

# Root coverage with laterally sliding flap Case Series

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## Introduction

Gingival recession is defined as exposure of the root surface due to a displacement of the gingival margin apical to the cemento-enamel junction.<sup>1</sup> It may be localized or generalized and can be associated with one or more tooth surfaces. Its etiology is multifactorial and may include plaque-induced inflammation, calculus, restorative iatrogenic factors, trauma from improper oral hygiene practices, tooth malpositions, high frenum attachment and uncontrolled orthodontic movements.<sup>2</sup> Gingival recession is also an outcome of periodontal therapy. A variety of mucogingival surgeries have been suggested for root coverage. The pedicle graft was the first periodontal plastic surgery procedure proposed in 1956 for root coverage.<sup>4</sup> At first it was described as the 'lateral sliding flap'. The procedure was then modified and named as the laterally positioned flap. The 'oblique rotational flap', the 'rotation flap' and the 'transpositioned flap' are modifications in incision design. When the lateral movement is both mesial and distal to the defect, the flap is called a double papilla flap.<sup>5</sup> All these procedures have a common requirement of adequate width of attached gingiva prior to root coverage procedures.<sup>6</sup> The initial part of the management of the patient with gingival recession should be directed towards correcting the etiological factors. These types of graft remain attached at their base and involve the positioning of soft tissue over the recession defect; they retain their own blood supply during their transfer to a new location. Lateral positioned flap is widely used successfully to cover Miller Class-I and Class-II recession defects but its use in class-III and Class-IV defects is not well documented in history.<sup>7</sup> Pedicle grafts are based on the simple concept of moving donor tissue laterally to cover an adjacent defect. The defect created

## ABSTRACT:

Marginal gingival recession is of common concern, specially when in the anterior teeth due to functional and aesthetic problems. Recession may lead to deterioration in the esthetic appearance, dentin hypersensitivity and inability to perform proper oral hygiene procedures. Various surgical techniques have been introduced to correct gingival recession defects. This article presents some cases which were successfully managed by lateral pedicle technique for root coverage in a single tooth in the lower anterior region. In this technique the soft tissue adjacent to the recession is positioned over the defect. Which resulted in an esthetically healthy periodontium alongwith good patient's acceptance. The outcome of this procedure resulted in clinically significant amount of root coverage.

**Key words:** Gingival recession, lateral position flap, pedical graft, root coverage.

at the donor site heals by secondary intention. After healing, there may be some degree of recession at the donor site. This is a major drawback of this procedure. The advantages of pedicle graft are predictable correction of gingival recession is possible as the graft has an uninterrupted blood supply, postoperative discomfort is usually minor because no second surgery or another surgical site is involved. Also color of the graft matches the adjacent gingiva, this technique provides good esthetics. This article presents two cases which were successfully managed by lateral pedicle technique for root coverage in a single tooth in the lower anterior region.

### **Case Report 1-**

A female patient of age 22 years, reported to the Faculty of Dental Sciences, Banaras Hindu University, Varanasi, Uttar Pradesh, with a chief complain of receding gums in lower anterior teeth. The recession was localized and Class II according to Miller's classification in tooth 31 (Fig. 1,2). The recession was about 3mm and the width of attached gingiva was 2mm. I.O.P.A radiograph in relation to the tooth 31 revealed adequate interdental bone support. The patient was medically sound and fit, so a surgical procedure was planned. Scaling and root planing was done prior to surgery. An informed consent form was explained and signed by the patient.

### **Surgical technique**

After local anesthesia, (2% lignocaine hydrochloride with 1:80,000 epinephrine) the marginal epithelium surrounding the tooth 31 was removed to prepare a recipient bed (Fig.-3). The adjacent partial-thickness pedicle flap from 32 and 33 (Fig. 4) was reflected, leaving about 1mm of marginal gingiva intact, of a width more than 1½ times the area of gingival recession. Thereafter root conditioning was done with tetracycline HCl on the exposed root surface of 31 to allow biological attachment of the grafted tissue to it.<sup>7</sup> The pedicle flap was then covered over the recipient site on 31 and finger pressure was applied with a gauze piece until the graft was firmly seated. It was then carefully secured with interrupted stabilization resorbable sutures without tension (Fig.5). Good adaptation of the flap to the underlying tissues is essential for adequate diffusion. Periodontal dressing was given after surgery (Fig.6). Patient was discharged with post operative instructions and medications for five days to avoid post-operative pain and swelling. Patient was recalled after 10 days for

check-up. The surgical site was examined for uneventful healing. There was no post-operative complication and healing was satisfactory. The defect created at the donor site heals by second any intention. Patient was instructed to use soft toothbrush for mechanical plaque control in surgical area. Patient was monitored on weekly schedule postoperatively, to ensure good oral hygiene in the surgerized area. The re-evaluation of this area at 3months follow-up showed no recurrence (Fig.7).

