using two clamps technique, where each of clamps was used to pinched two bases of frenulum. Patient was given post surgery instruction and prescribed analgesic and mouthwash. Follow up was done one week after surgery. Frenectomy for a high frenulum's attachemnt using two clamps technique has a positive effect both for patient and clinician, due to its procedure is convenient in cleaning and removing frenulum.

Case report (J Int Dent Med Res 2019; 12(4): 1601-1605)

Keywords: Labialis frenulum, Frenectomy, two clamps technique.

Received date: 11 August 2019 **Accept date:** 07 May 2019

Introduction

Diastem is a gap between two teeth that could be occured due to frenulum attachment that reaches maxilla insicivus centralis. Frenulum is a mucosa membrane fold that attaches to lip or check on alveolar mucosa, gingiva andperiosteum. Frenulum located on maxillary insicivus anterior is called superior labialis frenulum. A high superior labialis frenulum attachment could cause centralis diastem that disturbed esthetic, thus it is indicated for frenectomy.[1-5]

An abnormal superior labialis frenulum can cause centralis diastem so that inhibit the movement of orthodonitc appliances. There is a correlation between a high frenulum attachment with centralis diastem that is considered as a major causing for centralis diastem. An abnormal frenulum could be a causing factor for a persistent centralis diastem, however, it could be removed by frenectomy.[6-9, 11]

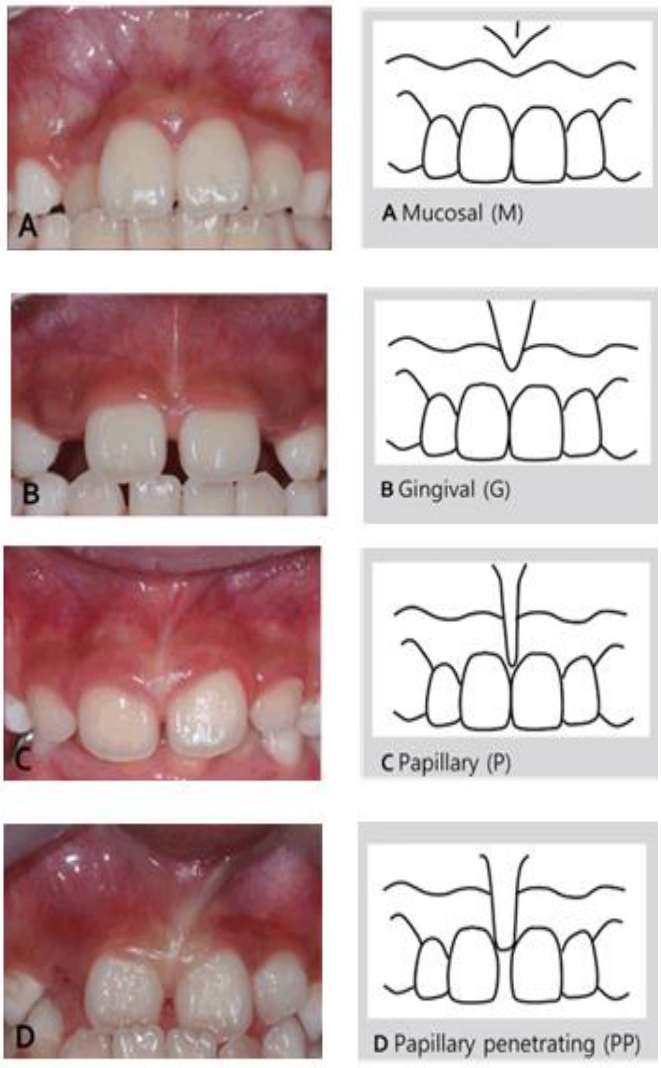
Frenectomy is a procedur for a high frenulum attachemnt with aims to repair esthetic due to centralis diastem. Frenectomy is differentied from frenotomy based on surgical procedure. Frenectomy is a procedure that remove all frenulum, whereas frenotomy is a frenulum incision's procedure.[2, 4-6]

Labial frenulum attachment is clasified by Placeek dkk (1974), as follow: [2,4,6,7]

1. Mucosa: Frenulum attaches to mucogingival junction.
2. Gingiva: Frenulum reaches gingiva's attachment.
3. Papiler: Frenulum's attachment expanded into interdental papilla.
4. Papilla penetration: frenulum passess into alvaoler processus and expended into papilla palatina.

