

## CASE REPORT

# LATERALLY MOVED, CORONALLY ADVANCED FLAP: A MODIFIED SURGICAL APPROACH FOR ISOLATED RECESSION- A CASE REPORT

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### ABSTRACT:

Gingival recession is a common clinical condition that brings esthetic discomfort, sensitivity, among other problems. Complete root coverage is considered the true goal of treatment of gingival recession defects because only complete coverage assures recovery from the hypersensitivity and esthetic defects associated with recession areas. The laterally moved, coronally advanced flap technique or root coverage yields a higher percentage of complete root coverage upon gingival recession treatment. In the case reported in this paper, we aimed the root coverage in Miller's class II by means of a modified surgical approach of the laterally positioned flap technique.

Keywords: Gingival recession, Root exposure, Laterally moved, coronally positioned flap..

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## INTRODUCTION

Gingival recession is defined as the location of the marginal periodontal tissues apical to the cemento-enamel junction (CEJ) (Loe et al., 1992)<sup>3</sup>. The etiology of gingival recession is multifactorial and may include plaque-induced inflammation, calculus and restorative iatrogenic factors, mechanical factors such as trauma from vigorous tooth brushing, tooth malposition, high frenum attachment, and uncontrolled orthodontic movements (Loe et al., 1992; Tugnait and Clerehugh, 2001)<sup>8</sup>.

The main indications for surgical root coverage to correct recession defects include the need to improve localized soft tissue esthetics, reduce hypersensitivity, improve plaque control, and prevent further progression of the recession defect (Saha and Bateman, 2008)<sup>6</sup>. Multiple surgical procedures such as coronally advanced flaps (CAFs), laterally positioned flaps (LPFs), free gingival grafts (FGGs), and subepithelial connective tissue grafts (SCTGs) appeared as novel approaches to achieve improvements in recession depth, clinical attachment level, and

width of keratinized tissue (Chambrone et al., 2010)<sup>1</sup>. CAFs and LPFs are recommended if adequate keratinized tissue exists close to the recession defect (Patel et al., 2011)<sup>4</sup>. In these surgical approaches, the soft tissue utilized to cover the root exposure is similar to that originally present at the buccal aspect of the tooth harboring the recession defect and, thus, the esthetic result is more satisfactory. Furthermore, the post-operative course is less troublesome because other surgeries in donor sites far from the tooth harboring the recession defect are uninvolved (Patel et al., 2011; Milano, 1998).

The most recent publication on the laterally moved flap as root coverage surgical approach was published in 1988. The reason for the lack of recent interest is related to the fact that data do not seem to indicate the laterally moved flap is an highly predictable and effective root coverage surgical procedure. The reported mean percentage of root coverage ranges between 34% and 82%. Only one study reported data relating the "percentage of complete (up to the cemento-enamel junction) root coverage" and the range was between 40% and 50%.

The coronally advanced flap is the first choice surgical technique when there is adequate keratinized tissue apical to the recession defect. Some unfavorable local anatomic conditions may render the coronally advanced flap contraindicated: 1) the absence of keratinized tissue apical to the recession defect; 2) the presence of gingival (“Stillman”) cleft extending in alveolar mucosa; 3) the marginal insertion of frenuli; 4) the presence of deep root structure loss; or 5) presence of a very shallow vestibulum. In these situations the clinician should take the soft tissues located laterally to the recession defect into consideration to evaluate the possibility to perform a laterally moved flap<sup>9</sup>.

The goal of the present study was to evaluate the effectiveness of a modified surgical approach of the laterally moved flap procedure for treating isolated recession defects with respect to root coverage.

#### CASE REPORT:

In this case report, a 27-years-old male patient, came in department of periodontics, at Dasmesh institute of research and dental sciences, Faridkot, Punjab, with good general health, searched for assistance complaining of esthetic dissatisfaction and sensitivity in upper tooth. On clinical examination it was found chronic periodontal disease in a few sites and the presence of an isolated gingival recession in tooth #23, classified as Miller class II (figure 1).

Due to the extent of root surface exposed and the lack of attached gingiva in the buccal area, surgical planning was directed to the laterally moved, coronally positioned flap, in order to obtain tissue to cover the root.

#### Presurgical therapy

A general assessment of the patient was made through a review of medical history and routine laboratory investigations. The preparation of the patient included scaling, root planing, and oral hygiene instructions. Previously to the surgery, the patient received basic periodontal therapy.

#### Surgical procedure

After proper isolation of the surgical field, the operative sites were anesthetized using 2% Lignocaine with 1:100,000 adrenaline (Alphacaine\_; DFL\_, Rio de Janeiro, RJ, Brazil). At the recipient site, a collar of gingival tissue was removed around the recession defect by two vertical incisions that joined at a point apical to the base of the recession defect (figure 2).



Figure 1: (Miller's Class II gingival recession).



Figure 2: (vertical incision at the recipient site).



