

# Subepithelial Connective Tissue Graft for Isolated Rt1 Combined With Pouch and Tunnel Technique: A Case Report

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## ABSTRACT

Periodontal plastic surgery focuses on regenerative techniques intended to improve esthetics, form, and function. The purpose of this case report was to assess the efficacy of the pouch and tunnel approach for root coverage in mandibular left central incisor (31) with isolated RT1 (Recession Type 1) when used with subepithelial connective tissue grafts. Six-month follow-up period was conducted with patient reported with 100% coverage. Root coverage can be achieved using a variety of methods. This method uses less traction, speeds up the early wound healing, and protects the intermediate papilla. In comparison to other treatment techniques, this procedure may be more effective in treating recession since there is less trauma at the recipient site.

**Keywords:** Gingival recession, periodontal plastic surgery, subepithelial connective tissue graft

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## INTRODUCTION

The surgical operations carried out to rectify or eradicate anatomic, developmental, or traumatic abnormalities of the gingiva or alveolar mucosa are referred to as periodontal plastic surgery.[1] The loss of periodontal connective tissue fibers, together with the root cementum and alveolar bone, is what is known as gingival recession, which is defined as the displacement of the gingival edge apical to the cemento-enamel junction (CEJ).[2] Recession worsens with age, according to studies by Murray and Gorman et al. According to a survey, 88% of those over 65 and 50% of those between 18 and 64 had at least one recession-affected site (Serino G, Wennstrom JL, Lindhe J, Eneroth L).[3]

Esthetic requirements, root hypersensitivity, root caries lesions, and cervical abrasions are the primary indications for root covering surgery.[4] If left untreated, gingival recession may worsen to the point that it endangers the health of the affected tooth.

Clinically, the extent of recession is determined by measuring the distance between the CEJ and the soft tissue margin in millimeters. Whether localized or generalized, gingival recession may be linked to one or more surfaces, leading to attachment loss and root exposure. Therefore, marginal gingival recession should be seen as the breakdown of both soft and hard tissue rather than only a soft tissue deficiency.[5]

Edel (1974), Broome and Taggart (1976), and Donn (1978) were the first to use connective tissue graft to widen keratinized gingiva. Since 1985, when Langer and Langer first published the SCTG procedure for treating gingival recession of both single and multiple neighboring teeth, connective tissue grafts have been used to treat gingival recession.[7] They described a method in which a partial thickness flap is used to cover the transplant. Nelson suggested covering the SCTG with a full-thickness flap.

In 1985, Raetzke described a novel type of connective tissue graft known as the "Envelope technique." [9] In 1994, Allen introduced the "Tunnel or supraperiosteal envelope technique," which modified Raetzke's method.

This case report outlines the advantages of SCTG in single isolated recession using pouch and tunnel procedure, as outlined by Allen in 1994, for treatment of multiple gingival recessions over other treatment modalities.

### **CASE DESCRIPTION**

An unsightly appearance, sensitivity in the lower front area, and receding gums were the main complaints of a 26-year-old male patient who visited the periodontics department at the Post Graduate Institute of Dental Sciences in Rohtak, Haryana. The preceding dental and medical histories contained no notable information. No periodontal pockets were visible during the intraoral examination. Despite the absence of damage from occlusion, 31 (Fig. 1) showed isolated Recession Type 1 (RT1).



**Figure 1: Preoperative image showing RT1 gingival recession.**

Scaling and root planing were performed as part of routine periodontal care. There were recommendations on oral hygiene. Patients were asked to come back 4 weeks later.

### **SURGICAL TECHNIQUE**

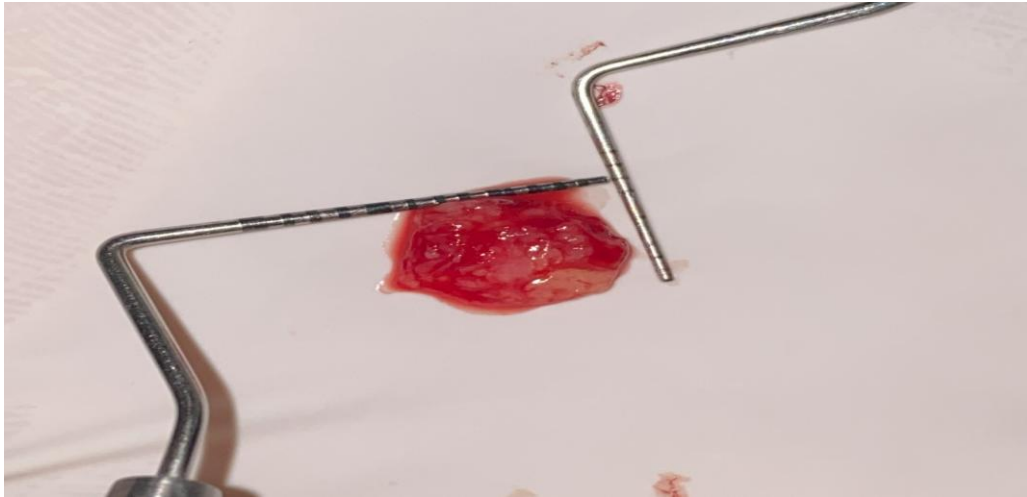
A number 15 blade was used to make sulcular incisions through each recession area after local infiltration of 2% lidocaine with a dosage of 1:200000 epinephrine.

