

CASE REPORT

Aesthetic Correction: Root Coverage and increase in width of Attached gingiva with Free Gingival Graft.

Dr. Deval Trivedi,¹ Dr. Sneha Kothari², Dr. Anita Panchal³

¹ PG student, Department of Oral and Maxillofacial Surgery, , College of Dental Sciences and Research Centre, Bopal, Gujarat.²Senior Lecturer, Department of Oral and, Maxillofacial Surgery, College of Dental Sciences and Research Centre, Bopal, Gujarat.³Professor & Head, Dept. of Oral and Maxillofacial Surgery, College of Dental Sciences and Research Centre, Bopal Gujarat.

Abstract:

Advances in dentistry have lead in management and regrowth of the tissue. The treatment and the management of mandibular lower anterior tooth exhibiting recession always have been a challenge, especially when the recession is proceeded up to Class II (According to Miller's Classification). This case report describes a simple procedure of grafting technique of lower anterior tooth with Miller's Class II gingival recession.

Keywords: Recession, Free gingival graft

Introduction:

Gingival recession is defined as "Displacement of soft tissue margin apical to the cemento-enamel junction" (glossary of periodontal terms).¹ Gingival recession can be caused by periodontal disease, accumulation of plaque and calculus, inflammation, improper flossing, aggressive tooth brushing, incorrect occlusal relationships, and divergent roots. These can appear as localized or generalized gingival recession.¹² According to the Annals of Periodontology's mucogingival therapy is the aesthetic demand together with reduction of root sensitivity and

management of root caries or cervical abrasion, represent the main indication for root coverage.³ According to Dorfman, if the marginal tissue is free of inflammation, treatment of recession need not be considered.⁴ Epithelized free gingival grafting is a well-established pure mucogingival procedure for increasing the width of attached gingiva.⁵

Case Report:

A 27 years old male patient visited the Department of Periodontology Implantology & Laser Dentistry, College of Dental Sciences & Research Institute, Ahmedabad with

a chief complaint of sensitivity of a tooth in lower anterior region. Patient's medical and dental histories were non-contributory.

Intraorally periodontal examination revealed no probing depth of more than 3mm in any location. There was minimal bleeding on probing. The patient's oral hygiene status was judged to be good. There was no other periodontal concern other than Miller's class II recession of tooth 41 (Figure 1) Radiographic examination showed no bone loss.

Pre-surgical therapy included scaling, root planning and plaque control instruction. After 3 weeks of re-evaluation the lower incisor showed apico-coronary 3mm of recession (Figure 2), mesio-distally 3mm of recession (Figure 3). Accordingly after the patient's consent, it was decided to treat the site by Miller's technique for free autogenous gingival grafting to achieve root coverage and simultaneously increase the attached gingiva.

Surgical Procedure:

Preparation of Recipient Bed:

After adequate local anesthesia had been achieved, the exposed root was planned thoroughly with a Gracey 1-2 curette. The 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 deep into the papilla, creating a well-defined butt joint margin (Figure 4).

At the distal terminal of the horizontal incision, vertical incision was given extending well into the alveolar mucosa, so that it was 3mm beyond the apical extent of the recession. A partial thickness flap was elevated and excised apically (Figure 5).

Preparation of Donor Tissue:

Hawley's retainer. (Figure 6) was prepared to protect palate. The amount of donor tissue needed was accurately determined by using a foil template.



Fig. 1: Pre-operative



Fig.2: Apico-coronal Measurement



Fig. 3: Mesio-distal Measurement



Fig. 4: Incision



Fig. 5: Reflection and Debridement

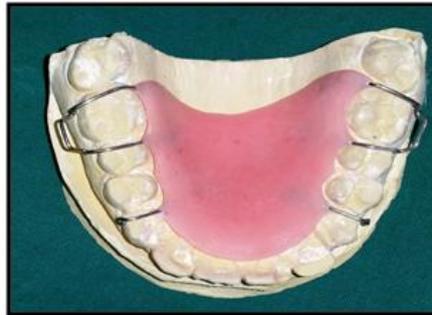


Fig. 6: Hawley's Appliance



Fig. 7: Donor Site



Fig. 8: Palatal Graft

The template was made by adapting it to the recipient site. The left side of palate was chosen by measuring the thickness of the tissue using a file with a stopper. The area between first and second premolar which had greater thickness was selected to harvest the donor tissue (Figure 7 & Figure 8).

