

Treatment of Gingival Recession by Lateral Positioned Pedicle Graft: A Case Report

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Abstract

Gingival recession (GR) is a condition in which there is an apical shift of gingival margin leading to exposure of root surface. On exposure of root surface, there will be root sensitivity, pain, root caries, poor aesthetic, and ultimately tooth loss. There are various techniques used to treat gingival recession. In this case report, a laterally positioned pedicle graft technique was used to treat gingival recession. A 37-year-old male came to the Department of Periodontics, with a chief complaint of sensitivity in lower left front teeth regions. On clinical examination, there was Miller Class III in 33 with the presence of generalized mild plaque and calculus. It was planned for phase I therapy followed by phase II therapy. So scaling and root planing was performed to reduce inflammation and after 4 weeks, lateral positioned pedicle graft technique was done under infiltration local anesthesia. The subject was instructed to maintain oral hygiene. After 2 months, it was found significant coverage of root with keratinized gingiva. He was very satisfied with the result.

Keywords: *Gingival recession, laterally positioned pedicle graft, root coverage, root planing, scaling.*

Introduction

Gingival recession (GR) is a condition in which there is an apical shift of gingival margin from cemento-enamel junction, leading to exposure of root surface.¹ On exposure of root surface, there will be root sensitivity, pain, root caries, poor aesthetic, and ultimately tooth loss.² The severity of GR is found more with age progression, smoking, labially placed tooth, abnormal frenal attachment and sites with supra- and sub-gingival calculus.³ This GR may be due to various etiopathogenesis.⁴ The most common etiology is faulty tooth brushing and labially placed tooth. Many techniques and flap designs are performed to treat GR.⁵

Among them, some techniques do not need a donor site as a pedicle graft, while others do as a free autogenous graft. It is very difficult to predict the success rate among various techniques used for the root coverage or the treatment of GR. The success rate of these techniques depends upon several factors such as Miller classification, location of the recession, operator's skill, patient maintenance, patient systemic health and the technique performed.² The gingival dimension can be assessed by the height (the distance between the soft tissue margin and the mucogingival junction which is measured in millimeter). This gingival height plays an important role to predict the successful outcome in gingival augmentation procedure (root coverage procedures).³ Various root coverage techniques are used for the gingival augmentation such as free gingival graft, free connective tissue graft, laterally positioned pedicle graft, subepithelial connective tissue graft, guided tissue regeneration etc.⁶⁻⁹ The pedicle graft is different from free autogenous soft tissue graft as the base of pedicle graft contains its vascular supply, which ultimately provides nutrition to the graft and reestablish the blood vessel to the recipient region.² This pedicle graft can be partial or full-thickness. For these reasons

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pedicle graft has more success rate compared to free soft tissue graft. Lateral positioned pedicle graft can only be performed when there is sufficient keratinized gingiva present lateral to the GR.⁵ If there is shallow vestibule, the outcome of the treatment becomes poor. However, there is an ideal color match to the adjacent tissue. But it is often inadequate to treat the multiple GRs.³ Another important criterion for the success of root coverage is Miller classification. It has been found that the prognosis of Miller Class I and II GR are almost 100% root coverage, whereas there is partial coverage in Miller Class III and almost none for Class IV GR.¹

This case report is presenting Miller Class III GR in 33 and its treatment with laterally positioned pedicle graft.

Case Report: A 37-year-old male came to the Department of Periodontics, with a chief complaint of sensitivity in lower left front teeth regions. On clinical examination, there was Miller Class III in 33 with the presence of generalized mild plaque and calculus. It was also found that there was slight erythematous color, loss of stippling, accentuated contour, bleeding on probing in the complaint area, and GR with a dimension of height 4mm and width 3mm as shown in **figure 1**. The gingiva in relation to 33 appeared as soft and friable with a shiny and smooth surface.



Figure 1: Preoperative view showing Miller Class III gingival recession in 33

She was almost systemic healthy. She had no tobacco chewing habits. It was noticed the culprit GR tooth was due to labially placed and faulty tooth brushing. There was no abnormal frenal attachment.

