

FREE GINGIVAL GRAFT IN THE TREATMENT OF ISOLATED GINGIVAL RECESSIONS: A CASE SERIES

¹ Sashi Kanth Y V ¹ Reader
² Aravind Kumar P ² Reader
³ Madhuri S V ³ Associate Professor

¹, Department of Periodontics, Institute Of Dental Sciences, Bubhaneshwar, Orissa.

² Department of Periodontics, St.Joseph Dental College, Eluru, Andhra Pradesh.

³ Department of Periodontics , Government Dental College, Vijayawada , Andhra Pradesh.

ABSTRACT:

Gingival recession is an intriguing and complex phenomenon. Recession frequently disturbs patients because of sensitivity and esthetics. Many surgical techniques have been introduced to treat gingival recession, including those involving connective tissue grafting, various flap designs, orthodontics, and guided tissue regeneration. This article describes a different clinical approach to treat gingival recession with emphasis on techniques that show promising results and root coverage.

Key words: Gingival Recession, Gingival Autografts, Autogenous Free Gingival Graft, Soft Tissue Grafts, Root coverage.

INTRODUCTION

Successful coverage of exposed roots for esthetics as well as functional reasons has been the objective of various mucogingival problems. This has been achieved by pedicle grafts and free grafts like autogenous free gingival grafts and subepithelial connective tissue grafts. When adequate gingiva exists, repositioning it over the denuded root surface provides the most esthetic result. However, adequate gingiva does not always exist in adjacent locations. For this reason, grafting of gingiva from a remote location is often required to augment the area. Traditionally, this augmentation of the gingival complex at the time of root coverage has been performed with autogenous free gingival grafts or connective tissue grafts harvested from the palate. Considering, the invasiveness of the subepithelial connective tissue graft technique, root coverage was done with autogenous free gingival grafts in this study.

First described by Bjorn (1963)¹, free gingival grafts have been widely used in the treatment of certain mucogingival problems like lack of attached gingiva and gingival recession. By using this technique, attached gingiva can be increased in a very predictable way. Furthermore, the results obtained using these procedures have been reported to be stable^{2,3}. Although gingival grafting is a procedure with few clinical complications, excessive hemorrhage of the donor area, failure in the

graft union, delay in healing and esthetic alterations due to disparity in the color of the palatal gingiva with respect to the grafted area, have been described⁴.

A 28 year old female patient visited the Department of Periodontics with a chief complaint of receding gums in relation to lower front tooth since one year. On clinical examination it was observed that, there was mild to moderate soft tissue inflammation, marginal tissue recession extending beyond the mucogingival junction with both hard and soft tissue loss interproximally and inadequate band of keratinized tissue on the facial aspect of 41. Also, shallow vestibular depth was noted in the mandibular anterior teeth region. Based on clinical examination, the recession defect in relation to 41 was classified as Miller's class-II gingival recession⁵ (**Fig.1A and Fig.2A**).

Treatment

Following diagnosis of class II gingival recession, treatment was planned to reduce soft tissue inflammation, to correct marginal tissue recession by means of root coverage, to increase the width of keratinized gingiva. Initial phase-I therapy was initiated with instructions for correct plaque control and brushing technique using modified Stillman method followed by scaling and root planing. The tooth was tested for mobility and percussion and both were negative. Heat test and electric pulp vitality



Fig.1A. preoperative Photograph



Fig.1B. De-epithelization of the recipient site.



Fig.1C. Template placed at the donor site



Fig.1D. Harvested graft.



Fig.1E. Graft sutured at the recipient site



Fig.1F. Periodontal dressing placed.



Fig.1G. post operative photograph

test showed tooth to be vital. Occlusal pre-maturities were corrected in phase-I therapy. An autogenous free gingival palatal graft surgical procedure was planned to achieve root coverage of the denuded root, to increase the amount of keratinized gingiva.

The parameters assessed were as follows^{5,6,7}:

Recession depth: Measured from midpoint of cemento-enamel junction (CEJ) to gingival margin apicocoronally.

Recession width: Measured at the widest point i.e. the distance between the mesial gingival margin and the distal gingival margin of the tooth.

