

# Modified Semilunar Advanced Flap with Connective Tissue Graft Technique for Root Coverage: A Case Report

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## Abstract

Gingival recession may not only result in aesthetically unacceptable results but also be associated with increased susceptibility to root caries and dentinal hypersensitivity. A novel technique for recession coverage by using a modified semilunar advanced flap technique with connective tissue graft is described. The technique involves placing of connective tissue graft underneath a semilunar incision which is made parallel to the free gingival margin of the facial tissue and its advancement over the denuded root. This technique has the advantage over conventional semilunar flap, in that benefit of connective tissue graft is combined for improved prognosis

**Keywords:** *Semilunar flap, connective tissue graft, gingival recession, coronally advanced flap.*

## Introduction

Gingival recession (GR) is a common concern of many patients who visit a dental office, but despite the concern of patients, the practice of recession coverage often eludes general dentists owing to the need for superior skills. In gingival recession there is an apical shift of the marginal gingiva resulting in denuded root surfaces<sup>1</sup>. It not only is an esthetic concern but also causes dentinal hypersensitivity. Tissue destruction that takes place in periodontal disease or mechanical factors due to toothbrushing can cause GR<sup>2,3</sup>. Root coverage (RC) is indicated when there is an esthetic concern, dentinal hypersensitivity, root caries, cervical abrasion and prevention of periodontal disease progression<sup>4-6</sup>.

Several surgical approaches have been put forth in the management of denuded root surfaces. Among these, the subepithelial connective tissue graft (SCTG)

procedure, has been considered as the most efficacious and with most predictable outcomes<sup>7,8</sup>. Introduced for RC in 1985, SCTG has been performed by using a variety of flap designs<sup>9,10</sup>. In the following year, ie in 1986, Tarnow et al<sup>11</sup> introduced the semilunar coronally advanced flap (SCAF) procedure. Case reports with connective tissue graft for treatment of isolated gingival recession have shown a high success rate<sup>12-14</sup>. The present case report utilizes a modified semilunar advanced flap technique in combination with connective tissue graft in the management of gingival recession.

**Case Report:** A male patient aged 32 years was enrolled in the OPD of the Department of Periodontics, Institute of Dental Sciences, Bhubaneswar, Odisha, with a chief complaint of receding of gums in the upper central incisor (tooth number 11). The patient had no faulty tooth brushing habits or any parafunctional habits and hadn't taken any antibiotics in the preceding six months. He neither had any prosthesis in the anterior region nor did any tooth receive a restorative therapy. His medical history was non-contributory.

**Intraoral examination:** Class I Miller's gingival recession was observed in the tooth number 21 (Fig 1). Clinical measurements such as a recession defect of 2mm (Fig 2) and width of keratinized tissue of 4mm

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prior were measured using a UNC 15 periodontal probe. Clinical photographs were taken prior and post-surgical therapy. The intraoral periapical radiograph (IOPA) taken had no bone loss in the 21 region. A recession coverage procedure was planned, explained to the patient and a written consent was obtained.

**Pre-Surgical Preparation:** Scaling and root planing was carried out to render the surgical area plaque-free. A demonstration of the correct tooth brushing technique to the patient was also done.

**Surgical procedure:** After anesthetizing the surgical site with lignocaine (2%), a crevicular incision (Fig. 3) was placed on 21. This was followed by creating a tunnel by separating the mucosa from the underlying periosteum (Fig 4). A semilunar incision (Fig 5) following the curvature was placed at an area apical to the marginal gingiva of the indicated tooth such that the apical most extent is in the alveolar mucosa. The incision

curved laterally and lay coronally in the keratinized gingiva apical to the mesial and distal interdental papilla maintaining the vascularity of the flap. The harvested connective tissue graft (CTG) from the palate was then placed underneath the coronally advanced semilunar flap (Fig 6 & 7). Advanced flap along with the CTG was stabilized by an anchor suture on the buccal surface of the tooth (Fig 8). The surgical site was covered by a periodontal dressing for mechanical protection and to control postoperative bleeding from the surgical site. Patients were given post-operative instructions and were prescribed with suitable antimicrobials and analgesics. Suture removal was done after 10 days and the patient was put on a periodontal maintenance regimen. An acceptable root coverage was seen after which was stable even after 6 months (Fig 9). Fig 10 provides a schematic diagram of the technique for visualization and better understanding.



