

**Bridge Flap Technique for Recession Coverage - A Case Report**

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**Abstract**

Gingival recession is defined as apical migration of the junctional epithelium, with exposure of root surfaces. When aesthetic is the prime concern it is essential to achieve a very close connection between the tooth and soft tissue to ensure an ideal emergence profile. The main goal of the periodontal plastic surgery is to correct and re-establish such connection. The procedures presented in the literature in the past have proved to be effective in achieving the goal of covering exposed root surfaces. These surgical procedures, although possessing their own merits, posed certain problems; chiefly, their insufficiency to treat additional problems concurrently. A single-step solution to mucogingival problems, namely the "bridge flap procedure," is the continuance of the same endeavour. The following case report of 25 year old male patient is treated with a cost-effective single-step Bridge Flap technique to correct his mucogingival problems at the same time with less morbidity to donor tissues and also

evaluates the corrections gained by this bridge flap procedure.

**Keywords:** Bridge Flap technique, Periodontal Plastic Surgery, Gingival Recession, High frenum Attachment

**Introduction** Gingival recession is defined as apical migration of the junctional epithelium, with exposure of root surfaces. Patients may complain of hypersensitivity of the teeth and poor aesthetics, and the area may retain dental plaque, which can later cause root caries. Gingival recession may be localized or generalized and can be associated with one or more tooth surfaces.<sup>1</sup> There is no doubt that surgical treatment of gingival recessions is one of the most challenging tasks in periodontal treatment. Gingival recessions are always linked with atrophy of alveolar bone. Therefore it is important to achieve a very close connection between the root surface and the gingiva. Frequently one can observe denudations of root surfaces together with a flat vestibule, abnormal attachment of frenum and a narrow zone of attached gingiva.<sup>2</sup>

Periodontal treatment aims to protect and maintain the patient's oral health over his lifetime for adequate function as well as esthetic appearance. Over the last few decades, many different approaches for the treatment for gingival recession have been reported in the literature without a consistent consensus. The use of free autogenous grafts and pedicle grafts including advanced flaps and rotational flaps have been advocated. Combination grafts with either autogenous grafts or allograft and with guided tissue regeneration (GTR) membranes have been reported for root coverage.<sup>3</sup> The combination of connective tissue graft with coronally advanced flap has been shown to demonstrate highest achievement level. All techniques listed above resulted in two surgical site except coronally advanced flap. On the other hand, E.Marggraf<sup>2</sup> presented a one-step surgical procedure which was described as "Double Lateral Bridging Flap", for coverage of multiple denuded root surfaces. It is a combination of coronally repositioned flap and vestibule extension procedure.<sup>4</sup> This article presents a case treated by the bridge flap technique for root coverage.

### Case Report

A 25 year old male patient reported to the Outpatient Department of SGT Dental College, Hospital and Research Institute, Gurugram with the chief complaint of hypersensitivity in relation to lower anteriors. The patient gave no relevant medical history. Patient did not give any relevant medical history and there was no systemic condition that could interfere with physiological wound healing. On examination, the patient had Millers Class II recession in relation to 31, 41 region along with high frenal attachment in respect to mandibular labial frenum. Patient was in good health and gave no history of any systemic ailment. Clinical parameters were recorded with a UNC-15 periodontal probe (Fig. 1)



Fig. 1: Pre-Operative View

Gingival recession was 3.5mm with (31), 4mm with (41). The width of attached gingiva was 4mm on 31 and 41. Probing pocket depth of 2 mm was present on teeth 31 and 41. Bridge flap technique was planned for root coverage in relation to 31 and 41. The surgical technique was explained to the patient and informed consent was obtained. Scaling and root planning was performed. The patient was then recalled after two weeks for surgery.

### Surgical Technique

Criteria for Surgery included gingival recession not more than 6mm, pocket depth maximum 2mm, gingiva free of inflammation and maintained interdental alveolar bone. The surgical procedure included the bridge flap technique as first introduced by Marggraf and later on modified by Romanos. This method basically presents combination of Coronally advanced flap and Vestibuloplasty. The technique included an arch shaped incision in the vestibule at approximately  $2 \times GR + 2$  mm from the gingival margin (Fig. 2). This is necessary in order to produce a sufficiently wide bridging flap, ensuring a sufficient blood supply. An incision into the periosteum was placed at its base, and the bone was exposed so that scar formation can take place. By giving a sulcular incision, a full-thickness flap was elevated (Fig. 3) in the apicocoronal direction joining it with the first incision so that the two flaps communicated with each other such that the whole bridge

flap was elevated and repositioned coronally covering the denuded root surfaces. Orthodontic buttons were placed on 31 and 41 for holding the sutures with the coronal pull(Fig. 4) The entire flap was then coronally positioned to cover the membrane and interrupted sutures were placed. Periodontal dressing (Coe-pack) was given over the surgical site (Fig. 5). Fig. 2: Vestibular Incision Placed Fig. 3: Elevation of Flap Fig. 4: Coronally repositioned flap Fig. 5: Periodontal pack applied



Fig. 2: Vestibular Incision Placed



Fig. 3: Elevation of Flap



Fig. 4: Coronally repositioned flap



Fig. 5: Periodontal pack applied

#### **Post - surgical Care**

The patient was prescribed antibiotics (Amoxicillin, 500 mg thrice daily) and analgesics (Ibuprofen, 400 mg twice daily) for 5 days and 0.12% chlorhexidine digluconate mouth rinse for 4 weeks. The patient was advised to follow routine Post-operative periodontal mucogingival instructions, with minor modifications. He was told to avoid pulling on the lips to observe the surgical site. Both the dressing and sutures were removed 10 days after surgery (Fig. 6). The patient was satisfied with the treatment.