When frenulum is pathologic, it is indicated to be removed when frenulum's attachment cause centralis diastem and also for an abnormal frenulum with unproprier gingiva and a shallow vertibule.[2, 4, 7]

Corresponding author:
Fuad Husain Akbar
Department Dental Public Health,
Faculty of Dentistry, Hasanuddin University,
Makassar, Indonesia.
E-mail: fuadgi2@gmail.com



Case Report

A-23 years ols male was refferred by Departement of Orthodontic, Hasanuddin University Dental Hospital for frenectomy. On clinical examination, there was a diastem on maxilla centralis insicivus and a labial frenulum's attachment on gingiva. Patient had been an orthodontic treatment 1.5 years ago then relapsed. Recently, patient had re-orthodontic treatment and based on decision, the patient needed a frenectomy.

Case Management

Armamentarium: [4]

1. *Clamp,* is a common surgical instrument to control bleeding. In this report, we used 2 clamps for frenectomy
2. *Blade* no.15 c, has a small curved edge and an ideal blade for a short insicion
3. *Blue Nylon* 4-0, surgical suture to resist tissues after surgical
4. *Needle holder,* is a hemostat-like instrument to hold surgical needle for wound closure during suturing
5. Tissue's scissor, to cut tissues during surgical procedure
6. Tissue's twitzer, to pinch tissue during disection and wound suturing
7. Raspatorium, to detach mucosa and periosteum from bone
8. *Periodontal pack,* a material that applied for wound closure after periodontal surgical
9. Gauze ball, a gause filled with cotton and function as absorption tool

Clinical examination was done to evaluate frenulum's attachemnt and its expantion toward palatinal. Then, surgical procedure was done, as follow:[2,4,5,7,13]

1. Surgical area was desinfected wih iodine solution then local anethesia was done with septocaine (See Picture 1), articaine (4%), epinefrin 1:100.00
2. Local anethesia was done using oralject to infiltrated frenulum and vestibule area on labial surface, and also palatinal area near insicivus foramen (see Picture 2)
3. After the area was anesthetized, one clamps was placed attach to upper lip and the other one was placed attach to maxilla gingiva. Both of frenulum's bases on superior and inferior were pinched using clamp (see Picture 3)
4. Frenulum was excisioned by scalpel attached to clamp from distal direction towards to the floor of vestible (see Pisture 4)
5. All of frenulum's attachement on labial portion to palatal and tissues were removed using raspatorium and tidied up using tissue's scissors (see Picture 5)
6. Surgical area was cleaned and irigated
7. The wound was sutured using simple suture technique (see Picture 6)
8. Wound closure was done using periodontal pcak and patient was prescribed with analgesic and mouthwash (see Picture 7)

9. Periodontal pack and suturing were removed one week after surgical (see Picture 8)

Figure 1. Surgical area was desinfected using iodine solution.

Figure 2. Local anesthesia using septocaine.

Figure 3. Clamp was placed parallel to frenulum and attached to lip.

Figure 4. Insicion was done using blade no.15 palallel to clamp.

Figure 5. Frenulum'attachment from labial to palatal portion were removed.

Figure 6. The wound was sutured using interupted suture.

Figure 7. Wound closure was done using periodontal pack.

Figure 8. Periodontal pack and suturing were removed one week after surgical.

Discussion

Relaps is a tendecy of the theeth towards to its initial position before orthodonitc treatment. Centralis diastem is a malocclusion with a high relaps tendecy after orthodontic treatment, some of its tendency is related to an abnormal labial frenulum. Edwar (1977) found that 84% diastem relaps had a strong correlation with an abnormal labial frenulum. An abnormal frenulum as a causing for centralis diastem was supported by Huang and Creath and Kumer et all (2014). Some researches have found that an abnormal labial frenulum could cause a diastem. A high frenulum's attachment needs a surgical intervention. Based on Kumar et al. (2014), it was consisted of centralis diatem correction, almost hall of pasient had a surcical correction included frenectomy. Huang and Creath stated that an effective diastem treatment needed a surgical procedure to corrected the ethiology berfore doing orthodonitc treatment.[1, 3, 10-12]

Frenectomy is a procedure for a hight frenulum's attachemnt with aims to repair esthetic due to centralis diastem. Frenectoimy was differentied from frenotomy based on surgcal procedure. Frenectomy is a procedure that remove all frenulum to underlined bone to correct maxilla centralis diastem, whereas, frenotomy is a frenulum's insicion, that is a procedure that tranfer frenulum's attachment position to create an attached gingiva area between gingiva margin with frenulum.[2, 4-6, 13]

