



RESEARCH ARTICLE

MUCOPERIOSTEAL PLASTIC SURGICAL TREATMENT OF GINGIVAL RECESSION BY SUB  
EPITHELIAL CONNECTIVE TISSUE GRAFT: A CASE REPORT

\*Nilima Landge, Ketaki Kanade, Priyanka Agarwal, Amit Chaudari and Pramod Waghmare

Associate Professor, Department of Periodontology, Bharati Vidyapeeth to be Deemed University,  
Dental College and Hospital, Pune

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ABSTRACT

Marginal tissue recession represents a common condition in periodontology. Gingival recession associated with root surface exposure is a complex phenomenon that may present numerous therapeutic challenges to the clinician. Recession may be accompanied by root caries or abraded surfaces, and patients may complain of esthetic defects or root hypersensitivity. One goal of periodontal therapy is to regenerate the lost attachment apparatus of the teeth. Accordingly, it has become evident during the past decade that a variety of regenerative procedures have the potential to correct gingival recession defects via augmentation of the width and height of keratinized or attached gingiva, as well as to obtain partial or complete root coverage. The majority of these procedures consist of periodontal plastic surgical (mucogingival) graft techniques, either alone or in combination with guided tissue regenerative procedures. In this case, a 28-year-old male patient came to the Department of Periodontology with chief complaints of sensitivity to cold food/fluids in lower front tooth for last one year and an unpleasant look. Recession coverage was done by sub epithelial connective tissue graft. Results were good and appreciable. The procedure is discussed in the following article.

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INTRODUCTION

Esthetics is becoming an important concern in dentistry. Harmonious and symmetric alignment of the teeth with a consistent shape, size and color is essential, and the harmonious gingival morphology has been emphasized. Gingival recession is one of the soft tissue problems faced by dentists and patients. It is frequently associated with esthetic concerns, fear of tooth loss and root hypersensitivity. There are several approaches for treating gingival recession: flap surgical procedures and procedures using graft materials in combination with flap operations. Many studies have confirmed that Miller Class I and II recessions, for which the level of periodontal proximal tissues is not affected, can be predictably covered by various periodontal plastic surgical procedures, including pedicle flaps, subepithelial connective tissue grafts (CTG), a cellular dermal matrix grafts, and guided tissue regeneration (Langer et al., 1985).

\*Corresponding author: Nilima Landge,  
Associate Professor, Department of Periodontology, Bharati Vidyapeeth to be Deemed University, Dental College and Hospital, Pune.

The goal of the treatment for gingival recession coverage is to restore the tissue margin to the cement enamel junction (CEJ) and to create a normal gingival sulcus with a functional attachment. Over the years, numerous surgical techniques had been practiced to correct gingival recession since its introduction by Norberg in 1926 (Shanelec, 1998). The advent of subepithelial connective tissue graft for root coverage has demonstrated high degree of success. The advantages of this technique are dual blood supply to the graft, better aesthetics, increased keratinized tissue width, and better postoperative healing in the donor site. Periodontal microsurgery for periodontal plastic surgery was introduced by Dr. Shanelac and has proven to be an effective means of improving predictability in periodontal aesthetic procedures (Shanelec, 1998).

Case Report

A 28-year-old male patient came to the Department of Periodontology with chief complaint of sensitivity to cold food/fluids in lower front tooth for last one year and an unpleasant look. The patient was systemically healthy.

On examination, there was gingival recession in 41 with vertical component 5 mm, probing depth 2 mm and clinical attachment level of 7 mm. Plaque was present and marginal gingiva was inflamed in 41.

## DIAGNOSIS

Miller's class-II gingival recession in 41.

## TREATMENT PLAN

Phase-I therapy followed by maintenance. Phase-II therapy consisted of coronally advanced flap with subepithelial connective tissue graft using microsurgical technique.

## PRESURGICAL PREPARATION

Patient was motivated and educated about the surgical procedure and oral hygiene instructions were given. Thorough scaling and root planning was done. Patient was called on recall visits to assess his oral hygiene and gingival status. Informed consent was taken from patient.



Fig.1. Pre Surgical

## SURGICAL PROCEDURE

### Recipient Site I

Baseline data was recorded preoperatively with vertical component of gingival recession as 5 mm, horizontal component 4 mm, probing depth 2 mm and Clinical Attachment Level of 7mm. After administration of local anaesthesia, a partial thickness flap was created with two vertical incisions placed at least one-half to one tooth wider mesio-distally than the area of gingival recession. The coronal margin of the flap was started with a horizontal sulcular incision to preserve all existing radicular gingiva. The interproximal papillae were left intact. Care was taken to extend the flap to the mucobuccal fold without perforations, which could seriously affect the blood supply. Thorough root planning was done.

### Donor Site

A second surgical site was created on the palate. After administration of local anaesthesia, CTG was procured using Liu Class I Type B incision.