### **Case Report 2-**

A female patient of age 28 years, reported with a chief complaint of sensitivity in lower anterior teeth. The recession was localized and Class II according to Miller's classification in tooth 41 (Fig.-8). The recession was about 4mm and the width of attached gingiva was 3mm. I.O.P.A radiograph in relation to the tooth 41 revealed adequate interdental bone support. The patient was prepared for surgical procedure with thorough scaling and root planing.

After local anesthesia, the recipient bed was prepared surrounding the tooth 41 was removed to prepare a recipient bed. The adjacent partial-thickness pedicle flap from 42 was reflected with a width more than 1½ times the area of gingival recession. Thereafter root conditioning was done with tetracycline HCl on the exposed root surface of 41. The pedicle flap was then covered over the recipient site on 41 and it was then carefully secured with interrupted stabilization resorbable sutures without tension (Fig.9). Periodontal dressing was given. Patient was discharged with all the same post operative instructions as in the above case. Patient was monitored on weekly schedule postoperatively, to ensure good oral hygiene in the surgerized area. The re-evaluation of this area at 3 months follow-up showed no recurrence (Fig.10).

### **Discussion -**

Gingival recessions may occur without any symptoms but it may give rise to patient concern about poor esthetics, dentine hypersensitivity, inability to perform oral hygiene procedures and loss of the tooth. There are currently different techniques for root coverage but it is often difficult to anticipate the success rate of root coverage procedures since coverage depends on several factors, including the classification and location of the recession and the technique used. The selection of surgical technique also depends on several factors, including the anatomy of the defect site, size of the recession defect, the presence or absence of keratinized tissue adjacent to the defect, the width and height of the



**Fig. 1:** Pre-operative 3mm recession



**Fig. 2:** Pre-operative mesio-distal width



**Fig. 3-** Recipient bed prepared



**Fig. 4-** Partial thickness pedicle flap reflected



**Fig. 5-** Sutures placed



**Fig. 6-** Periodontal dressing placed



**Fig. 7-** Post-operative after 3 months



**Fig. 8-** Pre-operative 4mm recession



**Fig. 9-** Sutures placed



**Fig. 10-** Post-operative after 3 months

interdental soft tissue and the depth of the vestibule or the presence of frenula.<sup>8</sup> In this case report a lateral pedicle flap technique was used for successful root coverage. The reported mean percentage of root coverage ranges between 34% and 82%.<sup>9</sup> Indication of this technique is to repair an isolated area of gingival recession when sufficient width, length and thickness of keratinized tissue adjacent to the area of gingival recession.<sup>10</sup> It is well stated that a better root coverage outcomes were only achieved in cases with adequate height and width of keratinized tissue.<sup>11</sup> It is recommended in class I and II shallow recessions according to Miller.<sup>7</sup> Contraindications include if the donor site lacks sufficient attached gingiva or if the donor site has a fenestration or dehiscence of its supporting bone. In this, the flap remains attached at their base so that they retain their own blood supply during their transfer to a new location. Blood supply after this procedure is maintained from the areas bordering the recession defect and from the pedicle. To preserve the integrity of marginal gingiva at donor site, sub marginal incision was performed. Stability and dimension of the laterally positioned flap (the wider the pedicle, the greater the blood supply to the marginal portion of the flap) is critical for accomplishing root coverage. Tissue thickness of the flap is an important aspect on the root coverage predictability and an improvement in esthetic outcome.<sup>12</sup> Precise determination of the location of the CEJ and mucogingival junction prior to surgery and precise placement of incisions are necessary in order to achieve optimum esthetics.<sup>13</sup> Studies have shown that with a rigid case selection the laterally positioned flap is an effective method in treating isolated gingival recession.<sup>14</sup> The advantages of pedicle graft are predictable correction of gingival recession is possible as the graft has an uninterrupted blood supply, postoperative discomfort is usually minor because no second surgery or another surgical site is involved. Also color of the graft matches the adjacent gingiva, this technique provides good esthetics. The disadvantages of this method are possible bone loss and gingival recession at donor site.<sup>15</sup> In this case the post-operative esthetic result was satisfactory for the patient. The secondary outcome variables were recession reduction, clinical attachment gain, keratinized tissue gain, aesthetic satisfaction, reduced root sensitivity and post-operative patient pain. Clinical results 3 to 9 months postoperatively were favorable with no recurrence. Thus we can say laterally positioned flap is a highly predictable and effective root coverage surgical procedure.

## Conclusion -

When esthetics is the priority and periodontal health is good then surgical root coverage is a potentially useful therapy. Careful pre-operative diagnosis and appropriate case selection are prerequisites for surgical success. In the above cases, lateral sliding flap was used for successful management of isolated recession defect in the lower anterior region. This technique was easier with fewer complications. The advantages of this technique are reduced hypersensitivity, esthetic color matching, good blood supply to the reflected flap with high percentage of root coverage. Patient was highly satisfied with the treatment outcome.

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