



Management of Multiple Mucogingival Defects by way of Versatile Free Gingival Graft

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Abstract

Background: *Gingival recession is defined as exposure of the root surface by an apical shift in the position of the gingiva. It is most probably the result of the cumulative effect of minor pathologic involvement like inflammation or repeated trauma to the gingiva.² The other etiologic factors are faulty tooth brushing technique (gingival abrasion), tooth malposition, friction from soft tissues (gingival ablation), abnormal frenum attachment. The treatment of gingival recession comes under mucogingival surgery. There are many treatment modalities are present to correct gingival recession defects. They are use of free gingival autograft, free connective tissue autograft, pedicle autografts, laterally (horizontally) positioned, Coronally positioned, Semilunar pedicle (Tarnow), Sub epithelial connective tissue graft (Langer), Guided tissue regeneration, Pouch and tunnel technique. Despite of the advances in technique of correction of gingival recession, free gingival graft continues to be a reliable procedure for increasing the width of keratinized gingiva and stopping the progression of gingival recession.*

Case Presentation: *In the present article discussing two case reports presented with millers class II GR with abnormal frenum pull. Classic technique given Bjorn by using free gingival graft was used. There was a significant reduction in RD after one month and 3months post operatively.*

Conclusion: *The free gingival graft for root coverage is a feasible and effective treatment procedure in mucogingival surgery. Despite the fact that other effective root coverage techniques have been described, the free gingival graft may still be the best treatment choice for gingival recession.*

Introduction

Gingival recession is defined as exposure of the root surface by an apical shift in the position of the gingiva. It is most probably the result of the cumulative effect of minor pathologic involvement like inflammation or repeated trauma

to the gingiva.² The other etiologic factors are faulty tooth brushing technique (gingival abrasion), tooth malposition, friction from soft tissues (gingival ablation), abnormal frenum attachment.^{3,4} The mechanism of gingival recession is due to localized inflammatory

processes in the connective tissue with the accumulation of mononuclear cells as described by Baker and Seymour in 1976. In the initial stage there is normal or subclinical inflammation, there is proliferation of epithelial rete pegs resulting in loss of CT core and finally there is merging of oral and Sulcular epithelium resulting in separation and recession of the gingival tissues due to loss of nutritional supply.⁵ Waerhaug proposed that if the free gingiva is voluminous the infiltrate will occupy only a small portion of the connective tissue however, if it is thin the entire connective tissue portion may be involved consequently there is proliferation of epithelial cells from the oral and dentogingival epithelium. Thus the zone of CT decreases and it is obliterated by the fusion of these two epithelia. Finally, the epithelium loses its nutritional source, and it lead to gingival recession.⁶

According to Millers classification, Gingival recession is of 4 types and class II is the most prevalent among younger individuals which require esthetic concern. Millers Class II Marginal tissue recession that extends to or beyond the MGJ, with no periodontal loss in the interdental area; the tooth is well-aligned in the arch. Abnormal frenum pull is one of the common etiologic factor in the marginal gingival recession in anterior areas. If there is adequate gingiva coronal to the frenum, there is usually no need to surgically remove it. A frenum that encroaches on the margin of the gingiva may interfere with plaque removal and tension on this frenum may tend to open the sulcus. In these cases, surgical removal of the frenum is indicated.

The treatment of gingival recession comes under mucogingival surgery. There are many treatment modalities are present to correct gingival recession defects. They are use of free gingival autograft, free connective tissue autograft, pedicle autografts, laterally (horizontally) positioned, Coronally positioned, Semilunar pedicle (Tarnow), Sub epithelial connective tissue graft (Langer), Guided tissue regeneration, Pouch and tunnel technique. Despite of the advances in

technique of correction of gingival recession, free gingival graft continues to be a reliable procedure for increasing the width of keratinized gingiva and stopping the progression of gingival recession. At present, even though the free gingival grafts is less predictable compared to subepithelial connective tissue grafts as far as root coverage is concerned, it is most commonly used procedure as being simple, multiple teeth can be treated at one time, easy tissue handling, and can be performed when keratinized gingiva adjacent to involved is insufficient. They were initially described by Bjorn' in 1963. It is called classic technique to increase the width of attached gingiva. The following variants to the classic technique are described in this section: accordion technique, strip technique, or a combination of both. All are modifications of the free grafts. In the present article discussing two case reports presented with millers class II GR with abnormal frenum pull.

Case 1

26 years old female patient visited our department with chief complaint of receding gums in the lower anterior region (See figure 1 b, 1c). She had no previous history of orthodontic treatment. Oral hygiene was good and there was no bleeding on probing. On examination revealed recession depth (RD) of 5mm and recession width (RW) of 2mm was seen wrt 31. Clinically diagnosed as Millers class II gingival recession. Radiographic examination revealed no interproximal bone loss. Tension test shows positive wrt mandibular arch indicated abnormal frenum attachment.



