INTRODUCTION

The word frenum comes from the latin word “fraenum”. A frena are triangular shaped folds found in maxillary and mandibular alveolar mucosa and are located between the central incisors, canine and premolar area. A frenum is anatomic structure formed by membranous fold of mucous membrane with enclosed muscle fibres originating from the orbicularis oris muscle of the upper lip that attaches the lips to the alveolar mucosa and underlying periosteum. (HenrySW, Levin MP, Tsaknis PJ(1976) Histological features of superior labial frenum J Periodontal 47:25-28, . Placek M.Miroslavs, Mrkdas L (1974) Significance of the labial frenal attachment in the periodontal disease in man)

The primary function of frena is to supply stability to the higher and lower lips and also the tongue. (Dewel BF (1966) The labial frenum, midline diastema and palatine papilla. A clinical analysis, Dent Clin North Am 175-184)


Mucosal- when the frenal fibers are attached upto mucogingival junction

Gingival- when the fibres are inserted within the attached gingival

Papillary- when the fibres are extending into the interdental papilla.

Papilla penetrating- when the frenal fibres cross the alveolar process and extend upto the palatine papilla.

Fig 1 Various type of papillary attachments

Clinically, papillary and papilla penetrating frena are found to be associated with papilla loss, recession, diastema and difficulty in brushing leading to plaque accumulation,
malaligned teeth and psychosocial disturbances to individual. (Taylor JE. Clinical observations relating to the normal and abnormal frenum labii superioris. Am J Orthod 1939; 25:646-50)

Abnormal frenum is detected visually by applying tension over the frenum to see if there is movement of the papillary tip or the blanch which is produced due to ischemia in the region. A positive blanch test result indicates a narrow or no apparent zone of attached gingival along the midline, hence it is necessary to perform frenectomy to restore esthetics and function. (Taylor JE. Clinical observations relating to the normal and abnormal frenum labii superioris. Am J Orthod 1939; 25:646-50)

This case report describes the novel technique for management of aberrant labial frenum with the use of bilateral pedicle flap which lead to healing by primary intention, minimal scar formation, gain in attached gingiva, excellent color match, and prevention of coronal reformation.

Case report

A 30 year old male patient was referred to the department of Periodontology, Bharati Vidyapeeth (Deemed to be) University Dental college and Hospital, Pune for the correction of aberrant high frenum attachment. Medical history was non-contributory, and his clinical examination revealed a thick, hypertrophied papillary penetrating type of frenum attachment. "Tension test" presented positive when force was applied to the upper lip in outward, downward and lateral direction. Full complement set of teeth with adequate buccal vestibular depth was noticed. As conventional frenectomy would lead to scar formation and wide surgical wound after excision, the novel technique of bilateral pedicle flap approach was planned which consisted of two pedicle preparations from either side of the excised frenum to fulfill patient’s esthetic concern. Procedure was explained thoroughly and informed consent was taken. Routine hematological investigations were carried out which were within normal limits.

Surgical Technique

This technique was given by Bagga et al (Bagga S, Bhat KM, Bhat GS, Thomas BS. Esthetic management of the upper labial frenum: A novel frenectomy technique. Quintessence Int Dent Dig 1977;8:53-61).

Maxillary anterior region was anesthetized with 1:80000 lidocaine hydrochloride with adrenaline by local infiltration on the buccal and palatal aspects. A V-shaped full thickness incision was placed at the gingival base of the frenum attachment with an external bevel, using Bard Parker knife [Osung, Korea] with no.15 blade. Tissue along with periosteum was separated from underlying bone. The initial incision resulted in V-shaped defect. Fibrous tissue attached to the lip was dissected and undermining of labial mucosa was carried out. An oblique-partial thickness incision was given on the adjacent attached gingiva beginning 3mm apical to free gingival margin of maxillary central incisors and extending beyond mucogingival junction. Partial thickness incision from the medial margin was carried out in apico-coronal direction to create a triangular pedicle of attached gingiva with its free end as the apex and base continuous with the alveolar mucosa. Alveolar mucosa was undermined to facilitate repositioning of the pedicle without tension. A similar procedure was carried out on the contra-lateral side of the V-shaped defect resulting in two triangular pedicles. These two pedicles were sutured in the midline and laterally with the adjacent intact periosteum of the donor site by 4-0 silk suture. Periodontal dressing was used at the surgical site. Analgesics and 0.2% chlorhexidine gluconate mouthwash was prescribed for 5 days. Post-operative instructions were given. Satisfactory healing was observed at 1 week post-operatively and sutures were removed then.6-month follow up revealed a new zone of attached gingiva with excellent colour match without any visible scarring.
**DISCUSSION**

As discussed earlier the classification given by Placek et al (Placek M. Miroslavs, Mrkdas L(1974)), clinically papillary and papilla penetrating frenum are considered as pathological and are found to be associated with loss of papilla, recession, midline diastema, difficulty in maintaining oral hygiene to the individual.

Some frenectomy technique give unaesthetic and unsatisfactory results. (Taylor JE. Clinical observations relating to the normal and abnormal frenum labii superioris. Am J Orthod 1939; 25:646-50)

Simple frenectomy are done with V-shaped incision also known as Archer incision. (Archer WH (1975) Oral surgery-a step by step atlas of operative techniques.(3rdedn),W B Saunders Company, Philadelphia, London, Toronto) caused scarring due to healing by secondary healing which lead to many periodontal problems and unaesthetic appearance. Free gingival graft from the palate (Breault LG, Fowler EB, Moore EA, Murray DJ. The free gingival graft combined with the frenectomy: A clinical review. Gen Dent 1999;47:514-8) has also been used for abberent frenum as it covers wound area completely. However the esthetic concern is not completely resolved by this technique as it produces a “tattoo-like” (Langer B Langer L. Subepithelial connective tissue graft technique for root coverage. J Periodontal 1985; 56:715-20) or tire-patch appearance (Cohen ES. Cosmetic root coverage: Gingival augmentation. In: Cohen ES, editor. Atlas of Cosmetic and Reconstructive Periodontal Surgery. Philadelphia: Lea and Febiger;1989.p.189-232) at the recipient site. The technique described in this case i.e. bilateral pedicle flap, two triangular pedicles, when sutured in the midline cover the V-shaped defect and heal by primary intention. External bevel incision facilitates better marginal adaptation of the pedicles. Patient’s discomfort is minimized with this technique. The present technique is suitable in situations where anterior esthetics is of prime concern. Proper case selection with the presence of an adequate zone of attached gingiva is necessary for the success of this technique.

**CONCLUSION**

To conclude, conventional technique fails to provide satisfactory esthetic results in situation of a broad, thick, hypertrophied frenum. Hence, bilateral double pedicle flap technique has certain advantages like:

- Healing by primary intention
- Excellent colour match
- No unaesthetic scar formation
- Reliable technique

**References**


Breault LG, Fowler EB, Moore EA, Murray DJ. The free gingival graft combined with the frenectomy: A clinical review. Gen Dent 1999; 47:514-8
