

Labial Frenotomy Through Z-Plasty-A Case Report

Dr. Vandana Gupta¹, Dr. Vandana A. Pant², Dr. Pranav Kumar Singh³

PG Student¹, Professor & Head², Senior Lecturer³, Department of Periodontology, BBD College of Dental Sciences, Lucknow

Abstract :

The frenum is a mucous membrane fold that attaches the lip and the cheek to the alveolar mucosa, the gingiva, and the underlying periosteum. The frena may jeopardize the gingival health when they are attached too closely to the gingival margin, either due to an interference in the plaque control or due to a muscle pull. In addition to this, the maxillary frenum may present aesthetic problems or compromise the orthodontic result in the midline diastema cases, thus causing a recurrence after the treatment. The management of such an aberrant frenum is accomplished by performing a frenectomy or frenotomy. So focus on frenum has become essential. This case report demonstrates the removal of the abnormal labial frenum attachment in a 27 year old female through the technique of Z-plasty.

Keywords: Frenum, diastema, z-plasty.

Introduction

Aesthetic concerns have led to an increasing importance in seeking dental treatment, with the purpose of achieving perfect smile. One of the etiological factor for presence of midline diastema was presence of an aberrant frenum which, therefore, becomes the essential area of concern¹. The frenum may also jeopardize the gingival health by causing a gingival recession when they are attached too closely to the gingival margin, either because of an interference with the proper placement of a toothbrush or because of a muscle pull².

Depending upon the extension of attachments of fibers, frena have been classified as mucosal, gingival, papillary and papilla penetrating, by Placek et al (1974)³.

1. Mucosal – when the frenal fibers are attached up to the mucogingival junction.
2. Gingival – when the fibres are inserted within the attached gingiva.
3. Papillary – when the fibres are extending into the interdental papilla.
4. Papilla penetrating – when the frenal fibres cross the alveolar process and extend up to the palatine papilla.

Clinically, papillary and papilla penetrating frena are considered as pathological and have been found to be associated with loss of papilla, recession, diastema, difficulty in brushing, malalignment of teeth. It may also prejudice the denture fit or retention leading to psychological disturbances to the individual⁴. The aberrant frena can be treated by frenectomy or by frenotomy procedures. Frenectomy is the complete removal of the frenum, including its attachment to the underlying bone, while frenotomy is the incision and the relocation of the frenal attachment⁵.

The technique discussed in this case report is labial frenotomy by Z-plasty. This technique is indicated when there is hypertrophy of the frenum which is associated with an inter-incisor diastema, and also in cases of a short vestibule⁶.

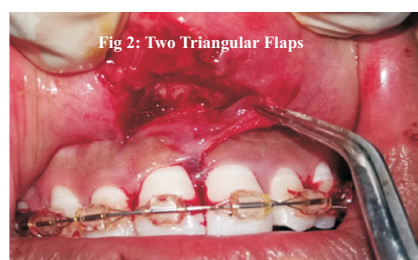
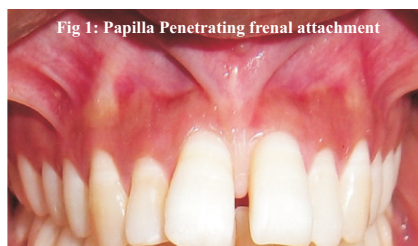
Case Report

The present case is of 27 year old female who reported to the Department of Periodontics with the problem of a midline diastema between the maxillary central incisors. On examination there was papilla penetrating frenal attachment. [Fig 1]

Patient was referred to the department of orthodontics for further treatment. Patient

was told about the procedure and informed consent was taken. She was administered 2% lignocaine with 1:80000 adrenaline. Infiltration was given on the labial aspect and on the palatal aspect near the base of the papilla. The area was assessed and one central incision in midline frenum followed by two lateral incisions, creating two triangular flaps of equal size and shape. Adequate undermining of surrounding tissues was performed to achieve proper mobilization of the flaps and minimize the distortion of the underlying structures. [Fig 2]

The two flaps were then transposed to the opposite side of apex of each flap. They were then sutured to the defect at the opposite side of the other flap base and secured in position by using 4-0 silk suture. [Fig 3] The area was covered with a periodontal pack. Antibiotics and analgesics were administered and routine wound care instructions were given to the patient. The wound was re-examined after a day, and sutures were removed after 7 days. The frenal attachment was re-assessed after a month. [Fig 4]



Discussion

Today in the era of periodontal plastic surgery, more conservative and precise techniques are being adopted to create more functional and aesthetic results. The management of aberrant frenum has travelled a long journey from Archer's and Kruger's "classical techniques" of total frenectomy to Edward's more conservative approach. Recent techniques added frenal relocation by Z-plasty, frenectomy with soft-tissue graft and Laser applications to avoid typical diamond-shaped scar and facilitate healing. Various treatment modalities to correct an aberrant frenal attachment has its own advantages and disadvantages.^{7,8} Z-plasty flaps are done at an angle of 60 degree on each side and this lengthens the scars by 75%, while 45° and 30° designs lengthen scars by 50% and 25%, respectively. Z plasty is effective as it promotes re-distribution of tension and helps in minimizing scar formation and has a camouflaging effect.¹⁰

References

- [1] Huang WJ, Creath CJ. The midline diastema: a review on its etiology and treatment. *Pediatric Dentistry*. 1995;17:171-9.
- [2] Jhaveri H, Jhaveri Hiral., editor. *The Aberrant Frenum*. Dr. PD Miller the father of periodontal plastic surgery. 2006:29-34.
- [3] Placek M, Miroslavs, Mrklas L. Significance of the labial frenum attachment in Periodontal disease in man. I. Classification and epidemiology of the labial frenal attachment. *J Periodontol* 1974; 45(12):891-894.
- [4] Chaubey K, Arora V, Thakur R, Narula J. Peri-esthetic surgery using LPF with frenectomy for preservation of scar. *JISP* 2011; 15(3):265-269.
- [5] Koora K, Muthu M S, Rathna PV. Spontaneous closure of midline diastema following frenectomy. *J Indian Soc Pedod Prev Dent* 2007; 25:23-26.
- [6] Agarwal A, Kapahi R. Labial frenectomy through Z-plasty. *Journal of Clinical and Diagnostic Research* 2012; 6:537-538.
- [7] Olivi G, Chaumanet G, Genovese M, Beneduce C, Andrea S. Er, Cr: YSGG laser labial frenectomy: A clinical retrospective evaluation of 156 consecutive cases. *General Dentistry* 2010; e126-e133.
- [8] Shah S, Rathwa V, Shah M, Dave D. Frenectomy using electrocautery: A case series. *Adv Hum Biol* 2013; 3(2):33-37.
- [9] Aasi S. Z-plasty made simple. *Dermatology Research and Practice* 2010; 7:25-30.
- [10] C. R. Hove, E. F. Williams III, B. J. Rodgers. "Z-plasty: a concise review". *Facial Plastic Surgery* 2001; 17(4):289-293.