Fig. 6: Follow Up After 10 Days

### Results

Examination of the surgical site one month after the surgery showed significant root coverage and an increase in the depth of vestibule and gain in the width of attached gingiva. Gingival recession reduced from 3.5mm to 2mm on teeth (31) and 4mm to 2mm on (41). A gain in the width of attached gingiva from 4mm to 6mm on teeth (31) and (41) was attained.

### Discussion

Root coverage can be performed to alleviate a patient's concerns regarding unsatisfactory esthetics and root hypersensitivity. Gingival recession provides a nidus for microbial plaque and calculus accumulation and can be difficult to maintain with normal oral hygiene measures. In addition, there is the potential for root caries to develop on the denuded root surfaces.<sup>5</sup> The correction of gingival recessions is an important issue in the field of periodontal plastic surgery.<sup>6</sup> Because in today's world esthetic concerns are the main indications for root coverage, so selection of the most appropriate soft tissue grafting procedure must be done cautiously. In the mid-80s and late 90s, the periodontal literature presented various techniques such as pedicle flaps, free gingival graft, subepithelial connective tissue graft, acellular dermal matrix graft, and guided tissue regeneration to cover denuded root surface.<sup>7</sup>

While reviewing the literature, we came across a number of articles addressing mucogingival problems and their surgical solutions. However, an unresolved controversy still exists in the literature regarding the adequate Attached Gingiva for periodontal health maintenance, and the contemporary opinion suggests that the regions with <2mm attached gingiva and thin gingival biotypes are at increased risk of gingival recession even if it is possible to maintain the gingival health in the areas with absent or insufficient attached gingiva. and so, mucogingival therapy should be advocated for gingival augmentation and to create adequate vestibular depth in areas with insufficient attached gingiva.<sup>8</sup>

The bridge flap technique consists of two surgical techniques concurrently. In this procedure, the flap covering the denuded root surface is supplied by plasmatic circulation from capillaries in the adjacent portion of the gingiva, permitting it to survive. The flap creates a functional, healthy and esthetic result that seems to be resistant to additional gingival recession. The bridge flap technique is indicated when a single surgical procedure is desired to predictably cover the denuded root surfaces, in circumstances where inadequate keratinized gingiva is offered, and also to increase the vestibular depth along with a gain in the width of attached gingiva in one step.<sup>9</sup>

Previous studies done by E. Marggraf reported that recession is reduced by the simultaneous extension of the vestibule. No alveolar bone is left exposed, and, therefore rapid healing is accomplished. The main advantage of this procedure is that it does not require a second surgical site. On the other hand, the functional widening of the attached gingiva is also achieved.<sup>2</sup> An evaluation of adequate width of the attached gingiva in patients with multiple gingival recessions is an important factor for deciding on any procedure for root coverage. To accomplish optimal esthetic outcome, the gingival form, tooth anatomy, and

the correlation of the underlying bone to the cement enamel junction must be completely understood. Accurate determination of the position of cemento-enamel junction and mucogingival junction prior to periodontal surgery and precise placement of incisions are a must in order to accomplish this goal. It has been made known that to maintain periodontal healthiness there should be 2-3 mm of attached gingiva. In the present case, vestibular deepening was included as treatment of choice to increase the inadequate vestibular depth in order to maintain the periodontal health and root coverage with coronally advanced flap was done to improve postoperative esthetics of the patient. Postoperative esthetic outcome was satisfactory for the patient. The secondary outcome variable such as reduced root sensitivity was achieved. Clinical results 6 months postoperatively were favorable with no recurrence. Treatment approaches used in the present case suggests that combination of two surgical modalities can be successful for the management of multiple teeth recessions.<sup>9</sup>

### Conclusion

Successful treatment of multiple recessions is based on the use of predictable periodontal plastic surgery (PPS) procedures. Careful preoperative diagnosis and appropriate case selection are the prerequisites for improving surgical success. Multiple teeth recessions is associated with different etiologies, which should be carefully identified before treatment. Coronally advanced flap along with vestibular deepening, and bridge flap technique may be used for successful management of multiple teeth recessions.

### References

1. Kassab MM, Cohen RE. The etiology and prevalence of gingival recession. J Am Dent Assoc 2003;134:220-5.

2. Marggraf E. A direct technique with a double lateral bridging flap for coverage of denuded root surface and gingiva extension. Clinical evaluation after 2 years. JCP 1985; 12: 69-76.
3. Agarwal K, Chandra C, Agarwal K, Kumar N. Lateral sliding bridge flap technique along with platelet rich fibrin and guided tissue regeneration for root coverage. J Indian Soc Periodontol 2013;17:801- 5
4. Abraham Seba. Double lateral bridging flap - a one step technique for multiple recession coverage. KDJ.2011;34(2):285-287.
5. Jordan HV, Sumney DL. Root surface caries: Review of the literature and significance of the problem. J Periodontol 1973;44:158-63.
6. Malathi K, Muthukumarswamy A, Shabbir M Ahamed. Management of multiple gingival recessiona case report. Int. J Dent Clinics. 2014;6(1):18-20.
7. Sheth Tejal, Shah Shilpi, Shah Mihir, Shah Shishir. Balancing the white and the pink through periodontal plastic surgery. A Case Report. The Journal of Ahmedabad Dental College and Hospital.2014; 5 (2):88-91.
8. Gupta Vivek, Bains K, Mohan R, Bains R. Bridge flap technique as a single-step solution to mucogingival problems: A case series. Contemp Clin Dent. 2011; 2(2):110-114.
9. Verma Pushpendra Kumar, Srivastava Ruchi, T. P. Chaturvedi, Krishna Kumar Gupta. Root coverage with bridge flap- Case Report.JISP 2013;17(1): 120-123.