Fig no 2- Recipient site

A horizontal incision was made approximately 5 mm from the gingival margins of the maxillary teeth to the desired width. It was continued apically as an inverse bevel towards alveolar bone. A second parallel horizontal incision was made 1½ mm coronal to the first incision. It was continued apically until it meets the base of the original incision. The palatal bone was scored to enable the operator to remove the connective tissue wedge. The connective tissue and epithelium between the two horizontal incisions are excised and all adipose tissue is removed. The palatal flap was sutured back into position with polypropylene 4-0 immediately after taking the donor tissue.

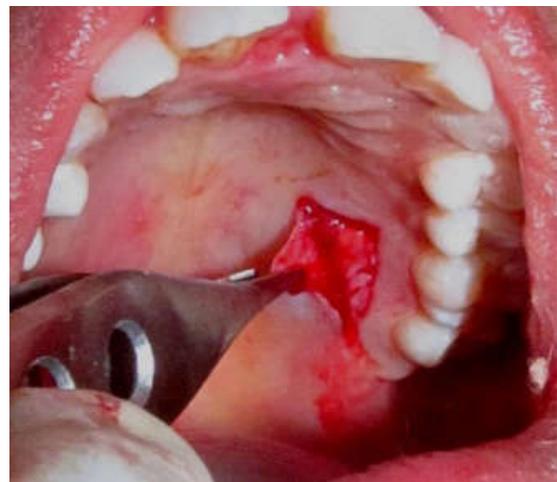


Fig. 3. Extraction of the sub epithelial connective tissue graft (SECTG) through the palatal surface

### Recipient Site II

The connective tissue graft was placed over the denuded roots and sutured in place. It was sutured to the underlying connective tissue interproximally using 6-0 vicryl. The partial thickness, recipient flap was positioned coronally in a manner to cover as much of the graft as possible and sutured in this position (Figure 5). No attempt was made to completely cover the graft as this would create an excessive pull on the vestibular fold. Periodontal dressing was applied to the recipient site, and the patient was instructed in normal post-surgical management. A periodontal dressing along with palatal stent was given on the palate.



**Fig. 4. Placement of the graft at the recipient site**



**Fig. 5. Placement of sutures in such a way that it covers the graft completely**



**Fig. 6. Periodontal dressing**

#### POST-SURGICAL CASE AND FOLLOW-UP

The patient was instructed to rinse two times daily with 0.20% chlorhexidine gluconate solution for the first postoperative month. Antibiotics and anti-inflammatory analgesics were prescribed for five days after surgery. The patient was seen on 7<sup>th</sup> postoperative day to remove the periodontal dressing and sutures.

The patient was recalled regularly. Normal plaque control techniques were resumed. There was a gain in attached gingiva with 5 mm of root coverage.



**Fig.7. 2 weeks post operative**

#### DISCUSSION

Gingival recession is one of the most common aesthetic problems. Surgical techniques to correct gingival recession were introduced by Norberg in 1926 by using coronally repositioned flap. Since then different modalities were introduced for root coverage. The choice of the adequate technique and the long-term success of the procedure depend on the careful evaluation of the defect type, recession's etiology, operator's ability, presence of keratinized tissue, tissue width, predictability, single or multiple gingival recessions, healing, aesthetic result, and risk factors. In 1985, Langer and Langer described a technique of subepithelial connective tissue graft for root coverage in the treatment of recessions at single or multiple areas, attributing the procedure success to the double blood supply for the graft's nutrition, originating from the connective tissue of both the periosteum and flap.

One of the most predictable and commonly used procedures is subepithelial connective tissue graft for root coverage, which has demonstrated high degree of success. The advantages of this technique are dual blood supply to the graft, better aesthetics, increased keratinized tissue width, and better postoperative healing in the donor site. Improved color blending, reduced morbidity in donor site, and high degree of clinical success are the other advantages. Periodontal microsurgery introduces the potential for a less invasive surgical approach in periodontics. It permits preparation of hard and soft tissue wound surfaces to have butt-joint wound approximation, which encourages primary wound healing and enhanced periodontal regeneration. It provides more accurate and atraumatic handling of tissues to enhance wound healing. Microsurgery entails the use of specifically designed microsurgical instruments to minimize trauma. Special attention should be given concerning to sub epithelial connective tissue graft indication in cases of Miller's class III and IV marginal tissue recession. The aforementioned technique presents less predictability of root coverage in such recessions, because of the difficulty of graft's adaptation and nutrition which may result in necrosis.

## Conclusion

The success of this clinical case may be attributed to the precise indication of the technique of sub epithelial connective tissue graft due to the high predictability of root coverage in Miller's class I and II and the double blood supply for the graft's nutrition. A microsurgical technique has practical application especially in the field of periodontal plastic surgery. It reduces tissue trauma, aids in early postoperative healing, and increased comfort to patients.

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