

# Lateral Pedicle Flap for Isolated Gingival Recession: A Case Report

Hiba Peku, Sachit Anand Arora, Gunjan Gupta, Kumar Saurav

**Abstract:** *Gingival recession or marginal tissue recession is defined as the location of the marginal tissue apical to the cement - enamel junction (CEJ) with exposure of the root surface. It is also one of the most common esthetic concern associated with periodontal tissues. Management of gingival recession and its sequelae is based on thorough assessment of the etiological agent and the extent of the involvement of the marginal tissues. A number of mucogingival surgeries have been used to treat the gingival recession aiming primarily to prevent further root exposure and to increase the width of keratinized tissue. The lateral displaced pedicle flap described by Grupe and Warren in 1956 is one of the mucogingival surgery indicated for localized gingival recession. Thus this case report put an emphasis on lateral pedicle flap for the root coverage in relation to localized mandibular right central incisor.*

**Keywords:** Gingival recession, Root coverage, Lateral pedicle graft

## 1. Introduction

According to AAP 2017 gingival recession is defined as an apical shift of the gingival margin caused by different conditions/pathologies. It is associated with clinical attachment loss which may be applicable to all surfaces (buccal/lingual/interproximal)<sup>1</sup>.

The aetiology of gingival recession is multifactorial but is commonly associated with underlying alveolar morphology, toothbrushing, mechanical trauma and periodontal disease. Hence it is essential to identify the etiological agent of gingival recession, to accurately rule out the treatment plan.

The term mucogingival surgery was first brought into literature by Friedman in (1957) to describe surgical procedures for the correction of relationships between the gingiva and the oral mucous membrane with reference to three specific problem areas: attached gingiva, shallow vestibules, and a frenum interfering with the marginal gingiva. According to the Glossary of Periodontal Terms (1992) mucogingival surgery is defined as "plastic surgical procedures designed to correct defects in the morphology, position and/or amount of gingivae surrounding the teeth"<sup>2</sup>.

Following surgical procedures are indicated for treatment of gingival recessions, they include<sup>3</sup>

- Lateral reposition flap
- Double papilla flap
- Oblique rotation flap
- Coronally advanced flap
- Semilunar flap

In 1956, Grupe and Warren developed the original procedure called the sliding flap operation for covering an isolated exposed root. For single isolated tooth root coverage where the amount of adequate soft tissue and underlying bone is present at the donor site makes the prognosis of lateral sliding flap good<sup>4</sup>. The advantages of pedicle grafts when compared to autografts is one surgical site with preservation of blood supply to pedicle graft which will prevent graft necrosis and rejection which results in post operative colour harmony with adjacent gingival tissues<sup>5</sup>.

## 2. Case Report

A 26 years old female patient reported to the outpatient Department of Periodontics and implantology with the chief complaint of mild hypersensitivity and receding gums in her lower front tooth region for past 6 months. The patient reported no previous medical and dental history. The patient had no previous medical and dental history. On examination Miller's Class III recession was elicited in 41 with a recession depth of 5 mm and CAL of 7 mm. Grade I mobility was detected clinically with the involved tooth.

### Pre - Surgical protocol

Patient education and oral hygiene instructions were given. Patient was informed on poor prognosis of the involved tooth however the root coverage was attempted for the unesthetic concern of the patient.

### Surgical Procedure

The lateral pedicle graft was done according to Grupe and Warren modification using submarginal incision to prevent donor tissue recession. After administration of local anaesthetic agent the exposed root surface was scaled and planed using curettes to remove the residual plaque and to smoothen the surface irregularities. A V - shaped incision about the denuded root, removing the adjacent epithelium and connective tissue. 24% EDTA gel used for root biomodification. Horizontal submarginal and vertical incision was given on distal line angle of 32 (fig: A and B).



**Figure A:** Pre - operative



**Figure B:** Submarginal incision



**Figure C:** Split thickness flap



**Figure D:** Sling suture



**Figure E:** Coe pak placed



**Figure F:** Post - operative 14 days

#### **Preparation of the Donor Site**

The donor flap as shown should be at least 1 ½ times the size of the recipient area to be covered and 3 to 4 times longer than it is wide. A partial - thickness flap is begun with a scalloped, inverse - beveled incision at the gingival crest using a no.15 scalpel blade. The incision extends from the V - shaped incision to the vertical incision. The horizontal incision is stopped at the mucogingival junction. The scalpel blade is inserted into the vertical incision apical to the mucogingival line. The blade is moved in a coronal direction as tension is placed on the flap, permitting easy separation. The flap is sharply dissected, making sure to preserve all the interproximal papilla.