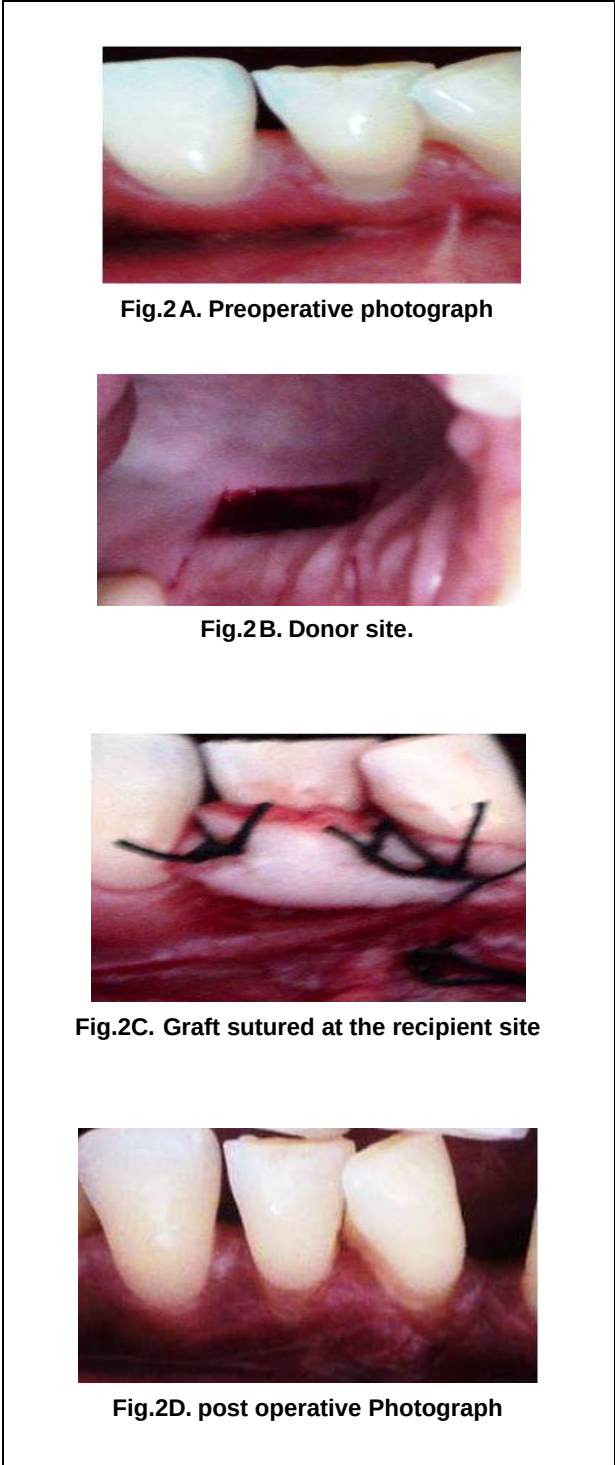
Width of keratinized gingiva: Measured at mid-buccal point from the gingival margin to the mucogingival junction.

Probing depth: Measured from the gingival margin to the base of the sulcus.

Clinical attachment level (CAL): Measured from cement-enamel junction to the base of the sulcus. **Vestibular depth:** Measured from CEJ to the floor of the vestibular fold, minus the distance from the CEJ to the gingival margin⁵.

Surgical Procedure

At the surgical site, after local anaesthesia had been achieved, the roots were planed using curettes and the root convexity was reduced to minimize dead space between the graft and the recipient site. A number 15 blade was used to make horizontal incisions in a butt joint fashion in the interdental papilla at the level of CEJ. Bevelled incision was avoided as it may result in a tendency for the graft to slide over the incision line with resultant dead space between the graft bed and therefore, blood supply may be compromised. The horizontal incision was extended at least 3mm to the line angle of the adjacent teeth bilaterally. As there was hidden recession noted on adjacent tooth, the horizontal incision was extended up to mesial line angle of 31. The vertical incision was made mesiodistally so that the outline of the recipient site was trapezoidal. Periosteal bed was prepared 3mm apical to the most apical part of the exposed root (**Fig.1B**). For vestibular extension, periosteal separation was done at the base of recipient bed and the alveolar mucosa of the lip was sutured to the periosteum using continuous sutures. A tin foil was placed on the recipient site and a template was prepared. The tin foil template was then placed over the palatal area and an incision was made all round the template to a depth of 2mm and 1mm larger than the outline of the tin foil to accommodate graft shrinkage (**Fig.1C**). The 1.5-2 mm harvested graft (**Fig.1D**) was placed on to gauze soaked in normal saline solution. The underside of the graft was inspected for any glandular or fatty tissue remnants and was trimmed to remove excess fatty tissue and overhanging tissues, otherwise it would reduce the plasmatic diffusion of the graft. De-epithelization of the recipient site papilla was done using a No.15 size surgical



blade and later the graft was adapted to the recipient site, so that it extended 3-5 mm apical to the margin of the exposed root. The graft was immobilized at the lateral borders and coronally by interrupted 4-0 vicrylTM (*Ethicon*) (**Fig.1E**. and **Fig. 2C**). The graft was firmly held in place using digital pressure for 5 minutes to reduce the dead space, permit fibrin clot formation and prevent bleeding as it will result in a hematoma under the graft and

cause subsequent necrosis. Periodontal dressing (Coe-pack) was placed at the donor site and over the graft (**Fig.1F**). The patient was advised not to brush the treated site for 4 weeks and instead 0.2% chlorhexidine (Hexidine, ICPA) rinse was prescribed for 4 weeks. Antibiotics and analgesics were administered as needed. The patient was examined weekly for the first one month to assess healing and then followed up at 3 months and 6 months (**Fig.1G** and **Fig.2D**).

