

## TREATMENT OF GINGIVAL RECESSIO WITH PEDICLE GRAFT

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### ABSTRACT

*One of the most common esthetic concerns associated with the periodontal tissues is gingival recession. Gingival recession is the exposure of root surfaces due to apical migration of the gingival tissue margins; gingival margin migrates apical to the cement-enamel junction, Therefore this deformity should be treated at its earliest detection. Exposed root surfaces are more likely to develop root sensitivity and root caries. Among various procedures, laterally positioned pedicle graft (LPG) is widely used successfully to cover recession defects. The main advantages of the laterally positioned pedicle graft are that it is relatively easy and not time-consuming, it produces excellent esthetic results and no second surgical site is involved for donor harvesting. The Present case report is about the successful surgical management of a patient with gingival recession i.e., Miller's class III defect using laterally positioned pedicle graft.*

**Key Words:** Pedicle graft, gum flap, gingival flap, gum recession.

### INTRODUCTION

Gingival recession is defined as the displacement of the gingival margin apical to the cemento-enamel junction. To understand recession, it helps to distinguish between the actual and apparent position of the gingiva. The actual position is the level of the coronal end of the epithelial attachment on the tooth, whereas the apparent position is the level of the crest of the gingival margin. The severity of the recession is determined by the actual position of the gingiva, not its apparent position.<sup>1</sup> Gingival recession is most likely the result of the cumulative effect of minor pathologic involvement and repeated minor direct trauma to the gingiva. It implies the loss of periodontal connective tissue fibers along with root cementum and alveolar bone. The most significant factors causing gingival recession are considered to be periodontal disease, improper oral hygiene measures, repeated minor trauma (faulty tooth brushing) and iatrogenic dentistry, along with some predisposing factors such as thin gingiva, a prominent root surface, bony dehiscence, abnormal

tooth position, frenal pull, , and some orthodontic movement of teeth.<sup>2</sup>

A variety of treatment options are available for treating gingival recession. Therefore, different periodontal surgical procedures have been suggested for treating gingival recession. These surgical procedures can be classified as Pedicle soft tissue grafting, free soft tissue grafting or combination of both. The pedicle graft was introduced in 1956 by Grupe and Warren<sup>3</sup> for root coverage as a laterally repositioned full thickness flap. Pedicle grafts are based on simple concept of moving donor tissue laterally to cover an adjacent defect. It provides sufficient esthetic results.<sup>4</sup> At first it was described as the 'The lateral sliding flap' the procedure was then modified and named as 'laterally positioned flap'. The modification was, in incision design.<sup>5</sup>

### CASE HISTORY

A 36 years old non smoker male healthy patient presented to Periodontology department of Federal Government Polyclinic Hospital, Islamabad, with chief complaints of buccal gingival recession in upper left 1st premolar tooth. The patient was assessed and gingival recession was graded as Miller's class III GR. A comprehensive treatment was planned. On Clinical examination the oral hygiene of the patient was satisfactory there was no previous surgical attempt to correct recession in this patient. The patient was screened for routine blood investigations which are as follows:

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Test	Result	Units	Normal Range
WBC	6400	/mm <sup>3</sup>	4000-11000
RBC	5.54	/ul	4.5-6.5
Hemoglobin	15.7	g/dl	13.5-17.5 male
Hematocrit	43.40	%	40-54 males
Platelets	36.20	g/dl	32-35
Neutrophils	40.40	%	40-80
Lymphocytes	49.10	%	20-40



Fig 1: Gingival recession in maxillary first premolar



Fig 2: Flap in place covering the defect



Fig 3: Perio- Pack in Place after surgery



Fig 4: Two weeks post op showing early epithelization



Fig 5: Two months Post op showing complete epithelization

The patient was both HBsAg and A-HCV non-reactive. Periapical radiograph was taken for bone loss assessment. In which no horizontal or vertical bone loss was observed. A comprehensive treatment was planned, which included phase 1 therapy and phase 2 therapy. Phase 1 therapy in the form of oral prophylaxis and root planning with oral hygiene instructions and chemical antimicrobial therapy in the form of metronidazole 400mg twice a day and amoxicillin 500mg Three times a day with 0.2% chlorhexidine gluconate as a mouth wash. Baseline gingival recession height was measured with Williams periodontal probe and grouped as group 1 (3-4mm), group 2 (5-7mm) and group 3 ( $\geq 8$ mm). In phase 2 therapy surgical procedure was done. After local anesthesia (2% lignocaine hydrochloride with 1:80,000 epinephrine), first a V shape incision was made with blade no.15 in the gingival recession area making a wide external bevel incision on mesial aspect and internal bevel on distal aspect. Then the V shape gingiva was removed and beveled for flap adaptation. The exposed area was properly irrigated with normal saline and root conditioning was performed with EDTA, Hydrogenperoxide and normal saline. The firm vertical releasing incision was made at mesial of left upper first molar then adjacent partial thickness pedicle flap was reflected from the donor area, leaving about 1mm of marginal gingiva intact, the width of which was more than  $1\frac{1}{2}$  times the area of gingival recession. The pedicle flap was then covered over the recipient site and finger pressure was applied with a gauze pack until the graft was firmly seated. It was then carefully sutured with 3-0 non-resorbable silk without tension. Good adaptation of the flap to the underlying tissue is essential for adequate diffusion. Periodontal dressing was given thereafter. The patient was discharged with postoperative instructions along with NSAIDs for 3 days and Amoxicillin 500mg, Metronidazole 400mg three times a day for seven days to avoid postoperative pain and infection.

