

Frenectomy with Lateral Pedicle Flap: A Novel Surgical Approach for Maintaining The width of Attached Gingiva: A Case Report

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Abstract

The aberrant frenum is usually managed by a common periodontal plastic surgical procedure called frenectomy to create a zone of attached gingiva. This surgical approach may often lead to loss of interdental papilla creating unacceptable esthetic results in the maxillary incisor region. Thus this case reported frenectomy combined with a laterally positioned flap which was a better approach to achieve primary closure. And the lateral pedicle sutured in midline provided better and faster healing with excellent esthetic results. The esthetic results were far more superior than the classical frenectomy technique with a considerable gain in attached gingiva.

Keywords: Frenectomy, Attached Gingiva, Lateral Pedicle Flap

Introduction

Periodontal therapy aims to restore the gingival health, comfort and function of a patient with acceptable aesthetics. The presence of the adequate amount of keratinized gingiva protects the marginal gingiva from bacterial invasion, thus preventing further gingival recession aiding in plaque control and maintaining gingival health.¹ A frenum is a mucous membrane fold that consists of oral muscle and connective tissue fibres that attach the lip and the cheek to the alveolar mucosa, the gingiva and the underlying periosteum of alveolar bone.² There are four types of labial frenum attachment, mucosal, gingival, papillary and papillary penetrating. The frenulum mostly consisted of dense collagen fibres and elastic fibres. There are four types of labial frenum attachment, mucosal, gingival, papillary and papillary penetrating. The frenulum mostly consists of dense

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The frenum is usually classified as pathognomonic when it is usually wide or there is an inadequate amount of attached gingiva or there is a shift of interdental papilla due to frenal extension³. Frenectomy is performed in such cases to restore function and aesthetics. In the classical frenectomy by Archer, interdental tissue and palatine papilla are completely excised leading to exposure of underlying alveolar bone resulting in scar formation in the esthetic zone⁴. The free gingival graft was advocated to prevent scar formation but led to a colour mismatch.⁴ Miller advocated a technique of Frenectomy combined with lateral pedicle flap which increases the zone of width attached gingiva by increasing the collagenous band of the gingiva.³ In the present case report modified surgical technique was designed for the management of maxillary aberrant frenum using lateral pedicle flap which led to the gain of attached gingiva, excellent aesthetic results as there was healing by primary intention with minimal scar formation and prevention of further progression of gingival recession.

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Case Report

A 22 year old female reported to the department of periodontics with a chief complaint receding gums in maxillary anterior teeth. In the extraoral examination, no abnormality was detected. However, she looks thin and emaciated. Intraoral examination revealed healthy but reduced supporting tissue surrounding the remaining teeth with good oral hygiene. And Tension test was positive indicative of labial frenum was inserted high on attached gingiva (fig1). All the teeth with adequate vestibular depth were present apart from the frenulum area. The patient was well aware and concerned about the frenum. And she is very cosmetically concerned. The surgical procedure was thoroughly explained to the patient and signed consent form was taken. All blood investigation were performed and were found to be within normal limits.

Under local anaesthesia on the buccal aspects of maxillary anterior teeth using 1:200,000 lidocaine

hydrochloride with adrenaline. A horizontal incision was given first to separate the frenum from the interdental papilla (fig 2). The incision was extended apically towards the vestibule to separate the tissue along with periosteum was separated from the underlying alveolar bone. Further, the frenulum was excised. A second vertical parallel incision was given 3mm apical to marginal gingiva extending to the vestibule. A partial-thickness flap was raised and displaced laterally (fig3). With resorbable 4-0, vicryl sutures interrupted sutures were placed (fig4). Thus, ensuring to the attachment of the graft with the adjacent gingiva and alveolar mucosa. Transeptal fibres in between central incisors were remained undisturbed. Following suturing Coe-Pak was placed and it was removed after a week. Mild Analgesic was prescribed with oral hygiene instructions were postoperatively a greater width of attached gingiva was obtained in the midline with no loss of interdental papilla (fig5,6).



Figure 1. Pre-operative photograph



Figure 2. Horizontal incision.



Figure 3. A second vertical parallel incision with a partial-thickness flap was raised and displaced laterally.



Figure 4. With resorbable 4-0, vicryl sutures interrupted sutures were placed.



Figure 5. One week post-operatively.



Figure 6. Six month postoperative photograph

Discussion

Over the years it has been documented that the amount of attached gingiva which is composed of dense collagenous connective tissue with keratinized epithelium is relatively avascular compared to alveolar mucosa and is considered important for the maintenance of gingival health³. Therefore to achieve these adequate anatomical dimensions, various surgical techniques were developed⁵.

The frenectomy has travelled a long distance from classical techniques^{3,6} to the more conservative and precise approaches⁷. Frenal relocation by Z-plasty⁸ procedure along with soft tissue graft^{9,10} and lasers application¹⁰ have been added for better esthetic results and to facilitate proper healing^{11,12}. All the modifications of these surgical procedures have their own importance.

Frenectomy involves complete removal of aberrant frenum along with its attachment to the underlying bone³ but this may result in loss of interdental papilla with exposure of underlying alveolar bone leading to

marginal tissue recession^{13,14}. Therefore frenectomy with lateral pedicle flap was planned in this case which is a modified method for increasing keratinized tissue causing increased resistance to plaque bacteria which is conducive to periodontal health². Further, this provides a collagenous band in the midline maintaining the width of attached gingiva which also closely matches the colour of the surrounding tissues. Pedicle when sutured back medially act as tissue dressing over the V-shaped defect which facilitates faster and better healing. Furthermore highly esthetics results were obtained due to undisturbed transeptal fibres and no scar formation.

Conclusion

The surgical technique presented in this article is a reliable and an effective way of maintaining the width of attached gingiva, easier to perform in an outpatient setting with excellent esthetic results.

Conflict of Interests: The authors declare that they have no competing interests.

Ethical Issues: None

Funding: None

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