Treatment: Phase I therapy (Scaling and root planing) was completed with ultrasonic scaling and Gracey curettes.⁶ After 4 weeks, there was some amount of resolution of gingival inflammation with no bleeding

on probing. So next plan was decided to root coverage. There was a large and thick strip of keratinized tissue present on the adjacent tooth (i.e. lateral incisor). Hence, lateral pedicle graft (lateral positioned flap) was planned.⁷

The removal of epithelium around the denuded root surface was done under local anesthesia (2% lignocaine hydrochloride with 1:80,000 epinephrine). It led to exposure of connective tissue which was present under the epithelium. This exposed connective tissue acted as a recipient site for the laterally positioned pedicle graft. Then exposed root surface was scaled and root planed properly. A vertical incision from the gingival margin to outline a flap adjacent to the recipient site was done with a #15 blade. Then the periosteum was incised and the incision was extended into the oral mucosa to the level of the base of the recipient site. In this way a partial-thickness flap was reflected. A releasing incision, a short oblique incision into the alveolar mucosa at the distal corner of the flap, in the direction of the recipient site, was made to relief from the tension on the flap. Then partial-thickness flap or graft was placed laterally over the denuded clean root surface as shown in **figure 2** and then suture was given to stabilize the flap as shown in **figure 3** and then coe-pack was given with postoperative instruction and followed up to 6 months.



Figure 2: Reflection of partial-thickness flap and displaced laterally



Figure 3: Suturing of Lateral displaced flap

The present case was again recalled after 2 weeks of post-surgery to remove the suture. In this time, it was found there was take up the graft with mild inflammation as shown in **figure 4**. Again the patient was recalled after 1 month. It was found that there was a partial resolution of inflammation as shown in **figure 5**. Again the patient was recalled after 6 months, there was partial root coverage with complete resolution of inflammation, no bleeding on probing, presence of stippling and scalloped gingiva, and melanin pigmented pink healthy gingiva in 33 region as shown in **figure 6**. He was highly satisfied with the final result.



Figure 4: After 2 weeks



Figure 5: After 1 month



Figure 6: After 6 months

Discussion

Nowadays, there is an increase in demand for esthetic and functional treatment, which ultimately led to the need for root coverage for the treatment of GR.¹ The root coverage procedures aim to achieve complete root coverage and restore the aesthetic. There are several methods employed for root coverage.² However, free gingival or connective graft needs established circulation on the recipient site for its survival and requires second donor sites.¹⁰ But pedicle graft has the advantages of having good vascularity, adequate attached gingiva in the adjacent tooth, better color match and the chance of creeping effect of marginal gingiva after surgical procedure.¹¹ In the present case report, there was adequate keratinized gingiva adjacent to the involved tooth and favored to select lateral positioned pedicle graft. This technique was first described by Grupe and Warren in 1956.² It can be performed to cover the isolated, denuded root surfaces, with having adequate keratinized gingiva. But there must be adequate vestibular depth. Here a partial-thickness flap was preferred over full-thickness flap, because the partial thickness flap provides the following advantages as rapid healing at the donor sites and reducing the risk of loss of facial bone height.¹⁰ This partial-thickness flap is also indicated in the case of thin facial bone or presence of dehiscence or fenestration. However it cannot be performed in case of thin gingiva, as a partial thickness may not be sufficient for the survival of the flap.⁵ But in our case, there is adequate thickened gingiva, but there was suspect of presence of dehiscence which was examined by trans gingival probing (bone sounding). A releasing incision was made in our case to relieve tension on the flap, which can damage the blood supply on moving the flap or graft.¹¹ But there are some limitations such as depending on length and thickness of donor site gingiva, chances of a recession at donor site.⁵

Conclusion

Lateral pedicle graft technique can be used in isolated GR case with adequate keratinized gingiva and shallow recession variety, which ultimately have high predictability outcomes with less donor site morbidity. Although the long term stability remains questionable, still this procedure can be a viable alternative treatment modality for the root coverage in certain cases.

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Ethical Issues: Approved

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