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Management of aberrant frenum with lateral pedicle flap technique: A case series

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Conflicts of Interest: Nil

Abstract

Introduction: The frenum, a triangular mucous membrane fold, attaches the lip or cheek to the underlying periosteum and in some cases like wide size, inadequate attached gingiva, considered as pathologic and is advised for removal by Frenectomy or Frenotomy which can be performed by different surgical methods. One of that procedure is Miller`s lateral pedicle flap technique [1985].

Objective: To evaluate efficacy of Miller`s technique in performing frenectomy in respect to intraoperative bleeding, pain and healing outcome.

Method: Frenum was separated from the base of interdental papilla. By giving a vertical parallel incision on the mesial side, the intermediate tissue was undermined. Joining with horizontal incision on coronal end, flap was repositioned mesially and sutured. Bleeding was assessed with preweighted gauze piece and patient was recalled on 3rd,7th,15th,30th day for evaluating pain and healing response.

Result: Intra-operative bleeding was 4.7g–28g and post-surgical pain persisted for maximum 7 days. Uneventful healing with a wide zone of regional attached gingiva was found in 1 month follow up.

Conclusion: This is one of the best surgical techniques for frenectomy, which ends with no unaesthetic scar formation.

Keyword: Frenectomy, Miller`s technique, Frenum, Uneventful healing, Intra-operative bleeding.

Introduction

The frenum is defined as a triangular mucous membrane fold that attaches the lip or the cheek to the underlying or overlying alveolar mucosa or the gingiva, and the underlying periosteum.[1] Clinically, papillary and papilla penetrating frenum are considered as pathological.[2] Frenectomy is the complete removal of the frenum and can be performed by different surgical methods. One of the methods are lateral pedicle flap technique given by P. D. Miller. This technique came up with the advantages like lesser chances of relapse as Post operatively there is formation of a continuous collagenous band of gingival tissue across the midline.[1] So, here this article is going to present a case series of 3 frenectomy cases performed with lateral pedicle flap technique along with its bleeding tendency, healing capacity, postoperative pain and discomfort, and patient compliance.

Method

Case 1: A 19-year-old female patient on examination showed presence of papilla penetrating maxillary labial frenum [Figure 1]. After local anesthesia, a horizontal incision was given to separate the frenum from the base of the interdental papilla and extended apically up to the vestibular depth [figure 2]. A vertical parallel incision was taken on the mesial side of the lateral incisor, 2–3-mm apical to marginal gingiva, up to vestibular depth. The gingiva and alveolar mucosa in between these two incisions were undermined by partial dissection to raise the flap. A horizontal incision was then given 1–2-mm apical to gingival sulcus in the attached gingiva connecting the coronal ends of the two vertical incisions. Flap was raised and mobilized mesially [Figure 3], and sutured and coe pak placed. [Figure 4 and 5]. A zone of the attached gingiva was clearly visible with no loss of the interdental papilla after 1 month [Figure 6].

Case 2: Papilla penetrating frenum in a 40 years old patient treated with the same procedure with uneventful healing. [Figure 7 and 8].

Case 3: Similar surgery was performed in 42 years old female patient with papilla penetrating frenum. 3 month post operative evaluation showed no recurrence. [Figure 9 and 10].

Discussion

Miller`s technique was first tried by P. D. Miller in the year 1985. [3] This technique comes up with advantages like:

- Post-operatively, on healing, there is a continuous collagenous band of gingiva across the midline, that gives a bracing effect than the “scar” tissue, thus preventing an orthodontic relapse.
- The transseptal fibers are not disrupted surgically and so, there is no loss of the interdental papilla.

• Obtaining an orthodontic stability without an aesthetic sacrifice.

Lang and Loe (1972) reported that a narrow band of 1-2 mm attached gingiva was necessary for gingival health.[4]

In order to prevent progressive gingival recession over the abutment area and to raise resistance to plaque bacteria frenectomy combined with lateral pedicle graft was planned.[5]

The purpose of elevating a partial thickness of gingival tissue for lateral displacement is to achieve a healing with primary union with no separation of wound edges, and no scar formation.[6]

The procedure is easy to perform in an outpatient set and since there is no scar formation and there is excellent colour match, it is esthetically pleasing. Also, a greater width of attached gingiva is obtained. With adequate keratinized gingiva and proper brushing, this patient has maintained a stable and healthy gingival margin without additional gingival recession.[5] Mathew P et al have found a raised red firm scar one month post operatively after performing frenectomy with lateral pedicle graft because of maximum collagen deposition which gradually turned to flat and pale after six month, consistent with our study.[7]

Janarthanan et al has published a case series of three cases of frenectomy performed with lateral pedicle flap where they obtained scar free pleasing esthetic result with wider zone of attached gingiva similar with our study.[8]

Anubh et al. performed frenectomy using laterally displaced pedicle graft and achieved esthetically pleasing result without scar formation in the midline, and there was no loss of the interdental papilla.[9]

