

CASE REPORT

Free Gingival Graft: A Surgical Boon for Receding Gums

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ABSTRACT

Gingival recession is defined as displacement of the soft tissue margin apical to the cemento-enamel junction. The esthetic demand together with reduction of root sensitivity and management of root caries or cervical abrasion are the main indications for root coverage. Available literature indicates that free gingival graft (FGG) is a reliable procedure for root coverage with a success rate ranging from 76 to 95.5%. In this case report, a 32-year-old female patient having Miller's Class III gingival recession in relation to 31 was treated using free gingival graft with satisfactory postoperative results.

Keywords: Free gingival graft, Gingival recession, Root coverage.

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INTRODUCTION

A significant factor associated with the success of dental therapy is the physiologic well-being of the patient.¹ Gingival recession is a routinely encountered mucogingival problem/defect in clinical practice which if present in the anterior teeth is highly unesthetic and can lead to other associated conditions like root caries and sensitivity. This can in turn have a detrimental effect on the patient's behavior and confidence.

Gingival recession is defined as displacement of the soft tissue margin apical to the cemento-enamel junction. Major causes for this condition include plaque induced periodontal disease, mechanical force, such as faulty tooth brushing, iatrogenic factors like orthodontic movements, faulty restorations and anatomic factors such as malposition, frenum pull, etc.² According to Miller (1982), if the root coverage procedure is quite predictable and

produces patient satisfaction, it should be therapist's obligation to make patients aware of this treatment modality.³

Free gingival graft (FGG) procedure was introduced by Bjorn et al in 1963, and has proven reliable in increasing attached gingiva and stopping progressive gingival recession. Further, long-term stability (up to 4 years) of these treatment outcomes has been demonstrated.⁴

Free gingival graft procedure is indicated in cases with progressive recession, root sensitivity, caries proclivity, oral hygiene facilitation, preorthodontic gingival stabilization and for esthetic considerations. The contraindications are lack of donor tissue thickness, when the mesial distal width of the denuded root is significantly larger than the interproximal periosteal blood supply, so that the graft would not receive an adequate blood supply and an unacceptable color mismatch between the grafted site and its adjacent gingiva.⁵

In this case report, we have discussed a Miller's class III recession in a lower anterior tooth, which was successfully treated by free autogenous soft tissue graft.

CASE REPORT

A 32-year-old female patient reported to the Department of Periodontology, Rajarajeswari Dental College and Hospital, Bengaluru, with a chief complaint of root surface exposure in the lower front tooth region which was esthetically unpleasant (Fig. 1). The patient's medical and dental history was not significant. The oral hygiene status was good. Intraoral examination revealed a labially placed 31 with evident gingival recession. It was diagnosed as class III gingival recession based on Miller's classification (1986). Presurgical therapy included patient education and motivation, scaling and root planing with plaque control instructions. Patient was advised to use a soft bristled tooth brush with the Modified Stillman's technique. At the 1 month recall, the gingival recession measured 5 mm apicocoronally. An IOPA radiograph taken revealed no evidence of interdental bone loss. One step technique of FGG was planned. The procedure was explained to the patient and informed written consent was obtained.

SURGICAL PROCEDURE

Preparation of the recipient bed: Local anesthesia was achieved using lidocaine hydrochloride 2% and 1:200,000

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adrenaline. The exposed root of 31 was planed thoroughly using a Gracey 1-2 curette. A horizontal incision was made at the level of cemento-enamel junction extending from the line angle of adjacent teeth on either side of the recession. At the distal terminals of the horizontal incision, vertical incisions were given extending well into the alveolar mucosa. A partial thickness flap was elevated and excised apically (Fig. 2) followed by root biomodification using tetracycline hydrochloride (50 mg/ml).