Figure 1a Recession defect irt 11, igure 1b. Recession of 2 mm



Figure 2a. Crevicular incision given, Figure 2b Tunnel created



Figure 3a. Semilunar incision given, Figure 3b. Graft tucked underneath semilunar flap



Figure 4a. Connective tissue graft placed, Figure 4b. Suture placed.

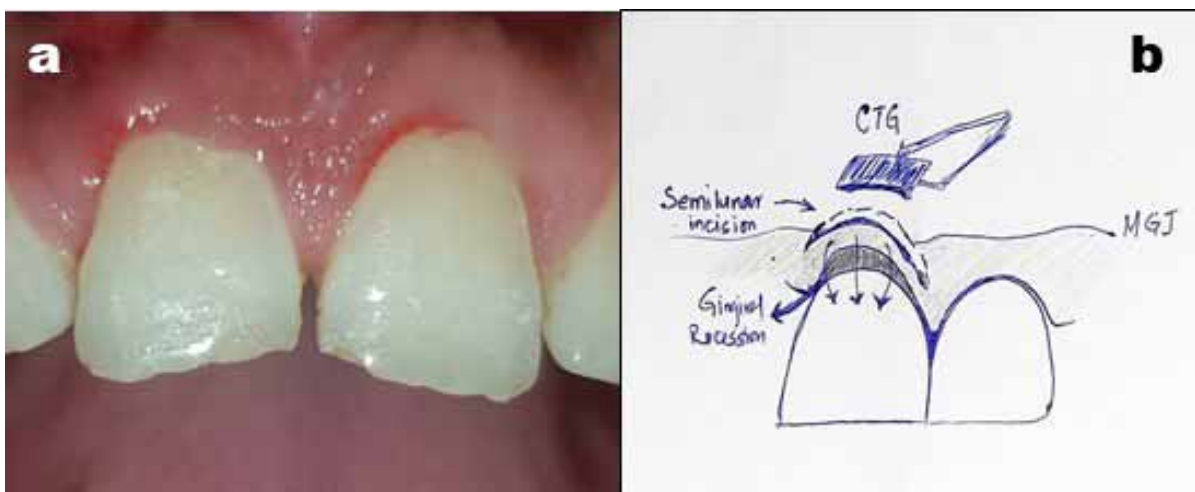


Figure 5a. Postoperative 6 months, Figure 5b. Schematic Diagram; CTG = Connective Tissue Graft, MGJ = Mucogingival Junction

## Discussion

The presented technique utilized the combined advantages of the SCAF technique and SCTG technique in that there is no disturbance to the adjacent interdental papillae, there is no shortening of the facial vestibule and has least flap tension. This technique is preferably to manage isolated gingival recessions which serve as a predictable root coverage procedure. Apart from preserving the adjacent interdental papilla, this technique also applies less traction and preserves the gingival height. Minimal trauma at the recipient site due to minimal incision, may be advantageous in masking recessions as compared to the coronally repositioned flap. In this case we utilized one vertical incision to facilitate placement of connective tissue. This technique combines the benefits of subepithelial grafting along with semilunar incision and tunnel procedure, thus improving the outcome.

SCTG procedure is advantageous in that it provides a good tissue blending at the grafted site. Also, owing to its conservative approach, there is minimal trauma and discomfort at the donor site. The recipient site receives a dual blood supply from the underlying connective tissue base and the overlying recipient flap which contributes to the success of this procedure<sup>15</sup>.

In the presented case which was managed by the novel technique of combination of SCPF and CTG showed 100% root coverage. The tunnel approach used in the technique is a modification of the pouch and tunnel technique which was designed specifically for isolated recession frequently found in the maxilla. There was a highly esthetic outcome and also increase the thickness of keratinized gingiva.

## Conclusion

This present case report confirmed that a modified semilunar coronally advanced flap and in combination with subepithelial connective tissue graft technique is an efficient treatment option for the management of gingival recession defects and resulted in complete root coverage of the treated case.

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**Conflict of Interest:** None

**Ethical Permission:** Approved

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