Hugund et al in his comparative study had compared conventional, unilateral pedicle and bilateral pedicle flap for frenectomy procedure and concluded that both the pedicle flap gave better result as compared to conventional technique with complete healing, increase in the zone of attached gingiva, no scar and excellent colour matching of gingival tissue.[10]

Chaubey et al. also evaluated that the frenectomy procedure using lateral pedicle graft showing the same result with a scar-free esthetic zone without loss of the interdental papilla.[11]

In Miller's technique during healing, there is a continuous band of the gingiva across the midline rather than unesthetic scar, and transseptal fibers are not disrupted surgically. This avoids trauma to the interdental papilla.[8]

Case 1

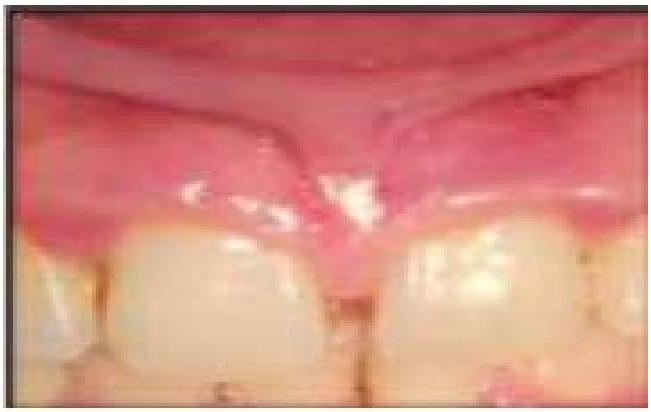

Figure 1: Pre-operative picture

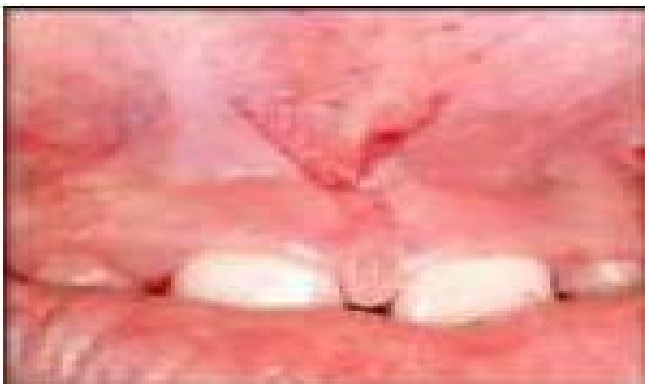

Figure 2: Incision

