



## TREATMENT OF MILLER'S CLASS II GINGIVAL RECESSION WITH LATERAL PEDICLE GRAFT AND PRF MEMBRANE – A CASE REPORT

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**ABSTRACT** Gingival recession is a common mucogingival problem and it can cause discomfort or hypersensitivity, aesthetic issues, plaque retention, inflamed gingiva, root caries, abrasion, and risk of tooth loss. Surgical and non-surgical methods can be used to treat gingival recession. Restorations, crowns, veneers, and gingival masks are nonsurgical methods, but surgical management comprises several techniques for increasing the width of keratinized tissue, such as frenectomy in case of high frenal attachment and root covering procedures. Lateral pedicle graft (LPG) is a procedure in which the graft is elevated from the donor site and transferred to a neighbouring region in an isolated denuded root. This article discusses the use of lateral pedicle grafts in conjunction with platelet-rich fibrin membrane for the treatment of localized Miller's class II gingival recession. This procedure was chosen because of its benefits, which included a single surgical region, the preservation of the flap's blood supply, and the postoperative colour being in harmony with the surrounding tissue.

**KEYWORDS :** lateral pedicle graft, gingival recession, root coverage, PRF

### INTRODUCTION

Gingival recession, or the apical movement of the gingival margin, is a multifactorial mucogingival defect. It is the exposure of the root surface caused by an apical displacement in the position of the gingiva<sup>1</sup>. The presence of gingival recessions at the anterior teeth may be an aesthetic issue for the patient who complains about the excessive length of some of his or her teeth. This discrepancy may be visible in the patient's smile or even on a functional level.<sup>2</sup> The treatment of gingival recession and related complications is based on a thorough examination of the etiological variables as well as the extent of tissue involvement. The first focus of treatment for a patient with gingival recession should be on resolving the etiological reasons. Gingival recession must be closely examined for evidence of further progression.<sup>3</sup>

Gingival recession can be treated using a variety of surgical methods. Pedicle soft tissue grafts, free soft tissue grafts, and regeneration procedures are the three primary categories.<sup>4</sup> Rotation flaps comprise laterally/horizontally repositioned flaps, double papilla flaps, and oblique rotational flaps in pedicle grafts, while advanced flaps include coronally advanced flaps and semilunar flaps whereas soft tissue grafts include -connective tissue & free gingival grafts.<sup>5-9</sup>

Grube and Warren et al. proposed a technique for covering isolated recessions with a laterally repositioned flap procedure<sup>5</sup>. The presence of adequate width, length, and thickness of keratinized tissue next to the site of gingival recession are indicators of a laterally positioned flap<sup>10</sup>. This technique is best for covering roots in gingival recession with a narrow mesiodistal dimension. The potential for bone loss and gingival recession at the donor site are drawbacks of this approach.<sup>3</sup>

The purpose of this study was to see how well a laterally positioned flap covered a Miller class-II recession defect in the mandibular anterior area and use of PRF membrane as a bandage to cover the exposed donor area.

### CASE REPORT:

A 25-year-old male patient was presented to the Department of

Periodontics and Implantology at the Coorg Institute of Dental Sciences in Virajpet, Karnataka, with a complaint of lower anterior tooth sensitivity following orthodontic treatment. On clinical examination, an isolated Miller class- II recession defect was present on 41 on the buccal aspect. The dimensions of the gingival recession were 3 mm in width and 6 mm in depth.

The first step before commencing surgery was root planing, which removed softened cementum and reduced or eliminated prominent root convexity. Using a no. 15 scalpel blade, a V-shaped incision was made around the denuded root, removing the adjacent epithelium and connective tissue. Finally, all tissue remnants were removed from the area.

