doi:10.5368/aedj.2011.3.2.2.3

LATERAL PEDICLE GRAFTS, A BEST ALTERNATIVE FOR FREE GINGIVAL AUTOGRAFTS – A CASE REPORT

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ABSTRACT

Root coverage is achieved by many procedures like pedicle grafts, free gingival autografts and connective tissue grafts. Several studies states that Root coverage using connective tissue grafts has high success rate in wide-and-deep gingival recessions. Use of connective tissue grafts has disadvantages like creation of second surgical site and post operative colour harmony is less. For narrow and shallow gingival recession, Lateral pedicle grafts surgical technique provide complete root coverage with complete gain in attachment level and excellent post-operative colour harmony with adjacent tissues. Few clinical studies states that the success rate with Lateral pedicle graft is 70%, this surgical technique is preferred over free gingival autografts in narrow and shallow gingival defects. This case report present the predictability of root coverage by using Lateral pedicle grafts in narrow and shallow gingival recessions.

KEY WORDS:. **Lateral pedicle grafts, Free gingival autografts, Gingival marginal recession, Attachment loss**

INTRODUCTION

The main objective of treating a denuded root surface is for esthetics and for treating hypersensitivity. A denuded root surface is not esthetically pleasible and it causes hypersensitivity. There are two main causes that lead to gingival recessions, they are plaque induced periodontal inflammation and trauma caused by faulty tooth brushing[1]. Other factors that will lead to gingival recession are more buccal or lingual positioning of tooth, frenal and muscle attachment that encroach on the marginal gingival tissue and orthodontic tooth movement through a thin marginal bone.

The understanding and knowledge of different conditions of denuded root surfaces is paramount importance for predictable root coverage[2]. Several classifications of gingival recessions were proposed but two classifications are helpful for predictability of root coverage procedures. In 1960 Sullivan and Atkins classified gingival recessions into four morphologic categories as, a) Shallow-Narrow, b) Shallow-Wide, c) Deep-Narrow and d) Deep-Wide[3]. This classification was not useful to the clinician to predict outcome of root coverage procedures. In 1985, Miller has given a useful classification of gingival recession, taking into consideration of anticipated root coverage[4]. According to this classification, a complete root coverage is achieved in Miller's Class-I and Class-II gingival recessions, and only partial coverage may be expected in Class-III. But root coverage is not amenable in Class-IV gingival recession cases.

Following surgical procedures are indicated for treatment of gingival recessions[5], they include

a) Lateral pedicle graft
b) Double papilla flap
c) Oblique rotated flap
d) Coronally repositioned flap
e) Semilunar coronally repositioned flap.
f) Autogenous free soft tissue grafts which include an epithelialized graft and a sub epithelial connective tissue graft.

For single tooth root coverage when adequate amount and thickness of keratinized gingival in recession area, degree of gingival recession is shallow and narrow (Class-I to Class-II gingival recession) and for better post-operative colour harmony, "Lateral pedicle graft" technique is very much indicated[6]. The advantages of Lateral pedicle grafts compared to free gingival autografts is

a) One surgical site.
b) Preservation of blood supply to pedicle graft which will prevent graft necrosis and rejection.
c) Excellent post operative colour harmony with adjacent gingival tissues.

Surgical Technique:

A male patient aged 26 years reported to the Department of Periodontics, Meghna Institute of Dental Sciences, Nizamabad, with a chief complaint of recession of gum and mild hypersensitivity in relation to left

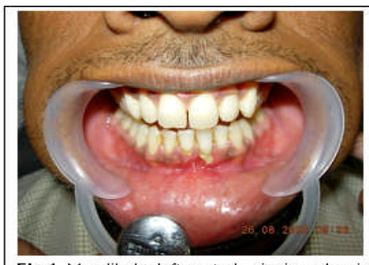

Fig 1. Mandibular left central incisor showing gingival recession

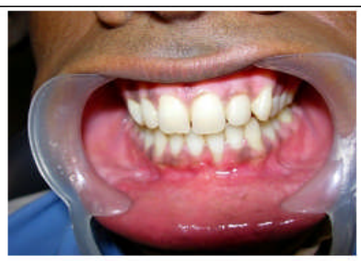

Fig 2. Gingival recession after oral prophylaxis

Fig 3. Lateral pedicle graft taken adjacent donor site

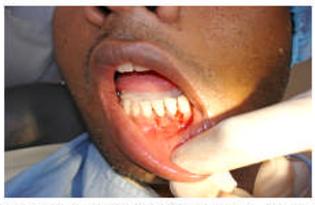

Fig 4. Lateral pedicle graft rotated to recipient site

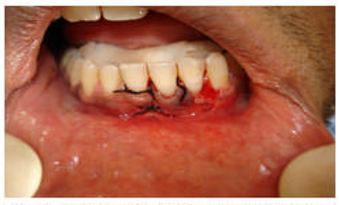

Fig 5. Pedicle graft is stabilized with sutures

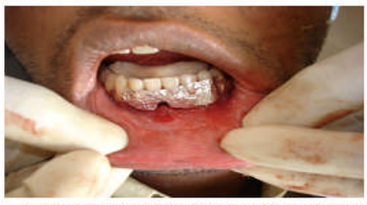

Fig.6.Tin foil is placed over the Lateral pedicle graft.

