

Standing the Test of Time: Free Gingival Autografts, a Viable Option for Gingival Augmentation- A Report of Two Cases

Vijayalaxmi Venkanna Malali

Department of Periodontology, Army Dental Centre (Research and Referral), Dhaula Kuan, New Delhi, India

Email for correspondence: viju_chandu@yahoo.com

ABSTRACT

Conventionally, free gingival grafts (FGGs) have been judiciously employed in the augmentation of the gingival complex. First described by Bjorn, in 1963, FGGs have been widely used in the treatment of a variety of mucogingival problems. This technique has proved to increase the width of attached gingiva considerably. Furthermore, the results are predictable and also have been reported to be stable. FGG is a surgical modality with reportedly few clinical complications, excessive hemorrhage, necrosis of the graft, and esthetic alterations due to color, mismatch is some of them. Despite the fact of a number of other effective surgical root coverage techniques being developed and routinely used in clinical practice, the FGG still continues to be a viable and effective modality of mucogingival surgery. FGG is the only best treatment option for gingival recession when an increase in the apicocoronal dimension is desired. A proper case selection and execution of the surgical steps are crucial in maximizing the predictability of the FGG in correcting mucogingival problems. Here, in the present case report, two cases of gingival augmentation using free gingival autografts are reported.

Key words: Free gingival autografts, gingiva, gingival recession


INTRODUCTION

Gingival recession is an apical shift of the gingival margin with exposure of the root surface. This migration of the marginal tissue leads to esthetic concerns, dentin hypersensitivity, root caries, and cervical wear. It is, paradoxically, a common finding in patients with a good standard of oral hygiene, as well as in populations with poor oral hygiene. Changing the topography of the margins of tissue to facilitate plaque control is a common indication for root coverage procedures and forms a major aspect of periodontal plastic surgeries. Mucogingival defects can now be

corrected by several periodontal plastic surgical techniques. Each technique has its indications, advantages, and limitations. However, the amount of root coverage that can be achieved through periodontal plastic surgery can be predicted based on Miller's classification of marginal tissue recession.^[1] Despite the fact that other effective root coverage techniques have been developed, the free gingival graft (FGG) continues to be a viable option and effective modality of the treatment for gingival recession when an increase in the apicocoronal dimension has to be achieved. In the present case report, two cases of gingival augmentation using free gingival autografts are reported.

CASE REPORT 1

A 41-year-old female reported to the department of periodontology with a chief complaint of receding gum line and sensitivity in the lower front tooth for the past 2 years. The intraoral soft tissue examination revealed a normal oral mucosa. The gingival examination in relation to 31 and 41 region showed Millers Class III gingival recession with

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31 and 41. The length and width of the gingival recession were 11/4 mm with tooth 41 and 6/4 with tooth 31. The root was denuded for the almost the entire length exposing the root apex with 41. The tooth was non-vital with no associated mobility. After obtaining an informed consent, a treatment plan of augmenting 31 and 41 region with FGG was formulated.

A root canal treatment (RCT) of 41 was done. After local anesthesia, 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 (31 and 41) deep into the papilla, creating a well-defined butt joint. At the distal terminal of the horizontal incision, vertical incisions were given extending into the alveolar mucosa. A partial thickness flap was elevated and excised apically.

The amount of donor tissue needed was determined using a foil template and the donor tissue was harvested from the left side of palate between the first and second premolar which had greater thickness. The thickness of the graft was approximately 1.5 mm. The palatal wound was protected by a prefabricated Hawley's retainer.

The graft was placed on the recipient bed and sutured by means of interrupted sutures at the coronal and apical borders [Figure 1]. The sutures were removed after 2 weeks. The healing of palatal wound and recipient site was



Figure 1: (a) Intraoperative view showing preparation of recipient site of 31 and 41 region; (b) harvesting free gingival graft; (c) suturing of free gingival graft on to the recipient area



Figure 2: Intraoral view of pre- (a) and post-treatment after 3 months (b)

uneventful [Figure 2] and the patient did not complain of any discomfort. A second surgery was planned to cover the residual gingival recession at a later date.

CASE REPORT 2

A 32-year-old male patient reported to the department of periodontology with a chief complaint of receding gum line and sensitivity in the lower front tooth for the past 2 years. The intraoral soft tissue examination revealed Millers Class II gingival recession in relation to 31. The length and width of the gingival recession were 8/3 mm. The root was denuded for the two-third of the length and root apex was exposed. There was gingival inflammation marginally with 31. The tooth was non-vital with no associated mobility.

RCT of 31 was done [Figure 3] followed by apicoectomy and retrograde restoration during the same surgical phase. FGG of 1.5 mm thickness was harvested from the palate and placed on the recipient bed and sutured by means of interrupted sutures at the coronal and apical borders [Figure 4]. The palatal wound was protected by a prefabricated Hawley's retainer.

