

Case Report

Bridge Flap: A Sine Qua Non For Mucogingival Deformities

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ABSTRACT

One of the common clinical findings associated with dental hypersensitivity in mandibular anterior teeth region is gingival recession accompanied with insufficient width of keratinized gingiva. Management of gingival recession in most of the cases include the connective tissue graft plus coronally advanced flap (CTG+CAF) which is considered the gold standard for root coverage therapy. An alternative option, avoiding the need for two surgeries, palatal donor tissue and allograft material, is the use bridge flap surgical procedure.

A surgical technique with the the aim of increasing the width of keratinized gingiva and coverage of recession defect was performed in buccal gingival recessions associated to traumatic brushing in the mandibular central incisors to determine its efficacy in the root coverage procedure of Miller's class I recession defect.

Gradual surgical healing with minimal postoperative morbidity and very slight discomfort was observed at 1 week. The clinical observation at 3-months revealed complete root coverage with an adequate zone of keratinized tissue.

The results seem to suggest that the single step bridge flap can provide a valid treatment procedure in root coverage.

Key-words: Gingival recession, bridge flap, keratinized gingiva.

INTRODUCTION

Gingival recession (GR) is "the apical migration of the gingival margin beyond the cemento-enamel junction" and results in root exposure; leads to root wear, hypersensitivity, cervical/root caries. This is commonly associated with insufficient keratinized tissue, particularly in mandibular anterior teeth, which hampers the performance and maintenance of proper oral hygiene measures. Management of such a clinical scenario includes the traditional two step approach, with an initial intervention to increase the width of attached gingiva, followed by recession coverage after 3 months (Bernimoulin et al. in 1975). Such a treatment plan entails a great deal on the part of patient with regard to time, cost and anxiety of the two step

surgery. Various modifications have thence been done to overcome such limitations. One such technique, a single-step solution to mucogingival problems by surgical interference, namely the "Bridge flap procedure," has been developed by "Marggraf" in 1985 ^[1] and modified by Romanos in 1993. ^[2] The present article will provide an insight of this single step technique along through a case report.

CASE REPORT

A 21 years old male reported to Department of Periodontology, Dr. R. Ahmed Dental College & Hospital with the complain of sensitivity in the mandibular anterior teeth region for the past four months. The sensitivity exaggerated on tooth brushing & intake of hot & cold food.

A detailed case history was taken followed by clinical examination which revealed Miller's class I gingival recession in #31 and #41 {Figure 1(a) and Figure 1(b)} with a healthy residual periodontium. The reason for the recession was attributed to faulty, vigorous tooth brushing.

Treatment plan was discussed and initial etiologic phase with full mouth scaling and root planning was done. Patient was advised to follow the oral hygiene measures as instructed.

Proper brushing technique was reinstated time and again with adequate time given to modify and adapt to the technique.

After two months, a single step procedure "bridge flap" was planned in the mandibular anterior region.

An informed consent, both verbal and written was obtained from the patient before the surgery.

Following injection of local anesthetic (Lignocaine HCl with 2 % epinephrine 1:80,000), root surfaces were planed using Gracey 1/2 curettes.

Using a no.15c scalpel (Bard-Parker), an arch shaped incision was placed into the periosteum, at its base, from distal line angle of 31 to distal line angle of 41, in the vestibule at approximately (2 x GR + 2mm) from gingival margin {Figure 2(a)}.^[2]

A split-thickness flap was elevated in the apico-coronal direction by making a sulcular incision, connecting it with first incision {Figure 2(b) and Figure 3}

The separated partial thickness flap was elevated and repositioned coronally to cover the denuded root surfaces from #31 to #41 (Figure 4).

Avoidance of vertical incision ensures elevation of a partial thickness flap forming a bridge from coronal aspect to the vestibule.

The repositioned flap was then pressed for 4 minutes to avoid hematoma formation, and then independent sling suture was placed with 4-0 silk suture to secure the position of coronally advanced flap (Figure 5).

After suturing, periodontal pack was placed covering the entire surgical field (Figure 6).

Postoperative instructions included:

Application of ice-packs over the facial skin for intermittently as directed.

Patient was prescribed antibiotics (Amoxicillin 500mg TDS) for 5 days post-operatively.

Lukewarm or cold semifluid diet on the day of procedure, along with easy-to-chew soft food with no sharp edges for two weeks was also advised.

Avoidance of brushing at the surgical site for six weeks was advocated.

Use of a chlorhexidine gluconate 0.2% oral rinse was advised twice daily.

The patient was cautioned to refrain away from sports activity or any heavy physical work for 1 week.

Patient was further checked at two, six and twelve weeks and 1 year post-operatively.

Light debridement was done at each follow-up appointment as necessary. The sutures were removed at two weeks post-operatively.

RESULT

Fourteen days post-operatively: The incision lines showed partial healing, along with recession coverage {Figure 7(a)}.

Twelve weeks post-operatively: The incision lines showed complete healing with soft tissue maturation {Figure 7(b)}.

Patient was followed up at 1 year thereafter. 1 year post-operative results showed consistency with adequate recession coverage and properly maintained oral hygiene {Figure 8 & 9}



Figure 1(a): Showing 3mm of gingival recession in #31.



Figure 1(b): Showing 3mm of gingival recession in #41.



Figure 4: Showing flap repositioned coronally to cover the denuded root surfaces in #31 and #41



Figure 2(a): Showing arch- shaped incision placed at a distance of 8mm (GR x 2 + 2mm) into the vestibule from distal line angle of #31 to distal line angle of #41



Figure 5: Showing flap secured coronally with 4-0 silk suture giving single independent sling sutures



Figure 2(b): Showing sulcular incision placed in relation to the respective teeth.



Figure 6: Showing surgical site covered with periodontal pack.



Figure 3: Showing elevation of a partial thickness flap apico-coronally.



Figure 7(a): Showing 14 days post-operative with partial healing along the lines of incision,



Figure 7(b): Showing 12 weeks post-operative view showing complete root coverage with complete soft tissue maturation.



Figure 8 & 9: Showing 1 year follow-up with consistent results.

DISCUSSION

Though controversial and inconclusive, the adequate amount of attached gingiva should be 2-3 mm for the maintenance of periodontal health. [3]

Out of several procedures described in the literature for the purpose of recession coverage, it is the bridge flap which serves dual function of increasing the width of attached gingiva as well as recession coverage in the same surgical seating.

In this technique, the bridge flap covers denuded root surfaces which are supplied by plasmatic circulation from capillaries in the adjacent portions of the gingiva, allowing it to survive. [4]

Precise determination of the location of the CEJ and mucogingival junction prior to the surgery and precise placement of incisions are a prerequisite in order to achieve this goal.

In this case, vestibular deepening was included as treatment of choice in order to maintain the periodontal health, and root coverage with coronally advanced flap was

done to improve postoperative aesthetics of the patient.

Patient was monitored on weekly schedule to ensure adequate oral hygiene in the surgical area and supportive periodontal maintenance at 3 months was prescribed to re-evaluate this area.

In this case report, a 100% root coverage has been achieved which is in a stable condition for 1 year post-operatively. Sensitivity has also been completely absent post-operatively.

However, when a significant loss of the periodontal attachment apparatus and osseous structure occurs, the long-term prognosis becomes poor. [5]

Treatment strategies used in this case suggests that combination of two surgical modalities can be successful for the management of multiple teeth recessions. However, further investigation through randomized controlled trials to prove its plausibility is warranted.

Conflicting Interest: There are no conflicts of interest.

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