Case Report

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Successful Management of Miller's class III Gingival Recession in a Compromised Case using Free Gingival Graft

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ABSTRACT

Background: Unpleasant exposure of roots with elongated appearance of teeth and inability to properly maintain, especially in lower anterior region is the most common problem faced by many patients seeking dental treatment. Variety of treatment options are available to address this problem but free gingival graft remains the treatment of choice, when there is reduced vestibular depth and decreased zone of keratinized tissue in the concerned area. The present case report highlights the success of free gingival graft procedure with improved esthetics in a female patient who was concerned with the longer appearing lower front teeth and difficulty in brushing that area. The patient had a weird habit of tightening the chin with no underlying cause which made the success of the treatment more challenging.

Keywords: Exposure of roots, free gingival graft, esthetics, tightening the chin.

INTRODUCTION

Reconstructive mucogingival surgery enhances the success of periodontal therapy by using techniques that restore and preserve the tissues of the mucogingival complex. Periodontal plastic surgical techniques include pedicle grafts, autogenous grafts and guided tissue regeneration. It was first mentioned in the literature by Bjorn in 1963[1] and he described the FGG (free gingival graft) procedure to increase the zone of attached gingival and to deepen the vestibule.

FGG technique was further applied for the treatment of root recession[2,3]. Successful coverage of exposed roots for esthetics as well as functional reasons has been the objective of various mucogingival problem. When adequate gingiva does not exist in adjacent locations, grafting of gingiva from a remote location is often required to augment the area.[4] By using Free Gingival Graft technique, attached gingiva can be increased in a very predictable way, and the results obtained will be stable[5].

Considering the current available procedures for root coverage, FGG may not be the treatment of choice for root coverage due to the lack of colour match and keloid like healed tissue but some periodontal regeneration has been reported with this technique. The present case report shows successful coverage obtained using free gingival grafts in a compromised case where patient had hyperactive muscle activity.

CASE REPORT

A 32year old female patient reported to Department of Periodontics with the complaint of longer appearing teeth in of lower anterior region and difficulty in maintaining that area. On examination there was Miller's Class III recession in relation to 31 and 41(Fig 1, 2 & 3). Recession depth, recession width and clinical attachment level were recorded for the same (Table 1,2 and 3). Probing depth was 1mm for both 31 and 41. The patient was observed to have the habit of chin tightening with no

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underlying cause. Taking into consideration the above parameters vestibular extension followed by free gingival graft was planned for the patient. Vestibular extention was done in the related region. After 3 months of vestibular extention FGG was carried out. A stent was prepared for protecting the donor site post surgically. Following administration of local anaesthesia, scaling and root planing was performed on both supra and subgingival areas of the root of the affected region. Root biomodification was carried out by applying Tetracycline HCl (250mg/ml) with a cotton pellet on each tooth for 3 minutes. The area was later flushed with saline.

Fig 1: Pre-operative view showing recession depth of 3.5mm in relation to 31.

Fig.2: Pre-operative view showing recession depth of 2mm in relation to 41.

Horizontal incisions were made at the level of CEJ in the interdental papillae between 32 & 31, between 31 & 41 and between 41 & 42. The incisions were at right angles to the gingival surface, creating a well-defined butt joint design. Two vertical incisions diverging apically were then placed at the end of the horizontal incisions 32 and 42 and extended beyond the mucogingival junction. Using sharp dissection, a split thickness flap was elevated to the level of the apical end of the vertical incisions. (Fig 4)

Fig 3: Radiograph showing crestal bone loss in relation to 31, 41.

Fig 4: Preparation of recipient site.

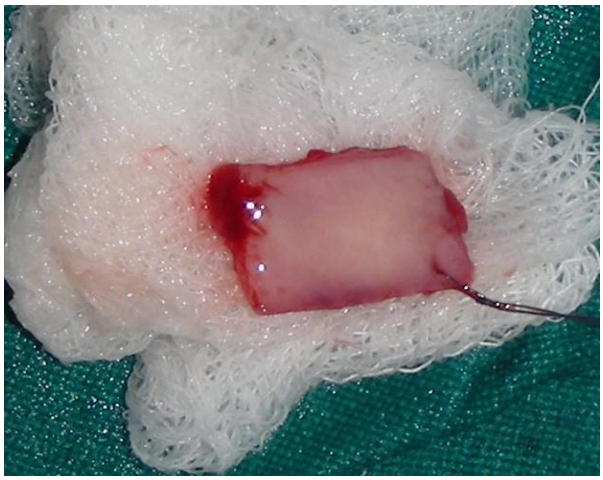

Fig.5: Free gingival graft harvested from the donor site.

Fig 6: Free gingival graft secured at the recipient site with interrupted sutures.

Fig 7: 15 days post-operative view.

Fig 8: Post-operative view after 6 months.