Preparation of donor tissue: The amount of donor tissue required was accurately determined by using a tin foil template. The left side of palate between premolar and first molar was selected to harvest the donor tissue using the conventional technique. The initial incision was outlined by placing the tin foil template with no 15 scalpel blade (Fig. 3). Care was taken to place the incision 3 mm from the palatal gingival margin to avoid recession on these teeth. Incisions were made in such a fashion as to create the butt joint margin in the donor tissue. This butt joint margin of the graft was butted against the butt joint margin in the papilla and against the accentuated enamel margins at the cemento-enamel junction. A bevel access incision was made to get an even thickness of the

graft. The incision was made along the occlusal aspect of the palate with no 15 scalpel blade held parallel to the tissue, continued apically, lifting and separating the graft. Tissue pliers was used to retract the graft distally as it was being separated apically and dissected, until the graft was totally freed. The graft obtained was inspected for any glandular or fatty tissue remnants. The thickness of the graft was also checked to ensure the smooth and uniform thickness (Fig. 4). The graft was placed on the recipient bed and sutured by means of interrupted sutures (5-0 Vicryl) at the lateral borders. A vertical stretching suture was given for close adaption of the graft to the tooth surface (Fig. 5). After suturing, a foil and periodontal pack was placed to protect the surgical site (Fig. 6). The palatal wound was protected by a Hawley's retainer.

Postoperative instructions: The patient was asked to refrain from tooth brushing at the surgical site for 10 days. 0.12% chlorhexidine mouth rinsing twice daily for 1 minute for 2 weeks and a course of antibiotics and analgesics was prescribed (amoxicillin 500 mg and ibuprofen 400 mg thrice daily for 5 days).

The pack was removed 10 days postoperatively. The surgical site was irrigated with normal saline and



Fig. 1: Class III gingival recession irt 31



Fig. 2: Preparation of recipient area



Fig. 3: Donor tissue outlined using tin foil template

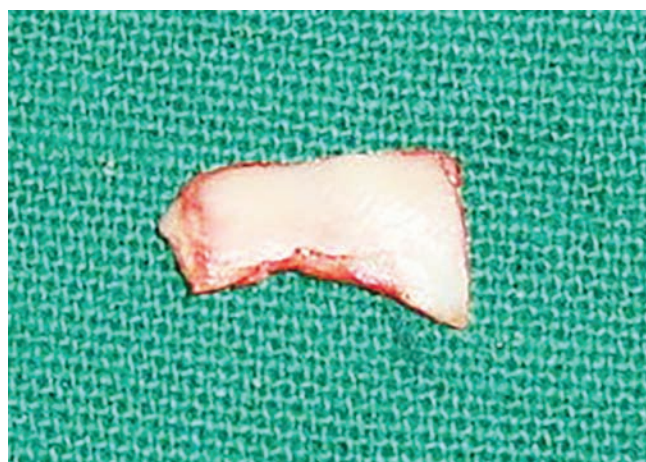


Fig. 4: Free gingival graft



Fig. 5: Suturing the graft to the recipient bed



Fig. 6: Periodontal dressing placed

sutures were removed. The healing of palatal wound was satisfactory and patient did not complain of any pain or discomfort. During the postoperative period, the patient was instructed to use a soft bristled tooth brush with a modified Stillman's technique followed by a 60-second rinse with mouthwash for the next 6 weeks. The case was followed up every month and re-evaluated. At 3 months postoperative visit, a gain of 3 mm in clinical attachment level was noted (Fig. 7).

DISCUSSION

Gingival recession usually creates an esthetic problem and fear of tooth loss due to progressive destruction, and may also be associated with dentin hypersensitivity, root caries, and/or cervical wear. The treatment of gingival recession is mainly aimed to attain a wide band of keratinized gingiva which will provide better plaque control and lead to a possible significant improvement of the periodontal attachment apparatus.¹⁰

Free gingival graft is among the most widely accepted treatment modalities for achieving root coverage. The literatures on FGGs have reported different outcomes with percentages of root coverage ranging from 11 to

100%. These variations may be attributed to differences in the severity of gingival recessions and the surgical techniques used. Successful root coverage with FGG technique was obtained ranging from 90 to 100% in Miller's class I and II gingival recession.⁶