The initial incision was outlined by the placement of tinfoil template with a no 15 scalpel blade. All palatal incision were made in such a fashion as to create the butt joint margin in the donor tissue. This butt joint margin of the graft would be placed 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 its smoothness and uniform thickness.

The graft was placed on the recipient bed and suture by means of interrupted sutures (4-0 Mersilk sutures) at the coronal and apical borders. An interrupted suturing technique was used for close adaption of the graft to the tooth surface. (Figure 9)



Fig.9: Sutures

The palatal wound was protected by a pack and it was stabilized by a Hawley's retainer.

Post-Operative Instructions: The patient was asked to refrain from



Fig. 10: Follow-up after one week



Fig.1: Follow up after one week at donor Site



Fig.12: Follow-up after twenty one days tooth brushing at the surgical site for two weeks. The patient was



Fig.13: Follow up after two month followed by a 60-second rinse with chlorhexidine digluconate for the

instructed to rinse with 0.12% chlorhexidine mouthwash twice daily for 3 weeks. Antibiotic amoxicillin 500mg thrice daily and 400mg of ibuprofen thrice daily for 5 days was prescribed. The pack was removed 2 weeks post operatively from the donor site.

The healing of palatal wound was uneventful & satisfactory. The patient was instructed to use a soft tooth brush with a roll-technique

next 6 weeks. At the end of 6 weeks, the patient was advised to resume his usual oral hygiene technique.

Discussion

Miller's criteria⁶ for successful root coverage are the soft tissue margin must be at the cemento-enamel junction, clinical attachment to the root, sulcus depth of 2mm and no bleeding on probing. Using these

criteria for success, Miller ⁷ treated 100 cases of marginal tissue recession with root planing, saturated citric acid burnished into the root of 5 minutes and with free gingival graft. Root coverage of 100% was attained in the area of deep-wide recession and 100% in shallow-wide recession. Holbrook and Ochsenbein⁸, also used the free soft tissue autograft as a one-step surgical procedure on 50 documented teeth, with recession of less than 3mm & had 95.5% total root coverage. In recessions of 3-5mm they achieved 80% coverage and in recessions they achieved more than 5mm had 76% coverage. Root coverage by placing free graft was first described by Sullivan and Atkins ⁹, where they reported that free gingival graft offered best results in cases of shallow and narrow recession. According to them when graft was placed over recession, some amount of “bridging” can be expected because a portion of grafted tissue which was covering the root would survive by receiving circulation from the

vascular portion of the recipient site. In addition to bridging, creeping attachment can result in a post-operative coronal migration of free gingival margin. Factors which favour 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. In this case preoperatively width of attached gingiva was inadequate which after treating with Free Gingival Graft post-operatively increased without the displacement of the interdental papilla.

Very few procedures in periodontal surgery are more technically demanding or require more attention than free soft tissue grafting for root coverage. Many factors are interrelated that one cannot be singled out as “the most important factor”. Ignoring or failing to properly address a single factor can result in incomplete root coverage. Miller (1987) ⁶ has proposed many

factors for incomplete or failure of root coverage. These include improper classification of marginal tissue recession, inadequate root planing, failure to treat the planed root with citric acid, improper preparation of recipient site, inadequate size of interdental papillae, improperly prepared donor tissue, inadequate graft size, inadequate graft thickness, dehydration of graft, inadequate adaptation of graft to root and remaining periosteal bed, failure to stabilize the graft, excess or prolonged pressure on sutured graft, presence of inflammation prior to grafting, trauma to graft during initial healing.

