

Root Coverage with Lateral Pedicle Graft: A Case Report

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Abstract

Gingival recession in its localized or generalized form is an undesirable condition resulting in root exposure causes of root hypersensitivity, Shallow root caries lesions, and cervical abrasions. Complete root coverage is primarily indicated for esthetic/cosmetic demands which can be satisfied by soft tissue grafts, the thickness and colour of which should not be distinguishable from those of adjacent soft tissue. This article puts an emphasis on case report in which a lateral pedicle graft technique has been used for root coverage in relation to mandibular right central incisor.

Keywords: *Gingival recession, Root coverage, lateral Pedicle graft*

Introduction

Gingival recession is localized or generalized and is a common and undesirable condition. It is defined as the displacement of marginal gingival tissue apical to the cemento-enamel junction with exposure of root surface to the oral environment. It is found most commonly on buccal surface as a result of vigorous tooth brushing, whereas it may affect other tooth surface in population with poor oral hygiene.

The etiology of gingival recession is multi-factorial, with one such as plaque-induced inflammation, calculus and restorative iatrogenic factors, bone dehiscence, malpositioning of teeth, trauma associated with malocclusion, from vigorous tooth brushing high frenum attachment, associated with physiological (aging) or associated with smoking. Different types of traumatic injuries may result in a variety of gingival lesions.

Tooth malalignment and tooth brushing are most common factors associated with gingival recession as concluded by Gronmans in the study of aetiology of gingival recession

Gingival recession may lead to poor esthetics, pain, root sensitivity, root caries, root abrasion, plaque retention, gingival bleeding and tooth loss.

Mucogingival surgery is a plastic surgical procedure designed to correct defects in morphology, position and dimension of gingiva surrounding the tooth. Root coverage is one procedure that falls within this definition and has attracted more interest than others. The main indication for root coverage procedures is esthetic/cosmetic demands followed by management of root hypersensitivity, shallow root caries lesions, AND cervical abrasions. Therefore, several surgical techniques are described to manage the gingival recession defects. However Takie et al [1] stated that prognosis for Miller class I and class II is good to excellent where as partial root coverage can be expected for class III and class IV has very poor prognosis with current techniques.

The lateral pedicle graft was described by Grupe and Warren 2 in 1956. The purpose was to gain attached gingiva and to cover areas of gingival recession, especially those on the facial surfaces of mandibular anterior teeth. The lateral positioned flap can be used to cover the isolated, denuded roots that have adequate donor tissue laterally and vestibular depth.[2]

Case report

A 38-year old healthy female presented to the department of Periodontics, Rural dental college, Loni with chief complaint of receding gums in the lower front teeth re-

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gion. On examination there was Miller's class II gingival recession in the lower right central incisor region with a recession depth 4 mm and Clinical Attachment Loss (CAL) of 6 mm. Trauma from occlusion and tooth malposition with respect to the involved tooth was ruled out clinically.

Pre surgical protocol

Patient was motivated and educated, and oral hygiene instructions were given. Thorough scaling and root planing was done and the patient was periodically recalled to assess his oral hygiene and gingival status before taking up the case for periodontal surgery.

Surgical technique

Local anesthesia was used to anesthetize the recipient site. The exposed root surface was scaled and planed using curettes to remove plaque, accretions and surface irregularities (Fig. 1).



Fig 1: Miller's class II gingival recession in relation to 41

Prepare the recipient site

A no.11 scalpel blade is used to make V- shaped incision around the denuded root, removing the adjacent epithelium and connective tissue.

Preparation of donor site

The donor flap should be at least 1 1/2 times the size of the recipient area to be covered and 3- 4 times longer the wide. A vertical incision is made with no.11 scalpel blade at the donor site. It is extended far apically into the mucosal tissue to permit adequate mobility of the flap. The base of the flap must be wide to permit adequate vascularity. Sulcular incision extending from the V shaped incision to the vertical incision is made using no.11 blade. The flap is sharply dissected, making sure to carefully preserve all the interproximal papilla.