Miller's criteria for successful root coverage state that the soft tissue margin must be at the cemento-enamel junction, clinical attachment to the root, sulcus depth of ≤ 2 mm, and no bleeding on probing. Using these criteria, Miller treated 100 cases of marginal tissue recession with free gingival graft. Root coverage of 100% was attained in the area of deep-wide recession and 100% in shallow-wide recession.²

Holbrook and Ochsenbein also used the free soft tissue autograft as a one step surgical procedure on 50 documented teeth and reported recession of less than 3 mm had 95.5% total root coverage, recession of 3 to 5 mm had coverage of 80% and recession more than 5 mm had 76% coverage.⁷

Sullivan and Atkins reported that FGG offers best results in cases of shallow and narrow recession. According to them, when graft is placed over recession, some amount of 'bridging' can be expected because a portion of grafted tissue which is covering the root will survive by receiving circulation from the vascular portion of the recipient site. In addition to bridging, creeping attachment can result in a postoperative coronal migration of free gingival margin. Factors which favor creeping attachment are narrowness of the recession, the presence of bone positioned interproximally at a coronal level on the facial surface, absence of gross tooth malpositioning, and adequate plaque control.⁸

In our case, complete root coverage was not achieved as it was a Miller's class III recession and the post-treatment outcome was slightly compromised by a malpositioned tooth. However, the patient was reasonably happy with the result obtained, as the esthetic deficit was considerably reduced.



Fig. 7: Postoperative view (3 months)

Miller in 1987 has proposed many factors for incomplete or failure of root coverage. These include improper classification of marginal tissue recession, inadequate root planning, improper root biomodification, improper preparation of recipient site, inadequate graft size and thickness, dehydration of graft, inadequate adaptation of graft to root and remaining periosteal bed, failure to stabilize the graft, excess or prolonged pressure in captions of sutured graft, reduction of inflammation prior to grafting, trauma to graft during initial healing.⁹

In this case, considering all the criteria for a successful root coverage FGG was considered a feasible treatment option. A 3 months follow-up showed a satisfactory result which was well appreciated by the patient with no discomfort. The FGG for root coverage is still a viable and effective modality of mucogingival surgery, despite the fact that other effective root coverage techniques have been developed. Close attention to proper diagnosis and the steps involved in the surgical procedure are crucial in maximizing the predictability of the free gingival graft in correcting mucogingival problems and achieving root coverage.

REFERENCES

1. Lele P, Satyapal T, Mahagaonkar R, Patil V, Mali R. Gingival recession coverage using free gingival autograft: a case report. *J Dent Med Sci* 2013;8(6):47-50.
2. Solanki G. Free gingival autograft: a case report. *Int J Bio Advance Res* 2010;1(1):8-10.
3. Francisco J, Fermín M. Unique creeping attachment after autogenous gingival grafting: case report. *J Can Dent Assoc* 2003;69(7):432-435.
4. Ashok PV, Neetha B. Free gingival autograft: a case report. *Int J Dent Clin* 2010;2(1):37-41.
5. Sonick M. Root Coverage: A comparison of techniques: the free gingival graft versus the subepithelial connective tissue graft. *Pract Periodont Aesthet Dent* 1992;4(8):39-48.
6. Miller PD. Regenerative and reconstructive periodontal plastic surgery. *Dent Clin North Am* 1988;32(2):287-306.
7. Holbrook T, Ochsenbein C. Complete coverage of the denuded root surface with a one-stage gingival graft. *Int J Periodontol Rest Dent* 1983;3(3):8-27.
8. Sullivan H, Atkins J. Free autogenous gingival grafts: utilization of grafts in the treatment of gingival recession. *Periodont* 1968;6(4):152-160.
9. Miller JP. Root coverage with the free gingival graft: factors associated with incomplete coverage. *J Periodontol* 1987; 58(10):674-681.
10. Dilsiz A, Aydin T. Gingival recession associated with orthodontic treatment and root coverage. *J Clin Exp Dent* 2010; 2(1):29-32.