#### **Preparation of the pedicle flap**

A split - thickness pedicle is raised by carefully separating the flap from underlying structure. The flap should be free enough to permit movement to the recipient site, with no tension (Fig: C). If tension is encountered, a cutback or releasing incision will be required to dissipate the tension. The pedicle flap is positioned coronally 1 to 2 mm onto the enamel of the recipient tooth or to the maximum height that the interproximal tissue will allow. Suturing is done using 5 - 0 silk suture. Sling suture is placed, which pull the papilla interproximally and hold the tissue tightly against the neck of the tooth. One interrupted suture is placed at the cutback region (Fig: D). Periodontal dressing (Coe Pak) was placed (Fig: E).

#### **Post operative instructions**

Patient was kept on antibiotic and analgesic for 3 days and advised not to brush in the surgical site for 14 days. chlorhexidine gluconate mouth wash of 0.12% twice daily was recommended. Suture was removed after 14 days post operative.

### **3. Outcome**

Postoperatively, there was a firm attachment of coverage of (around 3mm) on denuded root surface.

### **4. Discussion**

Gingival recession can be localized or generalised. The resulting root exposure is not esthetically pleasing and may lead to sensitivity and root caries<sup>6</sup>. Lateral pedicle flap first given by Grupe and Warren for localized gingival recession. The indication to perform lateral pedicle flap are the adequacy of width, length and thickness of keratinized tissue

in the adjacent donor teeth. Lateral sliding flap are mostly suitable for narrow mesiodistal width recession<sup>7</sup>. However it includes certain disadvantages like there is high chances of recession at donor site. The tension to the flap on suturing should be completely relieved so as to prevent graft failure. So Grupe modified by giving submarginal incision. Staffileno (1964) solved this problem by using a partial - thickness flap to protect the donor site from recession. Corn (1964) further modified this by adding a cutback incision to release tension. Dahlberg (1969) used the rotated pedicle flap, which did not require a cutback incision<sup>5</sup>. Coverage of the exposed root surface with the sliding - lap technique has been successful in 60% to 72%<sup>8</sup>. Santana et al., 2010 revealed 95.5% mean root coverage and 83.4% complete root coverage similar with the modified Lateral Pedicle Flap technique as that of Lateral Pedicle Flap revisited techniques using 24% EDTA in the management of Millers class I gingival defects<sup>9</sup>.

[10] Grupe HE, Warren Jr RF. Repair of gingival defects by a sliding flap operation. *The Journal of Periodontology*. 1956 Apr; 27 (2): 92 - 5.

## 5. Conclusion

The present case report has shown that LPG is a simple and reliable procedure for isolated gingival recession. The predictable outcome of the isolated defect was excellent in terms of root coverage and esthetically pleasing to the patient.

## References

- [1] Jepsen S, Caton JG, Albandar JM, Bissada NF, Bouchard P, Cortellini P, Demirel K, de Sanctis M, Ercoli C, Fan J, Geurs NC. Periodontal manifestations of systemic diseases and developmental and acquired conditions: Consensus report of workgroup 3 of the 2017 World Workshop on the Classification of Periodontal and Peri-Implant Diseases and Conditions. *Journal of clinical periodontology*. 2018 Jun; 45: S219 - 29.
- [2] Lang NP, Lindhe J, editors. *Clinical periodontology and implant dentistry*, 2 volume set. John Wiley & Sons; 2015 Mar 25
- [3] Tugnait A, Clerehugh V. Gingival recession—its significance and management. *Journal of dentistry*. 2001 Aug 1; 29 (6): 381 - 94.
- [4] Pfeifer JS, Heller R. Histologic evaluation of full and partial thickness lateral repositioned flaps: A pilot study. *Journal of periodontology*. 1971 Jun; 42 (6): 331 - 3.
- [5] Cohen ES. *Atlas of cosmetic and reconstructive periodontal surgery*. PMPH - USA; 2007.
- [6] Kassab MM, Cohen RE. The etiology and prevalence of gingival recession. *The journal of the American dental association*. 2003 Feb 1; 134 (2): 220 - 5.
- [7] Newman MG, Takei H, Klokkevold PR, Carranza FA. *Newman and Carranza's Clinical periodontology E - book*. Elsevier Health Sciences; 2018 May 29.
- [8] Sato N. *Periodontal surgery: a clinical atlas*. Quintessence Publishing Company; 2000.
- [9] Singh J, Bharti V. The effect of laterally positioned flap - revised technique and 24% ethylenediaminetetraacetic acid root conditioning on root coverage: A case report. *The Saudi Dental Journal*. 2014 Jul 1; 26 (3): 132 - 8