A measurement regarding length and width of the required graft was taken at the recipient site. A tin foil template was prepared for checking the dimensions of the graft required to be harvested which was then placed at the donor site to mark the outlines of the incisions. Two horizontal and two vertical incisions were made to harvest the free gingival graft from the palate. A graft of 15x10mm with a thickness of 1.5mm was harvested from 24, 25, 26 region from the palate (Fig 5) and stabilized at the recipient site with 5-0 vicryl interrupted sutures (Fig 6). The graft was also secured laterally. Reflected split thickness keratinized flap was sutured apical to the graft. Periodontal dressing was given. Hemostasis was obtained at the donor site using pressure pack and the prepared acrylic stent was placed. Analgesics were prescribed to the patient for five days and Chlorhexidine digluconate 0.2% was advised for 2 weeks. Post- operative instructions were given to the patient and sutures removed after 15 days. Follow up was done at regular intervals and after 6 months all the parameters were recorded again.

RESULTS

Healing was uneventful at the treated site and the donor site. The acceptance of graft can be very well appreciated at 15 days interval (Fig 7). The percentage of root coverage obtained was 100% for 41 and 83% for 31 (Fig 8) at 6 months (Table 4). The results show colour mismatch at the operated site which is a major drawback of FGG, but the patient was happy with the overall result.

Table 1 Pre-operative and post-operative measurements of recession depth.

Free gingival graft		Pre-treatment		Post-treatment		Root coverage Obtained	
	Tooth no.	31	41	31	41	31	41
	Recession depth (mm)	3.5	2	1	0	2.5	2

Table 2 Pre-operative and postoperative measurements of recession width

Free gingival graft		Pre-treatment		Post-treatment		Root coverage Obtained	
	Tooth no.	31	41	31	41	31	41
	Recession width (mm)	3	3	2	0	1	3

Table 3 Pre-operative and postoperative Clinical attachment level

Free gingival graft		Pre-treatment		Post-treatment		Gain in Clinical attachment level	
	Tooth no.	31	41	31	41	31	41
	Probing depth (mm)	4.5	3	2	1	2.5	2

Table 4 Percentage of root coverage in terms of recession depth.

Site	% of root coverage
41	100%
31	83%

DISCUSSION

The possibility of root coverage by placing free grafts directly on recession was first discussed by Sullivan & Atkins (1968)[6]. In the Annals of Periodontology (1996), the mean root coverage of the FGG procedure is approximately 72.1%. Pasquinelli demonstrated 83% root coverage 10.5 months following a FGG on a single mandibular premolar with 6 mm of recession[7]. True periodontal regeneration with 4.0 mm of new bone growth and 4.4 mm of new attachment had occurred. The author suggested the thick gingival graft acted as a barrier to epithelial down growth.

In a study published in 1985 Miller achieved 100% root coverage of Class I recessions and 88% of Class II recessions using FGGs[3]. With a similar technique, Matter reported 70% coverage of recessions less than 3 mm wide[7]. Deepalakshmi et al 2006 in six months follow up study demonstrated a mean percentage of 80.3% of root coverage. Four out of ten sites showed 100% root coverage.[8]

Holbrook and Ochsenbein 1983 have used FGG as a single-step procedure to cover denuded root surfaces. In 50 randomly selected cases, recessions less than 3 mm had 95.5% root coverage, recessions of 3 to 5 mm had 80.6% coverage, and recessions more than 5 mm had 76.6% coverage.[9]

Miller described a technique for root coverage using a free soft-tissue autograft with citric acid treatment. Results of 100 consecutively placed grafts showed 100 percent root coverage in Class I defects and 88 percent coverage in Class II defects. The average root coverage for all sites was 3.8 mm with a mean clinical attachment gain of 4.5 mm.[3] Jacqueline et al have demonstrated the use of two-stage free gingival graft procedure for management of inadequate keratinized gingiva and Miller's class III and IV gingival recession. Free gingival graft was used to increase the width of keratinized gingiva followed by a coronally advanced flap for recession coverage.[10]

This particular case had grade III recession in relation to 31 and 41. Vestibular depth was inadequate; loss of attachment was 3mm and 4.5mm respectively. Gingival phenotype was not very thick. To improve the aesthetics and phenotype of gingiva, FGG was considered as the treatment of choice. Grafting procedure was done after 3months of vestibular extension. The technique for FGG was similar to that explained by Bjorn in the year 1963 with modification of suturing the split thickness flap apical to the FGG. The patient had the habit of chin tightening with no related cause, which resulted in excessive tension at the site of surgery. This drawback could have jeopardized the success of FGG hence special care was taken to stabilize and secure the graft to resist the tensional forces along with special instructions to the patient to avoid the same.

CONCLUSION

FGG may still be the best option when apicocoronal dimension of keratinised gingiva is desired in areas of low vestibule depth and inadequate gingival tissue in the concerned region. The case presented here, was successfully attempted to address the need felt by patient for better aesthetic and maintenance. There was an appreciable color mismatch but the patient was happy with the overall outcome.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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