Labial Frenectomy through Z-plasty-A Case report

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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. This case report demonstrates the removal of the abnormal labial frenum attachment in a 24 year old male through the technique of Z-plasty.

Key Words: Frenum, diastema, esthetics, z-plasty.

INTRODUCTION

Frenal attachments are thin folds of mucous membrane with enclosed muscle fibers that attach the lips to the alveolar mucosa and underlying periosteum. Most often, during the oral examination of the patient the dentist gives very little importance to the frenum, for assessing its morphology and attachment.[1] There are several frena that are usually present in a normal oral cavity, most notably the maxillary labial frenum, the mandibular labial frenum, and the lingual frenum. Abnormal or aberrant frena are detected visually, by applying tension over it to see the movement of papillary tip or blanching produced due to ischemia of the region.[2]

Depending upon the extension of attachment of fibers, frena have been classified as-a) Mucosal--when the frenal fibres are attached up to mucogingival junction. b) Gingiva--when fibres are inserted within attached gingiva. c) Papillary – when fibres are extending into interdental papilla; and d) Papilla penetrating – when the frenal fibres cross the alveolar process and extend up to palatine papilla.[3] 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 and it may also prejudice the denture fit or retention leading to psychological disturbances to the individual.[4] 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 attachment.[5] The technique discussed in this case report is Z Plasty. This technique is indicated when there is hypertrophy of the frenum with a low

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insertion, which is associated with an inter-incisor diastema, and when the lateral diastema to disappear and also in cases of a short vestibule[6].

CASE REPORT

We report here a case of a 24-year old male who reported to the Department of Periodontics with the problem of a midline diastema between the maxillary central incisors. The diastema was created due to an abnormal frenal attachment (*Fig:1*). Patient was told about the procedure and informed consent was taken. He was administered 2% xylocaine with 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 was given and two lateral incisions at an angle of 60 degrees, 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. Transposition of these triangles redistributes tension on the wound and changes central limb direction. They were then sutured to the defect at the opposite side of the other flap base and secured in position by using interrupted braided silk suture (*Fig:3*). The vertical incision on the attached gingival was also closed by suturing. Antibiotics and analgesics were administered and routine wound care instructions were given to the patient. The wound was re-examined after a day, then after a week and sutures were removed in 14 days time. Patient was referred to an Orthodontist for further treatment. The frenal attachment was re-assessed after a month (*Fig:4*).

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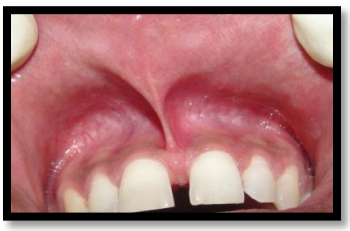

Fig 1: Abnormal frenal attachment

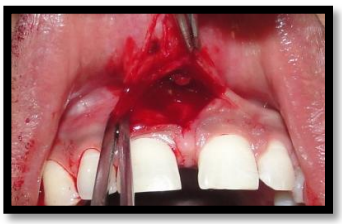

Fig 2: Two triangular flaps

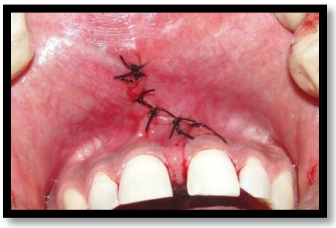

Fig 3: Suturing of the flaps

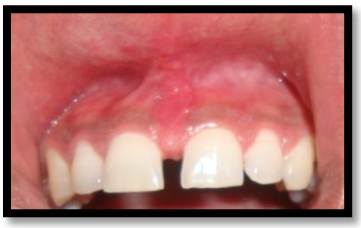

Fig 4: One month post-operative

DISCUSSION

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. Each method has its own advantages and disadvantages.[7,8]

With this technique, it is possible to redirect a scar into better alignment with a natural skin fold or the lines of least skin tension. Basic z-plasty flaps are created using an angle of 60 degree on each side. Classic 60° Z-plasty lengthens scars by 75%, while 45° and 30° designs lengthen scars by 50% and 25%, respectively.[9] The Z pattern is effective as it promotes re-distribution of tension on the skin and the wound and helps in healing along the skin lines. It helps in minimizing scar formation and has a camouflaging effect. A curvilinear form of Z-plasty (referred to as S-plasty) may be used when straight lines may be particularly obvious, such as in the cheek.[10]

REFERENCES

1) M. Priyanka, R. Sruthi, N. Ambalavanan. An overview of frenal attachment. JISP 2013; 17(1):12-15.
2) Devishree, Gujjari S.K, Shubhashini V. Frenectomy: A Review with the Reports of Surgical Techniques. J Clin Diagn Res. 2012 November; 6(9): 1587–1592.
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. Perio-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, Andreana 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 electrocautary: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.

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