Fig 1a



Fig 1b



Fig 2b



Fig 1c

Case 2

26 years old female patient visited our department with chief complaint of receding gums gin in lower anterior region (See figure 2a, 2b). She had no previous history of orthodontic treatment. Oral hygiene was good and there was no bleeding on probing. On examination revealed RD of 7mm and RW of 3mm was seen wrt 41. Clinically diagnosed as Milers class II gingival recession. Radiographic examination revealed no interproximal bone loss. Tension test shows positive wrt mandibular arch indicated abnormal frenum attachment.

Case Management

In the present case report, classic technique given Bjorn was used. Before the treatment, the treatment plan was thoroughly explained to the patient and a written consent was taken before initiation of the therapy. Phase 1 therapy of scaling and root planing was done prior to the surgery. Mandibular frenotomy was done. In the first step recipient Site was prepared. The purpose of this step is to prepare a firm connective tissue bed to receive the graft. In the second step graft was obtained from the donor site. Template was made over the donor site and shallow incision was given around it with a #15 blade. (Fig 3a,3b, 4a,4b). Blade was inserted to the desired thickness at one edge of the graft. Elevated the edge and holded it with tissue forceps to separate the graft, as separation progresses to provide visibility. The FGG was harvested from palate (Fig 4c). In the third step graft was transferred to the recipient site. The graft was adapted over the root and stabilized by horizontal and circumferential sutures using 4.0 vicryl sutures (5a,5b). A modified Hawleys appliance was given to patient to prevent patient discomfort and postoperative complications and assist in healing (Fig 6a, 6b).



Fig 2a



Figure 3a



Fig 3b



Fig 4a



Fig 4b



Fig 4c



Fig 5a



Fig 5b



Fig 5c



Fig 6a



Fig 6b

Outcome

In case 1, there was a significant reduction in RD from 5mm to 1mm and RW from 2mm to 0 after one month and 3 months post operatively. There was a significant reduction in RD from 7mm to 3mm and RW from 3mm to 1mm after one month and 3 months post operatively.



Fig 7a



Fig 7b

Discussion

In the present case reports, it revealed abnormal frenal attachment is the cause for gingival recession. Stoner et al through his study mention that gingival recession had been caused by anatomical features of soft tissue eg. high frenum attachment associated with narrow band of attached gingiva which might cause excessive tension on the marginal tissue. Tissue phenotype is one of the critical factors influence recession. In general patients presented with either thick flat or thin scalloped phenotypes. A clinical study was done by Kan JU et al and reviewed that patients with thin gingival phenotype were more likely to experience gingival recession. Patients with thick and flat gingival phenotypes exhibit short papillae whereas thin and scalloped phenotypes represent long papillae. Thick phenotypes include flat soft tissue and bony architecture, denser and more fibrotic soft tissue with large amount of attached masticatory mucosa. It is more resistant to any acute trauma.¹⁴ In the present case reports patient presented with thin scalloped biotype and it may be one of the cause of gingival recession. The gingival thickness also affects the treatment outcome possibly because of the difference in the amount of blood supply to the underlying bone and susceptibility to resorption. Initial gingival thickness predicts the outcome of any root coverage procedures.¹⁵

Free gingival grafts are still commonly used to increase the width of attached gingiva.¹⁷ Bjorn in 1963, and Sullivan and Atkins in 1968, were the first to describe the free gingival graft.^{18, 19} The free gingival graft was initially used to increase the amount of attached gingiva and extend the vestibular depth. Later it was used to attempt coverage of exposed root surfaces. It is Simple and highly predictable when used to increase the amount of attached gingiva, it is also quite versatile: it can also be used over an extraction socket or osseous graft²⁰. One disadvantage of a free gingival graft is the different shade of the graft obtained from the donor palatal mucosa. The donor tissue may be more opaque, and thicker,

which may lead to esthetic problems of varying severity, depending on the shade of the palate and gingiva, and may become worse by the formation of keloids. Wennström et al observed that the average percentage of root coverage was nearly 72% in the FGG studies. In our study average percentage of rot coverage was around 68.55%. Blanes and Allen stated that the achievement of root coverage is possible in cases where the interproximal soft tissue integrity remained, as in the present case report there was no interproximal bone loss.

Conclusion

The free gingival graft for root coverage is a feasible and effective treatment procedure in mucogingival surgery. Despite the fact that other effective root coverage techniques have been described, the free gingival graft may still be the best treatment choice for gingival recession.

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