

Soft Tissue Reconstruction with Free Gingival Graft in the Anterior Mandibular Region Prior to Orthodontic Management - A case report

Safar Iqbal and Nubesh Khan Syed

Soft Tissue
Reconstruction
with Free
Gingival Graft
Technique

ABSTRACT

Background: Gingival recession is defined as the displacement of the soft tissue margin apical to the cemento-enamel junction which leads to compromised esthetics, root sensitivity and even periodontal support for successful orthodontic treatment. This case report aims to describe the surgical management of a Miller's class II gingival recession prior to orthodontic treatment.

Place and Duration of Study: This study was conducted at the Department of Periodontics, Malabar Dental College, Kerala, India from 05.01.2022 to 03.01.2023.

Case Presentation: A 29-year-old male presented to the Department of Periodontics, Malabar Dental College, Kannur with a chief complaint of spacing of anterior teeth and unsatisfactory esthetics of anterior teeth. A history of sensitivity in the anterior teeth region was noted. Miller's class II gingival recession was present along 31,41 and 42. The recession defect altogether measured 3-5mm apico-coronary and 14 mm mesio-distally. A free autogenous gingival grafting for the recession was done to achieve root coverage and increase the attached gingiva after scaling and root planning.

Conclusion: Free gingival grafting for root coverages in Miller class II recession before orthodontic treatment offers better periodontal support and esthetics.

Key Words: Free Gingival graft, Millers Class II, Mucogingival Surgery

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INTRODUCTION

Gingival recession is a common periodontal defect which is characterised by apical migration of marginal gingiva¹. The major reasons for this condition are plaque-induced periodontal diseases, faulty tooth brushing habits, faulty restorations or orthodontic movements and factors like tooth malposition or high frenal attachments^{1,2}. Gingival recessions compromise the esthetics exposing the root surface and adding to the sensitivity of the tooth.

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Application of orthodontic forces in such periodontally compromised teeth is thus a doubtful scenario warranting periodontal surgical root coverage before the orthodontic treatment. Several techniques are in practice for the management of gingival recession namely Free Gingival graft (FGG) subepithelial connective tissue graft, pedicle graft, lateral and coronal grafts.³ The FGGs are widely used to cover gingival recessions and to increase the width of the attached gingiva. The root coverage procedures with FGGs are quite predictable produce patient satisfaction and are proven reliable in increasing the attached gingiva and stopping the progressive recession.

CASE PRESENTATION

A 29-year-old male presented to the Department of Periodontics, Malabar Dental College, Kannur with a chief complaint of spacing of anterior teeth and unsatisfactory esthetics of anterior teeth. A history of sensitivity in the anterior teeth region was noted. On intraoral examination, a maximum probing depth of 4mm was seen along 31,41 and 42. There was minimal bleeding on probing and the patient's oral hygiene status was good. The gingival recession along all the above teeth was of Miller's class II recession (Figure: 1). A radiographic examination showed no

bone loss. Pre-surgical therapy included scaling, root planing and plaque control instruction. After 2 weeks the periodontal status was re-evaluated and the teeth showed no significant improvement. The recession defect altogether measured 3-5mm apico-coronary and 14 mm mesio-distally. A free autogenous gingival grafting for the recession was considered to achieve root coverage and increase the attached gingiva after obtaining patient consent.

SURGICAL PROCEDURE

Preparation of Recipient Bed: After adequate local anaesthetic application with 2% lignocaine, the exposed root was planned thoroughly with a Gracey 1-2 curette. The horizontal incisions were made on either side of the recession in the interdental papilla at the level of the cemento-enamel junction creating well-defined butt joint margins. At the distal terminal of the horizontal incisions, oblique vertical incisions were given extending beyond the mucogingival line. A partial thickness flap was elevated and excised apically making a recipient bed.

Preparation of Donor site: A foil template made by adapting to the recipient site was used to determine the amount of donor tissue needed. The graft with epithelium and thin connective tissue measuring 20 x 8 mm was retrieved from the left side of the palate between the first premolar and the first molar. The palatal incisions were made to create the butt joint margin in the donor tissue. A bevel access incision was made to get an even thickness of the graft. The harvested graft was retracted distally and separated apically using tissue pliers and was inspected for any glandular or fatty tissue remnants. The graft was placed on the recipient bed after ensuring the smooth and uniform thickness and secured by interrupted sutures at the coronal and apical borders (Figure: 2). A vertical stretching suture was given for close adaption of the graft to the tooth surface. The surgical site was secured with a periodontal pack.



Figure No.1: Clinical Photograph showing the recession about 31,41 and 42 (preoperative photograph after scaling)

Post-Operative Instructions: The patient was asked not to brush at the surgical site for the next two weeks but to maintain oral hygiene with 0.12% Chlorhexidine mouth rinsing twice daily for 3 weeks. An antibiotic coverage with amoxicillin and analgesic ibuprofen was advised thrice daily for 5 days. On removal of the pack, 2 weeks postoperatively the graft was found to be accepted by the recipient bed also the healing of the palatal wound was satisfactory. (Figure 3 & 4). The orthodontic treatment was started one year after the surgery and the achieved a complete coverage of the recession. (Figure:5)



Figure No.2: Clinical Photograph showing the free gingival graft placed in the recipient bed about 31,41 and 42 covering the defect.



Figure No.3: Clinical Photograph showing the accepted graft at the recipient site in relation to 31,41 and 42 (post-operative follow-up after 2 weeks)



Figure No.4: Healing at the donor site



Figure No.5: Root coverage achieved before orthodontic treatment.

DISCUSSION

The success of any orthodontic treatment greatly depends on the periodontal health of the tooth. Gingival recession is a common periodontal condition which may progress to bone loss and loss of periodontal support^{1,2,4}. Various mucogingival surgeries are described for the treatment of gingival recessions among which the free gingival graft over better results in shallow and narrow recessions³. The term free gingival graft was coined by Nabers⁵ and initially described by Bjorn in 1963⁶. Root coverage by free gingival graft was first described by Sullivan and Atkins⁷. They described the bridging obtained by the graft over the recession site because of the circulation received from the vascular portion of the recipient bed. Moreover, the creeping attachment can be obtained as a result of coronal migration of the free gingival margin. Various factors favour the success of root coverage that could be obtained namely the narrowness of the defect, tooth mal-positioning, underlying interproximal periodontal bone adequate oral hygiene and plaque control etc.

Free gingival grafting is a technique-sensitive procedure but can effectively attain therapeutic goals like an adequate epithelial seal and improved esthetics. The FGG can be used as a one-stage technique for shallow recessions and for deep recessions a two-stage technique can be used⁸. The acceptance of FGGs depends on the nourishment and vascularity offered by the recipient site. As soon the graft is placed and sutured the primary root coverage is obtained over the avascular root surface by bridging of the graft. The secondary root coverage is obtained by post-surgical upward migration of the gingival margin called creeping attachment as described by Goldman⁹.

CONCLUSION

The free gingival graft is a relatively simple but technique-demanding surgical procedure for root coverage. The surgical outcome depends greatly upon proper case selection and operator skills. Even though other effective root coverage techniques are developed, FGGs are still the treatment of choice for gingival recessions especially for those with shallow vestibular depth.

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