Free gingival autograft for augmentation of keratinized tissue in apical to gingival recession — A case report

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ABSTRACT

Background: The treatment of the mucogingival problem is one of the main objectives of the periodontal therapy. The insufficient or absent attached gingiva increases the risk of development of gingival recessions.

Method: One patient with Miller class II gingival recession and small vestibule depth in the frontal mandibular region was selected for treatment. Autogenous free gingival grafts harvested from the palatal mucosa were used to gain the attached gingiva.

Result: The initial healing completed in 2 weeks without complication. The augmentation of the attached gingival tissue using the free gingival graft technique led to gain of attached gingiva in the treated regions.

Conclusion: The limitations of the apical mucosal flap displacement for preparation of recipient site in situations with inadequate vestibule depth and small alveolar bone height require a graft with small width. The result from the presented case report with application of the free gingival graft indicates that it could be applied when augmentation of the attached gingiva tissue.

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Keywords: Attached gingiva, Free gingival autograft, Mucogingival defect, Recession, Shallow vestibule

INTRODUCTION

Gingival recession is the most common mucogingival deformity and it is characterized by the displacement of the gingival margin apically from the cemento-enamel junction (CEJ).¹ Gingival recession can be localized or generalized and can be associated with one or more tooth surfaces. For many years the presence of an adequate zone of gingiva was considered critical for the maintenance of gingival health and for the prevention of progressive loss of connective tissue attachment.² The presence of an adequate zone of gingiva is considered critical for the maintenance of gingival health and for the prevention of progressive loss of connective tissue attachment.² The study by Lang and Loe regarding the significance of gingiva for periodontal

health concluded that “two mm of keratinized gingiva is adequate to maintain gingival health” and this expression has been widely quoted as definition as to what constitutes an adequate width of gingiva for the maintenance of periodontal health.³ The importance of attached gingiva has also been acknowledged by Goldman and Cohen in 1979 who gave a “tissue barrier” concept and postulated that a dense collagenous band of connective tissue retards and obstructs the spread of inflammation better than does the loose fiber arrangement of the alveolar mucosa. They recommended increasing the zone of keratinized attached tissue to achieve an adequate tissue barrier (thick tissue), thus limiting recession as a result of inflammation.³ A thick keratinized attached gingiva is capable to withstand the stresses of mastication, tooth brushing, trauma from foreign

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objects, tooth preparation associated with a crown and bridge, subgingival restorations, orthodontics, inflammation and frenulum pull, as well as prevent the apical spread of plaque-associated gingival lesions.⁴ This can be achieved by mucogingival surgical techniques which are designed to provide a functionally and esthetically adequate zone of keratinized attached gingiva.

First described by Bjorn (1963) free gingival grafts have been widely used in the treatment of certain mucogingival problems like lack of attached gingiva and gingival recession.⁵ By using this technique, attached gingiva can be increased in a very predictable way. Furthermore, the results obtained using this procedure has been reported to be stable.^{5–8} Although gingival grafting is a procedure with few clinical complications, excessive hemorrhage of the donor site, failure in the graft union, delay in healing and esthetic alterations due to disparity in the color of the palatal gingiva with respects to the grafted area, have been described.⁹

This study was aimed to gain in attached gingiva with autogenous free gingival graft.

CASE REPORT

A 25-year-old male patient who had periodontal problem and midline diastema between the mandibular central incisors with Miller Class II gingival recession and small vestibule height (Fig. 1). Despite adequate home care, he was not able to provide efficient plaque control of the region. The patient had ineffective oral hygiene due to the limitations of the toothbrush placement in the area which has lead to poor control of the gingival inflammation.⁹ A gingival augmentation procedure was necessary to stop

Fig. 1 Lack of attached gingiva.

the progression of the recession and to increase the vestibule depth in order to improve the effectiveness of the oral hygiene procedures. Sufficient gingival health was obtained with pre-surgical therapy that includes scaling and root planning, polishing and plaque control instruction and then surgery was performed. Following administration of local anesthesia, the recipient site was prepared by making an initial stab incision just at the mucogingival junction with a No. 15 blade with the continuation of incision both horizontally and apically. After that, removed the residual alveolar mucosa at the mucogingival junction and tinfoil template was placed to establish the size of donor tissue. Tinfoil was placed at donor site at maxillary palate and outline was marked and the graft was dissected by partial thickness (Fig. 2). To reduce underlying tissue irregularities fat or glandular tissue were removed by using of a sharp scalpel blade. After that graft was placed at recipient site and secured with sutured and a periodontal dressing was used over the surgical sites (Fig. 3). The suture was removed after 10 days and wound healing was normal and at the interval of 3 months, the width of the attached gingiva was found (Fig. 4).

DISCUSSION

Mucogingival therapy includes increasing the dimensions of the gingival tissues to stop or prevent recession, to facilitate plaque control, and to improve aesthetics and to reduce or eliminate root sensitivity.¹ Etiology and the contributing factors are important when deciding on appropriate treatment procedures for patients with localized gingival recession. If the gingival recession is due to the malposition of teeth, orthodontic treatment needs to be considered with

Fig. 2 Harvesting graft from the palate.

Fig. 3 Graft secured with sutures at the recipient site.

Fig. 4 Three month post-operatively.

or without periodontal surgery.¹⁰ The purpose of this study was to evaluate the changes in the amount of keratinized tissue and the position of the gingival margin after gingival augmentation procedure apical to area of recession with free gingival graft. Root coverage was not of primary goal of these procedures. Three months after the surgery, the width of the attached gingiva was found, but also as we discussed that the disparity in the color of the palatal gingiva with respects to the grafted area, have been found

with this case also, but the increase of the vestibule depth achieved after this procedure led to improvement of the mucogingival relationships, better opportunity for plaque control and better long-time prognosis for the mandibular incisors.

The second stage surgery to cover the denuded root has to planned but it was getting delayed because of patient's family problem.

CONFLICTS OF INTEREST

All authors have none to declare.

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