### Donor Site preparation:

The donor flap should be at least 1 or 2 times the size of the recipient area to be covered and 3 to 4 times longer than wide. A scalloped, inverse-bevelled incision at the gingival crest was made with a no. 15 scalpel blade to begin the partial-thickness flap. From the V-shaped incision to the vertical incision, the incision was extended. This incision did not go all the way to the bone. At the mucogingival junction, the horizontal incision was stopped. The interproximal papillae were all partially dissected, thinned, and preserved. At the donor site, a vertical incision was now made with a no. 15 scalpel blade, but it was not made all the way down to the bone. It was extended apically into the mucosal tissue far enough to allow the flap to move freely. To allow adequate vascularity, the base of the flap must be wide but not wider than the coronal portion. In the vertical incision apical to the mucogingival line, the scalpel blade inserted. The blade was moved coronally while tension was applied to the flap with tissue pliers, allowing for easy separation. The flap was dissected sharply, taking care to preserve all of the interproximal papillae.

### Preparation of Pedicle Flap:

The flap was raised and reflected forward. A no. 15 scalpel blade was used to further free and smooth the underlying side from residual muscle and connective tissue fibres. The flap was free enough to permit movement to the recipient site, with no tension.

Since tension was encountered when attempting to position the pedicle flap over the recipient site, a cutback or releasing incision was required to relieve the tension. The pedicle flap was placed coronally 1 to 2 mm onto the recipient tooth's enamel or to the maximum height that the interproximal tissue would allow. The peak theory refers to the idea that the maximum height for gaining coverage is determined by the interproximal tissue height.

5 mL of blood was drawn into a 10 mL test tube without an anticoagulant and immediately centrifuged for 10 minutes at 3000 rpm. The PRF membrane was created by squeezing the fluids out of a fibrin clot. The PRF membrane was applied to the denuded roots and secured. The flap was then slid over the membrane and sling sutures were used to secure it.

Suturing was done with 4-0 vicryl suture. Except for a sling suture, which was used to pull the papillae inter-proximally and hold the tissue tightly against the tooth's neck, all sutures were interrupted. At the donor site, a PRF membrane was used as bandage and a tin foil of the appropriate size was adapted and a Coe-pack was placed. Antibiotics and analgesics were prescribed for 5 days following surgery. Healing was uneventful, there was no apical displacement of gingiva at the donor site, and the recession was completely covered.



Pre operative V shaped incision made about the exposed root



Final dissection of pedicle in an apico-occlusal direction  
The cut back or releasing incision



Positioning of the pedicle over the denuded root  
PRF membrane placed



Suturing Tin foil placed



Periodontal dressing placed

## DISCUSSION

Treatment of gingival recession for aesthetics or root sensitivity is a common request in patients with high standards of oral hygiene.<sup>11</sup> The ultimate goal of a root coverage procedure, regardless of the surgical

approach, is complete coverage of the recession defect and optimal integration of the covering tissue with the adjacent soft tissue. The LPG has been used successfully to treat localised gingival recessions.<sup>12-14</sup> The benefits of this technique include reduced hypersensitivity, aesthetic colour matching, and a high percentage of root coverage with a good blood supply to the reflected flap.

However, numerous limitations must be considered when using this technique. These include the following:

1. The interdental papillary tissue adjacent to the area of the recession should be thick.
2. There should be no deep periodontal pockets and bone loss beyond the mucogingival junction at the interdental areas of the affected tooth.
3. Separate surgical procedures are needed in presence of multiple adjacent recessions.
4. A shallow vestibule also may jeopardize outcomes.

The drawbacks of this method include the possibility of bone loss and gingival recession at the donor site.<sup>15</sup>

The easily applied PRF membrane functions similarly to a fibrin bandage, acting as a matrix to accelerate wound edge healing. It also offers significant postoperative surgical site protection.<sup>16</sup>

Our case results showed that the proposed approach of lateral pedicle graft for root coverage was a very effective procedure for treating isolated gingival recessions in patients with aesthetic demands, as it resulted in optimum soft tissue root coverage. The use of PRF membrane to cover the exposed donor site prevented gingival recession or bone exposure and improved healing.



Post operative after 2 weeks

## CONCLUSION:

The loss of gingiva in the anterior region can frequently pose aesthetic and functional challenges for both the clinician and the patient. It is critical to provide the best functional and aesthetic solution for missing gingival tissue while also preserving periodontal health. When replacing lost tissue where a large amount of tissue is missing, lateral pedicle grafts can produce significant aesthetic and functional results and the disadvantages of LPG could be avoided with the use of PRF membrane.

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