Root coverage with bridge flap using subepithelial connective tissue graft in the treatment of multiple gingival recession: A case report

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ABSTRACT

The main goal of periodontal regenerative and reconstructive therapy involves restoring health, function, and esthetics, often necessitating a multidisciplinary approach tailored to the individual's needs, which often requires correction of gingival recession defects within the esthetic zone. The coverage of denuded roots presents one of the challenges of periodontal treatment. Presently there are numerous periodontal plastic procedures available to manage such problem. Bridge flap technique is one such surgical procedure, which provides root coverage at one stage. The following case presents a cost-effective simple technique to correct multiple gingival recession at the same time with bridge flap technique using connective tissue graft.

INTRODUCTION

Mucogingival problems encompass conditions such as gingival recession, a shallow vestibule, insufficient width of attached gingiva, and an aberrant frenum.1Amongst these recessions is of most concern for esthetics. The etiology of gingival recession is multifactorial and may include inflammatory periodontal disease, mechanical trauma from tooth brushing, occlusal trauma, high frenal attachment, tooth malposition or root prominence leading to the thinning of bony plate, orthodontic tooth movement, thin gingival biotype and iatrogenic factors.2The main goal of periodontal regenerative and reconstructive therapy is the restoration of health, function, and esthetics, which often requires correction of gingival recession defects in the esthetic area. The presence of gingival recession associated with an insufficient amount of keratinized tissue may indicate gingival augmentation procedure.Various surgical procedures have been established for root coverage of the denuded roots.3,4 The most predictable technique used for gingival augmentation is the subepithelial connective tissue graft (SCTG). Zabalegui et al. were pioneers in integrating these methods for addressing multiple adjacent gingival recession defects. They introduced a groundbreaking approach involving a mucosal partial-thickness "tunnel" spanning multiple teeth, through which they utilized connective tissue grafts (CTG) to effectively treat the recessions.5. Certainly, these procedures all necessitate the presence of an ample width of attached gingiva for successful implementation. Presently there are numerous periodontal plastic procedures available to manage such problem. Bridge flap technique is one such surgical procedure, which provides root coverage at one stage. Margaff E, proposed bridge flap technique to cover multiple gingival recession.6 In this case report, two surgical procedures have been integrated into a single technique. – Bridge Flap technique, to cover multiple recessions in facial aspect of lower anterior teeth and simultaneously to increase the width of attached gingiva by vestibular deepening, along with an additive advantage of connective tissue graft (SCTG) to increase the gingival thickness and to restore the gingival health.

CASE REPORT

A 38-year-old female patient was referred to the Department of Periodontology at SRM Dental college, Kattankulathur, with a chief complaint of receeding gums. The patient had a Miller's Class II recession defects on the mandibular anterior teeth. The distance from CEJ to marginal gingiva in relation to 31 and 41 region along with a shallow vestibule was 3 mm. The clinical probing depth was 1 mm in all the lower anterior teeth. Any etiology that may contribute for the progression of recession was identified and ruled out. Also, instructions for proper tooth brushing and oral hygiene were given to ensure maintenance before, during, and after therapy. The procedure was thoroughly explained to the patient, and their informed consent was duly obtained. A root coverage surgery with bridge flap technique, utilizing SCTG was planned after re-evaluation of Phase I therapy (after 4 weeks). Immediately before the procedure, the patient rinsed for two minutes with a 0.2% chlorhexidine digluconate solution. After local anesthesia with 2% lignocaine hydrochloric acid (1:200,000 adrenaline), sulcular incisions were given from 33 to 43 recession defect and a split-thickness flap was raised in the apicocoronal direction with a Bard-Parker No. 15 blade. Then an incision was made into the periosteum at its base, joining it with the sulcular incisions The bone was exposed to facilitate scar formation. The split thickness flap was raised without any vertical incisions, which extended apically beyond the mucogingival junction (Fig. 2a). Following flap elevation, the exposed root surface was thoroughly planed with a curette. Root planing was carried out until the root surfaces were smooth to reduce the convexity and to create an optimal surface onto which the reattachment, repair, or regeneration will take place. Then SCTG was placed and the

bridge flap was coronally placed and sutured using 4-0 silk suture (Fig. 2b and 2c). Postsurgical instructions were given and the patient was placed on amoxicillin 500 mg three times daily for a week, Aceclofenac 100 mg twice daily for five days, and Chlorhexidine digluconate 0.2% mouthwash twice daily as means of chemical plaque control for 4 weeks. The patient was asked not to chew or brush the surgical area for the first four weeks after the procedure. Ten days after surgery, the periodontal dressing and sutures were removed and the surgical area was carefully irrigated with 0.2% chlorhexidine solution. Significant root coverage was obtained without any post-operative morbidity (Fig. 2d). The oral hygiene instructions were re-inforced. After 3 months follow-up examination revealed acceptable and stable root surface coverage (Fig. 2d)

Fig1: (a) Preoperative recession (b) Connective tissue harvesting (c) Sub epithelial connective tissue graft (d) Vestibular incision in bridge flap

Fig 2: (a) Bridge flap from 33 to 43 (b) Connective tissue in bridge flap (c) Sutures placed (d) Two weeks after surgery

Fig 3(a) Pre operative recession (b) Postoperative after 3 months

Discussion

Gingival recession is characterized by the exposure of the root surface due to a downward shift of the gingival margin. Gingival recession generally occur without any symptoms, but it can give rise to patients concern about poor esthetics, dentine hypersensitivity, loss of the tooth, root caries and inability to perform oral hygiene procedures.7An early diagnosis and treatment of such problems should be undertaken to stop the progressive recession process and to facilitate plaque control in the affected area.The minimum values of root coverage, i.e. 25%, in few cases could be due to the very thin gingiva present, which posed great difficulties in coronally repositioning the bridge flap

that is a partial thickness flap. To overcome this difficulty, modifications such as combination of connective tissue grafts along with this bridge flap technique can be advocated. The bridge flap technique is one of the innovations that have been evolved for mucogingival surgeries, especially in flap design. In this case, the Edlan and Mejchar technique, involving a coronally advanced flap with subepithelial connective tissue graft (SCTG), was utilized to achieve root coverage for multiple recession defects, along with vestibular deepening procedures, where the alveolar bone is exposed for scar formation.8. The existence of a sufficient gingival zone is crucial for maintaining gingival health and preventing the loss of connective tissue attachment. Thus this technique is ideal to cover multiple recessions in patients with inadequate attached gingiva apical to recession. The main advantage of this technique is that it doesn't require a separate frenectomy procedure. In this procedure, the flap covering the exposed root surface is nourished by plasmatic circulation through capillaries from the adjacent gingiva.9 In addition, instructions for proper tooth brushing and Oral hygiene maintenance should be diligently practiced before, during, and after therapy to ensure that any periodontal plastic procedures performed are not compromised by the patient's oral hygiene habits.

Conclusion

Managing gingival recessions poses a significant challenge in the field of periodontal treatment. The addition of SCTG to Bridge Flap procedure provided complete root coverage. Thus the Bridge flap technique is optimal for predictable root coverage for multiple teeth, which simultaneously increases the width of attached gingiva and vascularity of the flap is maintained at the surgical site.

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