To prepare a tunnel, each pedicle close to the recession was gently undermined without being entirely detached. Extending the tunnel laterally by around 3 to 5 mm caused the tissues to be undermined in order to prepare the tunnel. It was carefully avoided to make the incisions reach the interdental papilla's tip.

A mucoperiosteal flap with full thickness that went past the mucogingival junction was reflected. This was done to ease coronal displacement after graft insertion by lowering the tension on the flap.

### **DONOR SITE PREPARATIONS**

Using Lui's Class I incision from the palate, SCTG was collected (figure 2) [13]. Gauze soaked in saline was used to apply pressure to the donor location after the graft was extracted in order to stop bleeding. Using 4-0 interrupted suture, the palatal flap was subsequently stitched (figure4).



**Figure 2: Intraoperative image showing connective tissue graft harvested from palate.**



**Figure 3: Image showing suturing with 5-0 silk suture after insertion of SCTG and flap was coronally positioned.**



**Figure 4: Image showing palatal suturing with 4-0 interrupted suture.**



With the use of a 5-0 silk suture, the graft was stabilized. The needle was used to penetrate the mesial aspect of the graft, and it was passively inserted beneath the tunnel made. A periosteal elevator was used to gently advance the suture from the tunnel's mesial side toward the distal direction so that the graft could slide below. The graft was placed coronally to the CEJ. The flap was coronally positioned after which it sutured (figure3). Graft was not exposed in oral cavity. A periodontal dressing (Coe Pak) was placed over the foil to stabilize and protect the donor tissue.

For two weeks, the patients were instructed to use a mouthwash containing 0.2% chlorhexidine gluconate. They received post-operative home care instructions and analgesic prescriptions to lessen their post-operative pain and suffering. After 10 days, the stitches were removed. The patients were then checked on for supportive periodontal therapy at 3- and 6-month intervals.

## RESULTS

Clinical measurement was compared prior to and following surgery. Complete root coverage was attained without having any negative effects.

After four weeks, the donor site had a typical appearance in terms of color and health, and the receiver site had a perfect color match with surrounding tissues. The patient reported positive aesthetic outcomes and a decrease in hypersensitivity. Recurrence was not reported till 6 months follow up (Fig.5). Results were stable and maintained.



**Figure 5: Postoperative image showing stable results with 100% coverage at follow up of 6 months.**

## DISCUSSION

Nowadays, gingival recession is a fairly frequent occurrence, and it needs to be treated to avoid future difficulties. Historically, the primary goals of periodontal therapy treatments were to prevent and treat existing periodontal disorders. However, in order to preserve and improve esthetics in response to growing demands for aesthetics, numerous periodontal plastic surgical techniques have been added to these surgical procedures. Procedures for improving esthetics, restoring shape and function, and using regenerative techniques are all included in periodontal plastic surgery.

Predictable root coverage is now a crucial component of periodontal therapy. The goal of root coverage has been attained through numerous surgical methods. When used, some procedures result in undesirable outcomes. Poor case selection, incorrect technique choice, inadequate root preparation, insufficient interdental bone and soft tissue height, subpar surgical technique, insufficient blood supply from the surrounding tissues as a result of inadequate recipient site preparation, and flap penetration could be the causes.

There are several management strategies for gingival recession, including free gingival graft, coronally advanced flap, use of barrier membranes, EMD, various growth factors, etc. Due to its high degree of success, SCTG has emerged as a common management strategy for covering denuded roots. In Millers Class I and II situations, it has the highest root coverage predictability (95%) attained.[14] The clinical benefit of SCTG can be seen not only at

the recipient site, where there is good tissue blending, but also at the palatal donor site, where there is less discomfort for the patient because the graft is harvested using a more cautious method.

Langer and Langer[7] introduced and explained the processes and indications required for success with the SCTG. According to them, this method provided "the advantage of a closer color integration of the graft with neighbouring tissue, avoiding the "Keloid" healing found with free gingival transplants. Due to the recipient site's dual blood supply from the recipient flap and the underlying connective tissue base, these grafts have been deemed successful. In both isolated and many sites, it can be applied to achieve complete root coverage. When used over recession deficiencies, SCTG causes periodontal regeneration as determined by histological analysis.[15]

The pouch and tunnel technique-treated site in this case report displayed 100% root coverage. The pre-operative recession had a width of 2-3 mm and a height of 2 to 3 mm. The envelope technique was modified to create the tunnel technique. The tunnel approach helps maintain a sufficient blood supply to the underlying graft while also preserving the papillary height. It also provides excellent adaptation of the graft to the recipient site. Produces highly esthetic results and also increase the thickness of keratinized gingiva.

### CONCLUSION

Recession of the gingiva is a major issue from a functional and aesthetic standpoint. The preferred surgical procedure depends on a number of variables, each of which has benefits, drawbacks, indications, and contraindications. The surgeon should select the least traumatic surgical protocol for the patient from the range of accessible options. Various elements that are crucial at each stage of the operation, from case selection through long-term maintenance (supporting periodontal therapy), and patient compliance, impact the success of any root covering procedure. The outcomes produced by SCTG using the pouch and tunnel technique are much more superior, predictable, and advantageous.

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