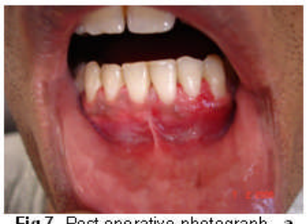

Fig 7. Post operative photograph a after ten days of surgery.

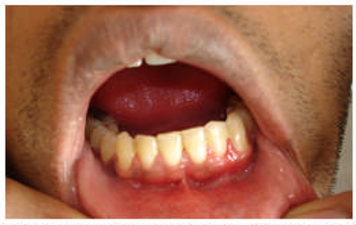

Fig 8. Post operative photograph One month of surgery

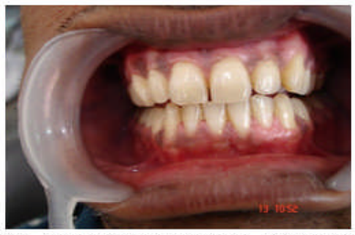

Fig 9. Post operative photograph Six month of surgery

Mandibular central incisor. On intraoral examination, the Mandibular left central incisor showed gingival marginal recession with attachment loss of 5mm **(Fig.1)** on the facial surface is seen without loss of interdental papilla. The recession is covered with band of supra gingival calculus. The gingival recession was noticed 8-months back and it was progressed to present condition. Patient had developed mild sensitivity 2months because of the gingival recession. Marginal gingiva showed mild signs of inflammation.

On extra oral examination there were no palpable lymph-nodes, face is bilaterally symmetrical and lips were competent. According to Miller's classification the present detect is classified as Class-I gingival tissue recession.

1) Lateral pedical graft surgical technique for treatment of isolated or single tooth gingival marginal recession were introduced by "Grupe and Warren", since then this technique was very widely used[7,8]. In this surgical procedure the adjacent keratinized gingiva (Donor site) is rotated to cover the denuded root surface (Recipient site). Following indications have to be followed strictly before starting the surgical technique.

   a) Sufficient amount, length and thickness of keratinized gingiva must exist adjacent to the gingival recession.
   b) Coverage of denuded root is limited to one to two teeth.
   c) This method is most suitable in Mandibular anterior area because there exists a narrow mesio-distal dimension.

Lateral pedicle flap design:

A 'V' – shaped incision was made in the peripheral gingiva in the gingival recession area of tooth 31, while preserving the sufficient interdental papilla on the distal aspect of 31. A wide external bevel incision is made with a blade no.15 on the mesial aspect of the defect and internal bevel incision on the distal aspect of the defect is made which creates a close adaptation of the flaps after rotation. The 'v' – shaped gingival tissue should be removed gently. Meticulous scaling and root planning was done on the exposed root surface **(Fig.2)**. An internal bevel incision is given towards the alveolar bone crest from the free marginal gingiva of the donor site. A vertical incision is given one and one-half tooth from recipient site. Reflect a full-thickness pedicle graft from the donor site **(Fig.3)**. Care should be taken not to strain the full-thickness pedicle graft after reflection. If the pedicle flap is strained, then a releasing incision of the periosteum or a

cut back incision is given at the base of the flap. Rotate the pedicle graft laterally **(Fig.4)** to the recipient site and see that the denuded root surface is completely covered without any tension or stain in the pedicle graft. Root should be completely covered with pedicle graft and it is sutured coronal to the CEJ **(Fig.5)** approximately 1mm which can prevent postoperative recession and exposure of the root surface. The lateral pedicle graft should be protected with a tin-toil **(Fig.6)** and it is covered with periodontal surgical dressings.

Post-Surgical follow-up

The patient was instructed regarding post operative care of the surgical site. He was advised not to brush on the operated area. He was advised to use chlorhexidine gluconate mouth wash of 0.12% twice daily. The patient was also kept on a course of Antibiotic therapy. Sutures were removed 10days after surgery and the examination of surgical site showed complete coverage **(Fig.7)** of the root surface. Again patient was instructed regarding meticulous plaque controlling procedures like brushing techniques, use of soft-tufted tooth brush and use of chlorhexidine gluconate mouth wash for another two weeks. The patient was recalled after one month **(Fig.8)** and 6months **(Fig.9)** and the surgical site showed complete coverage and also the donor site healed completed. The pedicle graft was successfully taken up on the recipient-site with excellent colour matching with the adjacent tissue. The pedicle graft after 1-month showed no-signs of inflammation and it is firm and attached to the root surface.

Discussion:

This case report presented lateral pedicle graft surgical technique for treatment of isolated or single tooth marginal tissue recession (denuded root surface). Lateral pedicle graft have been shown excellent root coverage unless the indications of this technique were followed. This technique has been used as a replacement to free gingival autografts where second surgical site is necessary. Some times with free gingival autografts blood supply and graft stability will be jeopardized, but that kind of difficulty will not arise for lateral pedicle graft[9].

In this case the predictability of root coverage using lateral pedical graft is complete[10] and the second surgical intervention is avoided.

CONCLUSION

The treatment options considered for the treatment of denuded root surfaces include pedicle graft, free gingival autografts. The predictable outcome of treatment in case of single tooth or isolated gingival recession is excellent and complete coverage can be expected for Miller's Class-I and Class-II conditions using lateral pedicle grafts and also colour matching with the adjacent tissues is also considered to be excellent without another surgical intervention like in free gingival autografts.

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