The patient was recalled after 7 days. The periodontal dressing along with sutures were removed and thoroughly irrigated with normal saline. The surgical site was examined for uneventful healing. The defect



created at the donor site healed by secondary intension. The patient was instructed to use soft tooth brush for mechanical plaque control in the surgical area. Oral hygiene instructions were re-instructed. The patient was monitored postoperatively on regular basis, to ensure good oral hygiene in the surgical area.

## DISCUSSIONS

A pedicle flap of gingiva can be raised from an edentulous ridge, adjacent teeth, or from existing gingiva on the tooth and moved laterally or coronally to replace alveolar mucosa as marginal tissues. The procedure can be used to cover an exposed root or to eliminate a gingival defect if the root is not too prominent in the arch. It was originally described as a "sliding flap" or lateral pedicle flap (LPF) that started as full thickness then became split thickness at the muco-gingival junction.<sup>5</sup> The LPF has been primarily indicated for isolated recession defects on mandibular or maxillary teeth. Investigations of the LPF technique show a mean defect coverage ranging from 61% to 74% with a mean for all studies of 67%. The sliding pedicle graft procedure was performed to cover the root of tooth no 25.<sup>5,6</sup>

Laterally positioned pedicle graft, a technique which was introduced by Grupe and Warren in 1956, represents one of the first in the series of procedures of muco-gingival surgery designed to cover the exposed root surfaces. In 1966, Grupe modified the lateral pedicle technique using submarginal incision at the donor site so that no denuded osseous surfaces would be created. This technique was then evaluated by other investigators, like Smukler, 1976,<sup>6</sup> and the success of this root coverage procedure was found to be in the range of 69% to 72%. Other modifications of lateral pedicle grafts are given, in which, split thickness flap was taken to minimize recession at donor site, cutback incision at the base of the flap and a free graft to cover the donor area.<sup>7</sup> Indications for lateral pedicle grafts are sufficient width, length, thickness of keratinized tissue. Coverage limited to 1-2 teeth, sufficient depth of vestibule and narrow mesio-distal dimension of recession.<sup>8</sup>

Contraindications are insufficient width, length, thickness of keratinized tissue, presence of fenestration or dehiscence at donor site, extremely protrusive teeth, deep PDL pockets, loss of interdental bone and narrow oral vestibule. The advantages of lateral pedicle flap are its simplicity, presence of only one surgical site and good vascularity of pedicle.<sup>9,10</sup> Whereas its disadvantages are that the amount of keratinized attached gingiva that is the pre requisite, probable recession at donor site, dehiscence or fenestration at donor and limitation to

only 1 or 2 teeth. Often times there might be cases of failure to cover the denuded surface and the reasons for that could be attributed to tension at base of distal incision, too narrow pedicle.<sup>11,12</sup> Moreover, full thickness flap to cover might lead to exposure of bone which leads to bone loss and poor stabilization and mobility of the graft.<sup>13</sup> In the present case, there were no such complications at the follow up of 2 weeks, 1 month and two months period and complete epithelization was observed within a period of two 2 months time and the patient was satisfied with the outcome of the surgery.

## CONCLUSION

In the present case a laterally positioned graft with vertical releasing incision was used to cover miller's class III defect in tooth no. 25. This technique has been demonstrated to be reliable and predictable treatment modality for obtaining root coverage in recession defects for complete or partial root coverage. However careful case selection and surgical management is critical if a successful outcome is to be achieved.

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## CONTRIBUTION BY AUTHORS

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|---------------------------|---------------------------|
| <b>1 Rehan Khalid:</b>    | Main writer.              |
| <b>2 Tajamal Hussain:</b> | Data collection.          |
| <b>3 Noorul Amin:</b>     | Helped in methodology.    |
| <b>4 Qurat-ul-Ain:</b>    | Proof reading/discussion. |