Preparation of pedicle flap

A full thickness pedicle was raised using blunt dissection; the flap should be free enough to permit movement to the recipient site, with no tension. When attempting to position the pedicle flap over the recipient site, if tension is

encountered, a cut back or releasing incision is made to dissipate the tension. The pedicle flap is positioned coronally 1 to 2mm on the enamel of the recipient tooth or to the maximum height that the interproximal tissue will allow (Fig. 2).



Fig. 2: Flap laterally displaced

Suturing is done using 4-0 silk suture (Fig. 3). Sling suture is placed, which pull the papilla interproximally and hold the tissue tightly against the neck of the tooth.



Fig 3: Flap sutured

Post Operative Instructions:

Patient was instructed to take analgesics and antibiotics and was asked to discontinue the tooth brushing around the surgical site during the initial 30 days after surgery. During this period plaque control was achieved with a 0.2% chlorhexidine mouth rinse used twice a day. After this period, gentle tooth brushing with a soft bristle tooth brush was allowed. Sutures were removed after 15 days and the patient was enrolled in a maintenance programme (professional plaque control and oral hygiene instructions) (Fig. 4).



Fig 4: 15 days Post-operative view.(suture removal)

Uneventful healing was seen at the time of suture removal. (Fig. 4) Total root coverage was seen at the time of suture removal (Fig. 4) & the 1 month post operative visit (Fig. 5).



Fig 5: 1 month post-operative view

Discussion

Over years, several techniques have been proposed to obtain root coverage. Free gingival graft has been shown to produce predictable root coverage. It is demonstrated with human histologic evaluation that new bone growth, new cementum and new connective tissue attachment were possible with a free gingival graft.

The pedicle graft has been used to obtain root coverage. The results have been varied depending on the type of pedicle. High rates of success have been reported in shallow defects treated with pedicle grafts. Sugarman [3] reported with human histologica evolution that new connective tissue attachment occurred with laterally positioned flap. Common and McFall [4] demonstrated with human histology that laterally positioned flap combined with citric acid conditoining resulted in new cementum and collagen fibres that were oriented parallel to root.

The purpose of this procedure was to evaluate a technique in which pedicle flaps was used to cover the Miller's class II gingival recession in the lower right central incisor region Laterally positioned flap have been widely used. Grupe and Warren [2] introduced this method for the treatment of localized gingival recession. In this procedure, the adjacent keratinized gingiva is positioned laterally, and the surface of the localized gingival recession is covered. The disadvantage of this method is possible bone loss and gingival recession on the donor site. Guinard and Caffesse [5] reported an average of 1mm of post-operative gingival recession on the adjacent donor site.

Therefore lateral pedicle flap is contraindicated where the width, height and thickness of the adjacent keratinized gingiva of the donor tissue is inadequate or where an osseous dehiscence or fenestration exists. Many modifica-

tion methods of Grupe and Warren [2] have been developed to avoid gingival recession at the donor site. Staffilen [6] advocated the use of a partial thickness flap to avoid the recession at the donor site. Grupe [7] reported a modified technique to preserve the marginal gingiva by the making a submarginal incision at the donor site. However, laterally positioned full thickness flaps have best prognosis for the exposed root surface coverage.

Ruben et al [8] demonstrated the method of partial and full thickness pedicle flap; a full thickness pedicle flap is prepared to cover the root surface and a partial thickness flap is prepared near the donor site to protect the exposed root surface and to prevent bone loss by preserving periosteum. Knowles and Ramfjord [9] used a free autogenously gingival grafts to cover the donor site. Espinel and Caffesse [10] compared these two procedures and found minimal gingival recession on the donor site with the free autograft gingival graft. They found that if the free gingival autogenous graft was used, there was no reduction in the width of the keratinized gingiva on the donor site. If the free gingival autogenous graft was not used, more than 1mm of keratinized tissue on the donor site was lost. Therefore, laterally repositioned flap with free autogenous grafts on the donor site is most favoured currently.

Conclusion

The case reported here shows that lateral pedicle graft is an effective treatment modality for the management of recession defects affecting teeth in the esthetic zones of the mouth.

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