

Lateral Positioned Pedicle Graft in Localized Recession Defect

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Abstract

Gingival recession is a complex phenomenon which results in numerous therapeutic challenges to the clinician as well as to the patient. The laterally positioned pedicle flap is commonly used to cover isolated, denuded roots that have sufficient amount of donor tissue laterally and vestibular depth. There are various modifications in laterally positioned flaps, which have been proposed in order to avoid the reported undesirable results on the donor teeth. This case report highlights the use of laterally positioned pedicle flap-technique for the management of localized Miller class-II gingival recession.

Keywords: Lateral Positioned Pedicle Graft, Recession Defect

Introduction

Desire for improved esthetic and the consequent need for cosmetic dentistry has increased tremendously in recent times making esthetic procedure as an integral part of periodontal treatment. Periodontal plastic surgical procedures aimed at coverage of exposed root surface have evolved into routine treatment modalities. Gingival

recession resulting in root exposure is a common problem faced by many clinicians and is becoming a more prominent condition in the oral health of many patients which should be treated at its earliest detection.¹

Gingival recession can be defines as apical shift of the marginal gingiva from its normal position on the crown of the tooth to the levels on the root surface beyond the cemento-enamel junction.²

It is a common condition with its extent and prevalence increases with age. Gingival recession can be localized or generalized. This recession leads to exposed root surface which are susceptible to caries, sensitive to thermal stimuli, and also abrasion and erosion of cementum occur. Hyperemia of pulp and associated symptoms may also be present.³

The primary etiological factors of gingival recessions are faulty tooth brushing⁴, abnormal frenal attachment⁵, improper restorations⁶, tooth mal-positioning, ageing, and gingival hypersensitivity.⁷

The appropriate surgical treatment modalities of gingival recession are according to Miller’s classification. In the last few decades, several surgical procedures have been

demonstrated to be successful in achieving root coverage and particularly complete root coverage, i.e., the coverage of the root exposure up to the cemento-enamel junction (CEJ).⁸

Lateral pedicle graft is one of the most promising treatment options for complete root coverage and where esthetics are of major concern. This technique was given by Grupe and Warren² in 1956⁹. The purpose of this technique was to gain width of attached gingiva, so as to increase the predictability of root coverage, to reduce patient discomfort, high rate of satisfaction as in terms of color blending of the graft material¹⁰. The lateral positioned flap is used as a graft which is harvested from adjacent area of the recession defect. This flap has its own blood supply, so as to promote the regeneration of the lost periodontal tissue. This can be considered as the most suitable graft for the root coverage³.

In consideration with the above feature lateral pedicle graft is used for the treatment of single tooth gingival recession.

Case Report

A 28 years old healthy female presented to the Department of Periodontics, with the chief complaints of receding gums in the lower right front teeth region. On examination there was Miller's Class II Gingival Recession defect (central incisor) with recession depth of 2mm, recession width of 2mm and Clinical Attachment Loss (CAL) of 2mm respectively (Figure 1). There was no history of trauma from occlusion, or any habit of faulty tooth brushing.

Pre- Surgical Protocol

- 1) Written consent was taken from the patient, the contents of which were explained in detail to the patient in his/her own language.
- 2) Detailed medical and dental history was taken.

3) Routine Blood Investigations which were done included: Total Leukocyte Count, Bleeding Time, Clotting Time, Hemoglobin, Enzyme Linked Immunosorbent Assay test for HIV, Hepatitis B surface antigen (Hbs Ag) for hepatitis and Hepatitis C (HCV) and Fasting Blood Sugar.

4) Complete oral prophylaxis was done and oral hygiene instructions were given to the patients. Patient was recalled after 2 weeks for the surgery.

Surgical Technique

Recipient Site

Detailed procedure was explained to the patient in his/her own language and a written consent was obtained. After completion of phase I therapy extra-oral disinfection was performed with 5% povidine iodine solution, intraoral asepsis was performed with 0.2% Chlorhexidine rinse. 2 % of lignocaine hydrochloride was given to anaesthize the recipient site. The exposed root surface was thoroughly planed with curettes to remove any deposits, plaque or debris on to the surface. A number 15 scalpel blade is used to give bevelled "V" shaped vertical incision around the denuded root surface of the recipient site (Figure 2) in an opposing direction from the donor site. This incision was made so as to remove epithelial and connective tissue collar around the tooth. This incision was extended apically up to the MGJ (Muco Gingival Junction) so as to provide free mobility to the flap without any tension.