Discussion

Predictability of root coverage procedures is dependent on several factors such as anatomical, surgical skill of the operator and post operative maintenance of the patients. Complete success in treating gingival recession is obtained when the following criteria are satisfied: Gingival margin is at CEJ or slightly coronal to it, sulcus depth is less than or equal to 2 mm, Presence of attached gingiva and no bleeding on probing at the treated sites.

Complete root coverage has been reported in class-I and class-II gingival recessions with connective tissue grafts and is usually considered the gold standard⁷. However in the present cases, the patient had class II gingival recession and the therapy was planned to achieve cosmetic and functional goal simultaneously by choosing free gingival graft surgical procedure which has a good predictability for both root coverage and gingival augmentation apical to the recession^{8,9,10}.

Several factors are associated with successful or incomplete root coverage when using the free gingival graft technique are adequate blood supply from the tissues adjacent to the graft bed, the height of the interdental papilla is an important prognostic factor in determining the amount of root coverage that can be obtained. The relative inadequacy of interdental papilla seen in class-III recession precludes the possibility of 100% root coverage, and the characteristics of the incision are important for the survival of the grafted tissue over the avascular root surface⁵.

The treated site in this case showed healing uneventfully, without any complications, except for mild inflammation due to improper mechanical plaque control during the healing phase. The marginal tissue remained firmly attached and probing depth was minimal. It was concluded that they showed root coverage of about 100% in case 1 and 80% in case 2 using this technique.

CONCLUSION

The free gingival graft for root coverage is a viable and effective modality of mucogingival surgery. Despite the fact that other effective root coverage techniques have been developed, the free gingival graft may still be the best treatment option for gingival recession when an increase in the apicocoronal dimension 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. Close attention to proper case diagnosis and to 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. Bjorn: Free transplantation of gingival propria. Sveriges Tandlakar Forbunds Tidning, 22: 684, 1963.
2. Matter J: Creeping attachment of free gingival grafts. A 5-year follow up study, J Periodontol, 51: 681-685, 1980.
3. Deepalakshmi D, Arunmozhi U. Root coverage with free gingival autografts--a clinical study. Indian J Dent Res 2006;17(3),126-30. <http://dx.doi.org/10.4103/0970-9290.29876>
4. Brasher J, Rees T, Boyce W: Complications of grafts of masticatory mucosa, J Periodontol, 46: 133-138, 1975.
5. Miller PD: Root coverage using a free soft tissue autograft following citric acid application, III: A successful and predictable procedure in areas of deep wide recession. Int J Periodontics Res Dent 1985; 5: 14-37.
6. Klaus H, Rateitschak, and Guido Fringeli. Recession: A 4 year longitudinal study after free gingival grafts. J Clin Periodontol 1979; 6:158-64. <http://dx.doi.org/10.1111/j.1600-051X.1979.tb02195.x>
7. Harris RJ. Gingival augmentation with an acellular dermal matrix: Human histological evaluation of a case placement of the graft on periosteum. Int J. Periodontics Restorative Dent 2004; 24: 378-85.
8. Lang NP, Loe H. The relationship between the width of keratinized gingiva and gingival health. J Periodontol 1992; 43: 623-27. <http://dx.doi.org/10.1902/jop.1972.43.10.623>
9. Kassab MM, Badawi H, Dentino AR. Treatment of gingival recession. Dent Clin North Am. 2010 Jan;54(1):129-40. <http://dx.doi.org/10.1016/j.cden.2009.08.009>
10. Paulom. Camargo, Philip R. Melnick & E. Barrie Kenney. The use of free gingival grafts for aesthetic purposes. Periodontology 2000, Vol. 27, 2001, 72-96. <http://dx.doi.org/10.1034/j.1600-0757.2001.027001072.x>

Corresponding Author

Dr.Y.V. Sashi Kanth,

Reader,

Department of Periodontics

Institute Of Dental Sciences,

Bubhaneshwar , Orissa.

Mobile:9246675440

Email:drsashikanthvy@gmail.com