Figure 3: (vertical incision at donor site)



Figure 4: Flap elevation



Figure 5: Suturing of flap



**Figure 6:** Application of Periodontal dressing, Coe- Pack

Subsequently, the exposed root surface was planned with finishing burs and mini-Gracey curettes to remove edges, grooves, and dental plaque, and to reduce the convexity of the most coronal portion of the root. The donor site, i.e., one tooth away from the recession, was prepared by executing, with a #15 surgical blade, a vertical incision extending from the gingival margin to the oral mucosa up to the level of the base of the upper left canine, and extending further into the alveolar mucosa by an oblique releasing incision (cut-back incision) facing the recession, to provide adequate mobility of the flap (figure 3). The sliding flap was detached as follows: first, the one-half of the flap located further from the recession defect was reflected as a split-thickness flap by performing a sharp dissection with a #15 surgical blade, and the other one-half of the flap located closer to the recession defect was reflected as a full-thickness flap by performing blunt dissection with the periosteal elevator. The entire flap was then released with an undermining incision through the periosteum at its apical base.

Flap elevation was terminated when it was possible to passively move the flap laterally above the exposed root (figure 4). In order to allow coronal advancement of the flap, all muscle insertions present were eliminated. This was done keeping the blade parallel to the external mucosal surface. Coronal mobilization of the flap was considered adequate when the marginal portion of the flap was able to passively reach a level coronal to the cemento-enamel junction. In fact, the flap should be stable in its final coronal position even without the sutures.

#### **Suturing of flap**

The flap was rotated laterally to completely cover the recession defect and extended for approximately 2 mm coronal to the CEJ. The flap was carefully sutured by a sling suture (figure 5). A gentle pressure was applied for few minutes to minimize the clot that forms under the pedicle

flap, and the periodontal dressing (Coe-Pak; GC America, Alsip, IL, USA) was used to cover the surgical site (figure 6).

#### **Post-operative care**

Amoxicillin 500 mg and Ibuprofen 400 mg were prescribed three times daily for 5 days. The patient was advised to follow all normal oral post-operative hygiene instructions, including rinsing the oral cavity with 0.12% chlorhexidine digluconate mouth rinse for 2 weeks. The patient was advised to avoid pulling on his lips to observe the surgical site. Both dressings and sutures were removed 10 days after surgery.

#### **Results**

An uneventful healing was seen at the time of suture removal and in the third month of post operative visit. Total root coverage was seen at the time of suture removal and the third month post operative visit. No post-operative complication was observed. The patient did not experience any post-operative morbidity. The treated sites showed a reduction in RD and gain in CAL after three months of study.

#### **DISCUSSION**

The complete root coverage represents the ultimate clinical goal of surgical root coverage procedures. Complete root coverage will not only lead to an esthetic correction but also helps in resolution of hypersensitivity and prevention of root abrasion (Chambrone et al., 2012)<sup>1</sup>.

The results of the present case report study indicate that the laterally-moved coronally-advanced surgical approach was effective and predictable in obtaining root coverage of isolated gingival recession type defects. This technique, in fact, resulted in a very high mean percentage of root coverage (96%) and complete soft tissue root coverage (up to the CEJ) was accomplished in the great majority (80%) of treated cases. These root coverage outcomes were associated with a clinically and statistically highly significant clinical attachment gain with no significant change in the depth of the probing buccal pocket. Furthermore, a clinically and statistically highly significant increase in the height of keratinized tissue was demonstrated at the buccal aspect of treated teeth. These favorable results at the treated teeth were obtained with no change in the position of gingival margin and in the height of gingival tissue at the donor tooth/site lateral to the defects.

The main modification of the present surgical technique, with respect to other techniques, was the elimination of all muscle insertions in the

thickness of the flap to permit the coronal advancement of the laterally moved flap.

Various authors suggested several modifications to the original laterally sliding flap described by Grupe and Warren (1956)<sup>2</sup> in order to reduce the risk of gingival recession at the donor site: Staffileno (1964)<sup>7</sup> proposed the use of a partial thickness flap, instead of a full-thickness one, to cover the root exposure. Grupe and Warren suggested performing a submarginal incision at the donor site in order to preserve the marginal integrity of the tooth adjacent to the recession defect. Rubens et al. (1975)<sup>5</sup> introduced a mix-thickness flap which consisted of a full-thickness flap performed close to the recession defect to cover exposed root, and a split-thickness flap laterally to the full-thickness one, to cover the bone exposed at the donor site of the full thickness flap. Zucchelli et al (2004)<sup>9</sup> performed a modified surgical approach for isolated recession type defects by laterally moved, coronally advanced flap.

Furthermore, the coronal advancement of the flap allowed the surgical papillae to cover the anatomic papillae which represented the most coronal areas for anchoring the flap and a critical source for vascular exchanges. In addition, coronal advancement of the flap beyond the cemento-enamel junction likely compensates for the post-surgical soft tissue contraction, resulting in no exposure of the root surface.

### Conclusion

The laterally moved, coronally advanced surgical technique was very effective in treating isolated gingival recessions. It combined the esthetic and root coverage advantages of the coronally advanced flap with the increase in gingival thickness and keratinized tissue associated with the laterally moved flap. The ideal gingival conditions

must be present lateral to an isolated recession defect in order to render the proposed surgical technique a highly effective and predictable root coverage surgical procedure.

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