Frenectomy can be done with conventional technique using scalpel. This techique was introduced by Archer (1961) and Kruger (1964), this thechnique was recommended for an abnormal centralis diastem and to remove muscle fiber that connect orbicuralis oris to papila palatina. This technique is a frenectomy with exsicion that included interdental tissue, papilla palatina and frenulum.[4]

In this case, frenectomy was done using two clamps technique, modified from convensional technique, this technique does not cause a wide wound on lip mucosa, due to orbicuralis oris muscle's straight to lateral was resisted by clamps. This methode could decrease bleeding and wound expantion during frenectomy with conventional technique. The surgical procedure without any bleeding will give a positive impact on patient and clinicians' pshycis. Clinicians will be quieter and more convenient during fibrous and frenulum cleaning procedure. Beside that, this thechnique could minimize scare tissue formation, give a good color to gingiva and also wihtouth any scare deu to anestehsia. This simple technique could be done and give an excellent esthetic result.[5, 14, 15]

Conclusion

Frenectomy for a high frenulum's attachment using two clamps technique has a advantages, that are: minimize bleeding during surgical, give a positive impact to patient and clinician's psychic, cause its management is quieter and more convenient during cleaning steps after removing frenulum, beside that, this technique is economical cause uses simple armamnetariums.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

References

1. Junior RM, Gueiros LA, Silva IH, Carvalho AA, Leao JC. Labial frenectomy with Nd:YAG laser and conventional surgery: a comparative study. Lasers Med Science 2013.
2. Bagchi SS, Sarkar P, Bandyopadhyay P. Management of Aberrant Frenum: Series of Cases. Annals Appl Bio-Sci 2016;3:34-9.
3. Yongchun Yu, Jie Sun, Wenli Lai, Taixiang Wu, Stephen Koshy, Zongdao Shi. Interventions for managing relapse of the lower front teeth after orthodontic treatment. Cochrane Collaboration 2013;9:1-19.
4. Devishree, Gujjari SK, Shubhashini PV. Frenectomy: A Review with the Reports of Surgical Techniques. J Clin Diagn Res 2012:6:1587-92.
5. Butchibabu K, Koppolu P, Mishra A, Pandey R, Swapna LA, Uppada UK. Evaluation of patient perceptions after labial frenectomy procedure: A comparison of diode laser and scalpel techniques. Eur J Gen Dent 2014;3:29-33.
6. Patel RM, Varma S, Suragimath G, Abbayya K, Zope SA, Kale V. Comparison of labial frenectomy procedure with conventional surgical technique and diode laser. J Dent Lasers 2015;9:94-9.
7. Kaur G, Malik S, Grover D, Sharma A. Surgical Management of Aberrant Labial Frenum Using Modified Z-Frenuloplasty: A Case Report. JSS Case Rep Rev 2015;1:5-10.
8. Irvina D, Harini SS. Perawatan Diastema Sentral akibat Tingginya Perlekatan Frenulum Labialis Rahang Atas. Indonesian J Dent 2007;14:27-34.
9. Mohan R, Soni PK, Krishna MK, Gundappa M. Proposed classification of medial maxillary labial frenum based on morphology. Dent Hypotheses 2014;5:16-20.
10. Morais JF, Freitas MR, Freitas KMS, Janson G, Branco NC. Postretention stability after orthodontic closure of maxillary interincisor diastemas. Appl Oral Sci 2014;22(5):409-15.
11. Abdulateef DS, Ali AJ, Othman NF. The prevalence and etiology of maxillary midline diastema among orthodontic patients attending Shorsh Dental Clinic in Sulaimani City. Sulaimani Dent J 2014;1:86-90.

12. Nagalakshmi S, Sathish R, Priya K, Dhayanithi D. Changes in quality of life during orthodontic correction of midline diastema. J Pharm Bioallied Sci 2014;6:162-4.
13. Desai AJ, Bedi S, Gowda TM, Thomas R, Mehta DS. Bilateral pedicle approach for esthetic management of upper labial frenum. J Interd Dent 2015;5:27-30.
14. Suryono. Incision Below The Clamp sebagai Modifikasi Teknik Insisi pada Frenektomi untuk Minimalisasi Perdarahan, J Dent 2011;2:187-90.
15. Hungund S, Dodani K, Kambalyal P, Kambalyal P. Comparative Results of Frenectomy by Three Surgical Techniques-Conventional, Unilateral Displaced Pedicle Flap and Bilateral Displaced Pedicle Flap. 2013;4:2-6.