In various studies^{10,11} where free gingival grafting was compared to connective tissue graft, the mean percentage of root coverage was greater for connective tissue grafting since connective tissue graft is a bilaminar technique receiving dual blood supply from both the recipient bed and from the pedicle flap. Possibility of graft necrosis over the denuded root

surface is reduced when compared to free gingival graft. For success, the connective tissue graft should be 1.5 to 2mm in thickness, the interdental papillae should be retained as much as possible in the pedicle flap, the pedicle should be positioned correctly over the avascular root to be covered, and adequate follow up care and plaque control should be followed.

Free gingival grafting is a procedure of high degree of predictability when used alone or combined with other technique. However it is more technically demanding, time consuming, and the colour match of the tissue is often less than ideal. Due to the predictability and versatility of connective tissue graft, the use of the free gingival graft for root coverage has drastically declined. However its indication includes: increasing the depth of vestibule, increasing the amount of attached gingiva associated with restoration, augmenting the area with minimal gingiva prior to orthodontic treatment.

The therapeutic goal in any form of corrective surgery must be clearly defined and judged against the result that can be obtained with other procedures. If stabilization of existing recession is the therapeutic objective and full coverage of the exposed root is not needed, then a simpler mucogingival procedure should be selected.

Conclusion:

The free soft tissue autograft when used for increasing the amount of attached gingiva is a relatively simple surgical procedure. The use of the free soft tissue autograft for root coverage, however, is a much more technically demanding procedure requiring the periodontist to consider additional factors. Overlooking or failing to properly address a single one of these factors can result in incomplete coverage.

References:

1. Hangorsky U, Bissada N. Clinical assessment of free gingival graft effectiveness on the maintenance of periodontal health. *J Periodontol*1980; 51(5):274-8.
2. Ashley F, Usiskin L, Wilson R, Wagaiyu E. The relationship between irregularity of the incisor teeth, plaque, and gingivitis: a study in a group of schoolchildren aged 11-14 years. *Eur J Orthod*.1998;20(1):65-72.
3. Wennström J. Mucogingival therapy. *Annals of periodontology*1996;1(1):671-701.
4. Dorfman H, Kennedy J, Bird W. Longitudinal evaluation of free autogenous gingival grafts. *J Clin Periodontol*.2005;7 :316-24.
5. Hall W, editor *Gingival augmentation / mucogingival surgery*1989:57-62.
6. Miller Jr P. Root coverage with the free gingival graft. Factors associated with incomplete coverage. *J Periodontol* 1987; 58(10): 674-81.
7. Miller Jr P. Root coverage using the free soft tissue autograft following citric acid application. III. A successful and predictable procedure in areas of deep-wide recession. *Int J Periodontics Restorative Dent* 1985;5(2):14-37.
8. Holbrook T, Ochsenein C. Complete coverage of the denuded root surface with a one-stage gingival graft. *Int J Periodontics Restorative Dent* 1983;3(3):8-27.
9. Sullivan H, Atkins J. Free autogenous gingival grafts. 3. Utilization of grafts in the treatment of gingival recession. *Periodontics*.1968;6(4):152-60.
10. Borghetti A, Gardella J. Thick gingival autograft for the coverage of gingival recession: a clinical evaluation. *Int J Periodontics Restorative Dent* 1990;10(3):216-29.
11. Jahnke P, Sandifer J, Gher M, Gray J, Richardson A. Thick free gingival and connective tissue autografts for root coverage. *J Periodontol* 1993;64(4):315-22.

Corresponding author:

Dr Deval Trivedi, Postgraduate student,
Department Periodontology, College of
Dental Sciences and Research Centre,
Bopal, Ahmedabad, India.
Email: deval_trvd@yahoo.co.in
Conflict of interest: No
Financial Support: No