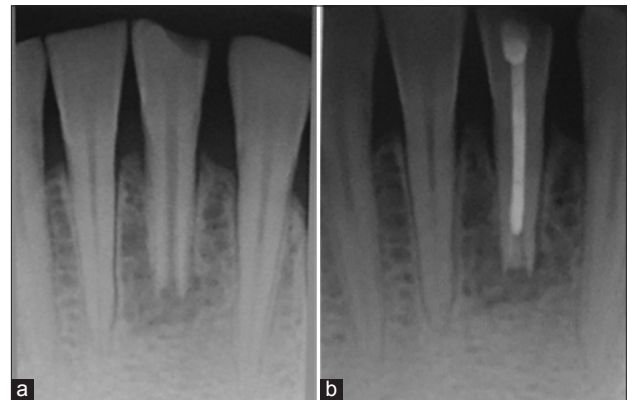


Figure 3: IOPA radiographs of pre- (a) and post-root canal treatment (b) of 31

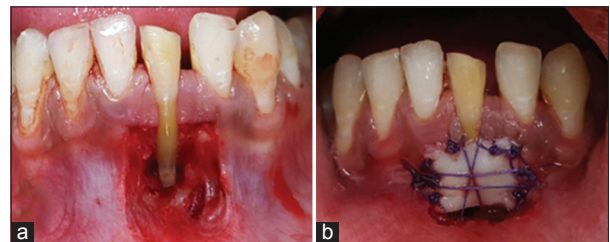


Figure 4: (a) Intraoperative view showing preparation of recipient site, 31 region; (b) free gingival graft sutured on to the recipient bed

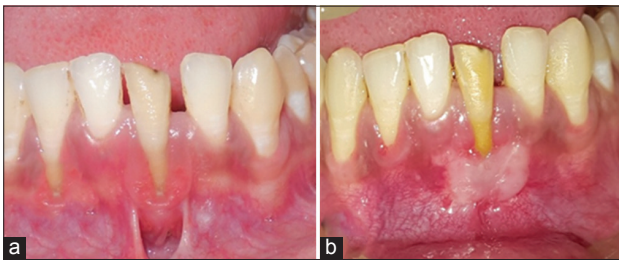


Figure 5: Intraoral view of pre- (a) and post-treatment after 3 months (b)

The healing of palatal wound and recipient site was uneventful [Figure 5] and the patient did not complain of any discomfort. A second surgery was planned to cover the residual gingival recession at a later date followed by prosthetic rehabilitation.

DISCUSSION

In the current practice of periodontics, the clinicians are facing the challenge of not addressing biological and functional and esthetic issues of the periodontium, while providing any particular modality of therapy. The presence of mucogingival problems and gingival recession in anterior segment further complicates the treatment objectives. A wide variety of periodontal plastic surgical procedures has been described to correct mucogingival problems and to cover denuded root surfaces. The purpose of this article is to discuss the rationale and examine the esthetic clinical applications of one of the earliest forms of mucogingival therapy reported the FGG.

The FGG is an autograft obtained from a palatal donor site, an edentulous ridge, or tuberosity. Epithelialized, thin (0.75–1.25 mm) free mucosal grafts from the palate were proposed as remedies for inadequate attached gingiva, shallow vestibule, and frenum tension. Sullivan and Atkins proposed that, whereas the traditional thin free grafts showed success in root coverage of small to moderate gingival defects, the deep and wide lesions had less chance of success.^[2-4] The success of the FGG treatment depends on the ability of the transplanted tissue to display keratinization once situated in its new location. This propensity has been found to be largely determined by the connective tissue on which it is located. Dense connective tissue carrying the genetic specificity for keratinization has been found to produce keratinization when transferred

to previously non-keratinized, mucosal areas.^[5,6] After transplantation to the recipient site, the graft benefits from plasmic diffusion from the adjacent tissue. This helps sustain the graft over avascular root surfaces. The application of an FGG for root coverage was first described by Nabers, in 1966, and with few modifications, the principles and techniques described by Sullivan and Atkins, in 1968, are still valid.^[3,7] The FGG has the advantage of being a predictable procedure when properly performed. However, the FGG may result in an unesthetic “patch-like” appearance and is therefore often contraindicated in the esthetic zone. It is especially indicated for vestibular extension procedures, but the size of the transplanted graft is limited by the availability of donor tissue.

With creeping attachment, an increase in root coverage of approximately 1 mm over a 1-year period post-surgery usually occurs. Due to the predictability and versatility of connective tissue graft, the use of the FGG for root coverage has drastically declined. However, FGG still stands the test of time and best suited in the clinical situations such as increasing the depth of vestibule, increasing the amount of attached gingiva associated with a restoration, and augmenting the area of minimal gingiva before orthodontic treatment. Proper case selection and careful tissue management are the key to the success of the application of these modifications of FGG.^[8,9]

CONCLUSION

The FGG for root coverage is still a feasible and effective treatment procedure in mucogingival surgery. Despite the fact that other effective root coverage techniques have been described, the FGG may still be the best treatment option for gingival recession when an increase in the apicocoronal amount of the keratinized gingival tissues is a desirable treatment outcome such as cases with shallow vestibular depth and cases with inadequate gingival tissue where restorations with subgingival margins are to be placed.

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