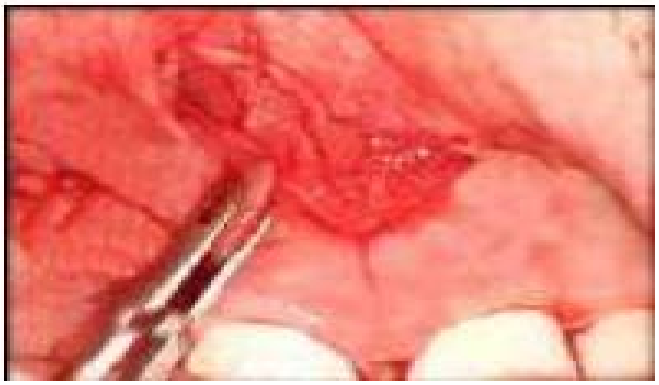

Figure 3: Flap

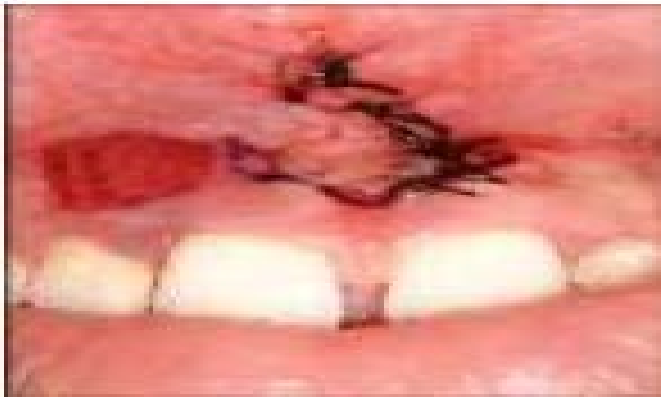

Figure 4: Suture

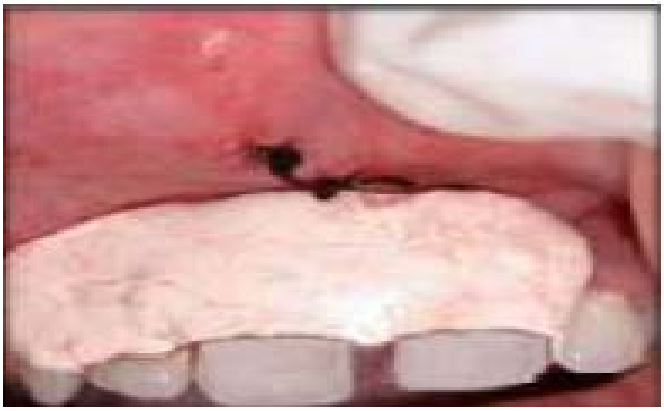

Figure 5: Coe pak

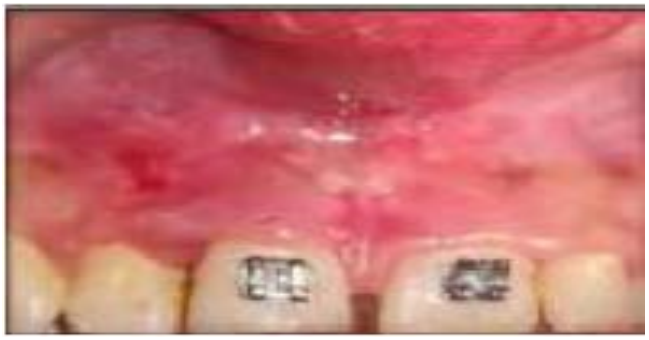

Figure 6: 30 days post op

Case 2 and Case 3

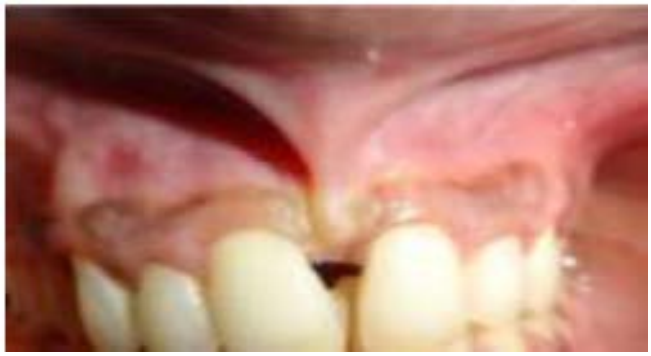

Figure 7: Pre operative

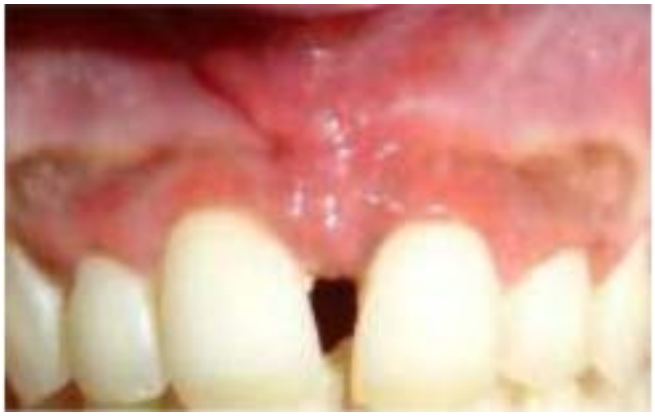

Figure 8: 30-day post op

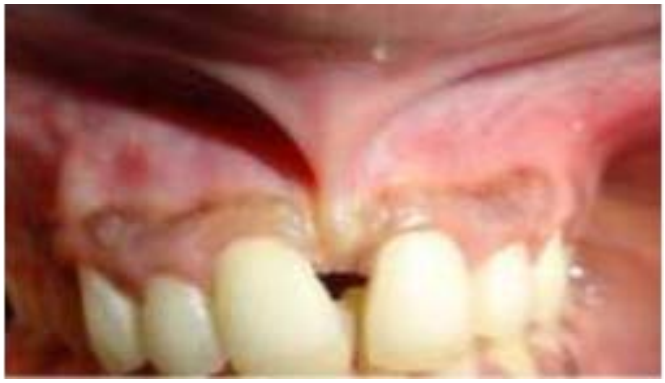

Figure 9: Pre-operative

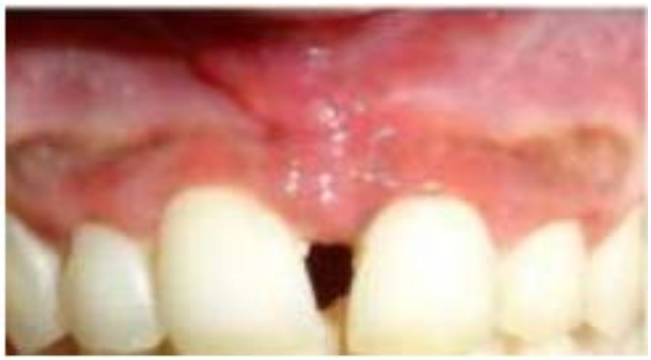

Figure 10: 30-day post op.

Conclusion

If the frenum is large and inserts into the papillary gingiva, loss of papilla is possible after surgical removal of most of the keratinized gingiva. The placement of gingival graft to cover the area will improve the ability to prevent papillary recession and hence we achieved clinically and aesthetically acceptable result in this study.

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