Preparation of Donor Site

The donor flap should be 1.5 times the size of recipient area to be covered and the length should be 3-4 times then the width. A reverse bevel partial thickness horizontal incision (Sub marginally) was made using number 15 scalpel blade keeping the buccal and lingual interproximal papilla's intact and ending at line angle of the adjacent tooth, followed by another vertical releasing

incision along the line angle of the tooth into the alveolar mucosa (Figure 2)

Flap Detachment & Transportation

Flap dissection is performed with number 15 surgical blade from the donor site in apical to coronal direction, from vertical releasing incision, thereby dissecting the flap sharply from its underlying periosteum and connective tissue fibres. Partial thickness flap was elevated followed by a cut back releasing incision in order to dissipate any tension during pedicle flap placement onto the recipient bed. Now the pedicle flap was positioned laterally 1-2 mm onto the enamel of the recipient tooth (Figure 3).

Suturing

Suturing was done by placing 4-0 silk interrupted sutures labially and one 4-0 sling suture lingually, so as to pull papilla interproximal Ly and hold the tissue tightly against the neck of the tooth (Figure 3).

Post-Operative Instructions

Patients was prescribed with an antibiotic and anti-inflammatory post-operatively comprising of Tablet Amoxicillin and Clavulanic acid 625mg thrice daily for 5 days and Tablet Combi flam 325mg twice daily for 5 days respectively. Patients was also advised to take soft and cold liquid diet for first 24 hours and avoid brushing on the operated site for next 10 days post-operatively. She was instructed to rinse the oral cavity with 0.2% Chlorhexidine digluconate mouthwash for 1 minute after 24 hours of surgery for 14 days. Sutures were removed after 15 days of surgery and patient was asked to maintain oral hygiene. Patient was reviewed after 3 months of follow up (Figure 4) with complete root coverage and good results.

Discussion

Root coverage is the most important and predictable procedure in the treatment of gingival recessions in

periodontics. According to Miller classification, complete surgical root coverage can be achieved in Class I and II defects and only partial coverage may be expected in Class III. Over the years several surgical modalities have been introduced which includes pedicle gingival grafts, free autogenous gingival grafts, connective tissue grafts¹¹ and use of (GTR) membranes.¹² Free gingival grafts, laterally or coronally positioned flaps, semi lunar flap, guided tissue regeneration (GTR), and sub epithelial connective tissue grafts (SCTG) have been performed to gain root coverage (RC).

The result of pedicle flaps in gaining complete root coverage depends upon several factors, type of pedicle graft, width and height of adjacent keratinized gingiva, gingival biotype⁹.

Sugarman reported that new connective tissue attachment has been seen in laterally pedicle graft technique.¹³ Lateral pedicle graft as done in this procedure for the root coverage is the most reliable technique that can be used with effectiveness, high efficiency and less postoperative complication. It has high rate of predictability, and very less cost-effective treatment because of the autogenous nature of the graft. The results are in cohesion with the procedure done in this case.

Along with the root coverage, this process may also help in bone formation. The success of this technique may be attributed to the high vascularity of the graft (periosteum), as partial thickness flap was elevated and thus reflected on to the denuded root surface causing less patient discomfort and also reducing the intraoperative time, and causing minimum postoperative complications.³

This technique of raising partial thickness flap in this present study is basically the modification given by

Grupe¹⁴, so as to preserve the marginal gingival by making sub marginal incision at the donor site. This method of partial and full thickness flap was demonstrated by Ruben et al¹⁵.

which concluded that the recipient site should be full thickness flap over the denuded root surface and partial thickness flap should be prepared at the donor site so as to protect the exposed root surface and to prevent the bone loss by preserving periosteum, which were analogous to the findings in this study.

In this study blood supply to the graft was adequate and chances of the necrosis of the graft were reduced leading to the excellent postoperative results.

Summary & Conclusion

Within the limits of the study, it may be concluded that laterally pedicle flap technique in localized recession defects can be used to restore the functional properties of labial gingiva of teeth thereby repairing gingival defect and re-establishing the continuity and integrity esthetically with excellent postoperative results.

Pre-operative measurements



Figure 1: clinical recession depth and width

Surgical procedure



Figure 2: incision outline.



Figure 3: flap reflection, positioning and suturing.

Post-operative measurements



Figure 4 : post operative after 3 months

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