



## Coronally Advanced Flap for the Treatment of Gingival Recession in Mandibular Canine: A Clinical Case with Literature Review

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### Abstract:

Migration of the gingival tissue, apical to cemento-enamel junction, is termed as gingival recession. It gives rise to both esthetic and functional challenges to clinician. For achieving satisfactory outcome, various techniques have been proposed and evaluated for the same. In this respect, the purpose of this case report was to evaluate the use of coronally advanced flap to cover labial gingival recession defect of mandibular canine.

**Keywords:** Oral Pigmentation, Melanin Pigment, Melanocytes, Intra Dermal Nevus, Epitheloid Cells

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### 1. Introduction

A very common problem, which every periodontist's faces, is the gingival recession (GR). It is common in people with poor oral hygiene. The etiological factor which leads to gingival recession includes anatomical factors (frenal pull and tooth malposition), mechanical factors (faulty tooth brushing), periodontal diseases, and iatrogenic factors (poor restoration, orthodontic movement).<sup>1</sup> GR leads to dental hypersensitivity, root caries, unaesthetic appearance, periodontal attachment loss and cervical wear.<sup>2,3</sup> Various surgical techniques are designed to treat GR. A few of them are connective tissue graft, free gingival graft, guided tissue regeneration and pedical graft

etc.<sup>4</sup> A surgical procedure is selected for root coverage by estimating the amount of root coverage required for the exposed roots, position of the teeth in the arch and the thickness of the flap. Pedicle grafts have a good success rate as they preserve the vascularity of the flap. A pedicle flaps may be a full thickness, partial thickness or combination. Miller's class I and class II GR are mostly treated by the coronally advanced flap. The term Coronally advanced flap was coined by the Pini Prato et.al. in 1999. It is simple to perform; the procedure does not require a second surgery and there is no issue with color mismatch, and hence the esthetics is good. It is routinely used to treat recession in maxillary anterior teeth. In this case, we used the procedure to treat a



Miller's class I GR defect in a mandibular anterior teeth.

## **2. Case Report:**

A 28-year-old male patient reported to the Department of Periodontology, SGT Dental College, Hospital and Research Institute, SGT University, India with the chief complaint of hot and cold sensation in teeth in the left lower front region. On examination, a 3mm Class I GR defect was diagnosed in the left mandibular canine (**Figure 1**). A risks and benefit evaluation of the clinical procedure, was carried over. The procedure, its risks and benefits were explained to the patient. An informed consent was then obtained from the patient. The patient was otherwise healthy and non-smoker. He had no contraindications for periodontal surgery. The root coverage procedure was planned for the buccal GR on the mandibular left canine (33) with a Coronally Advanced Flap. This technique was used as it needed no donor site. The patient has a firm healthy gingival tissue surrounding GR area and the width of the gingiva was adequate.



*Figure 1: Preoperative photograph*

## **3. Surgical Technique**

A 2% lignocaine hydrochloride, containing adrenaline at a concentration of 1:80,000, was used for anesthesia. An Intra-sulcular incision on the buccal aspect of the tooth was made using a No 15 Bard-Parker blade (B.P. Blade). To relieve the tension in the elevated flap, two oblique vertical incisions, which were extended apically

beyond the mucogingival junction (MGJ) (**Figure 2**). A full flap was elevated (**Figure 3**). The root surface was carefully instrumented with curettes and irrigated with sterile saline solution to remove any plaque and calculus remnants. The tissue flap was coronally advanced and to obtain an optimal fit it was adjusted on the prepared recipient bed. The flap was secured by suturing at the level of the cemento-enamel junction. A sling suture was used in the procedure (Ethicon, non-resorbable black 3.0 suture material) (**Figure 4**). Moreover, interrupted sutures were placed for careful closer of the wound at the site of releasing incisions. The sutures were removed after 10 days.



*Figure 2: Incision placed*



*Figure 3: Full- Split mucoperiosteal flap elevated*



*Figure 4: Sutures in place*



The patient was instructed to refrain from tooth brushing at the surgical site. A soft diet was advised to be taken. The oral hygiene was maintained with chemical plaque control with 0.12% chlorhexidine mouthwash for 6 weeks. Furthermore, non-steroidal analgesics were prescribed for 7 days postsurgically<sup>5</sup>. The patient was instructed to resume tooth brushing in the surgically treated area using soft toothbrush after three weeks of surgery. In case of discomfort the patient was instructed to report to the department immediately.<sup>5</sup> Complete coverage of the GR defect was noticed 6 months after the surgery (**Figure 5**).



*Figure 5: 6 months Post-Operative*

#### **4. Discussion**

A good amount of scientific literature exists regarding coronally advanced flaps. Various surgical procedures for coverage of GR have been employed for decades.<sup>6,7,8,9</sup> Further, Sumner(1969)<sup>10</sup>, Ward (1973) worked on modifications for Coronally repositioned flaps. Two vertical incisions were described in the coronally advanced flap by Bernimoulin in 1975<sup>11</sup>. Root coverage for Miller's class I gingival recession with the help of coronally advanced flap have consistently shown predictable results.<sup>12,13</sup> These studies, as well as many others, affirmed the clinical usefulness of the, "coronally repositioned flaps" which gave rise to the newer approaches for periodontal plastic surgery<sup>5</sup>.

Since complete root coverage is influenced by postsurgical positioning of gingival margin along with the baseline depth, thus in this surgery the gingival margin was placed 2mm coronal to CEJ so as to counteract the gingival retraction after the surgery. This was done in accordance with studies conducted by Pini Prato and Baldi et al.<sup>5</sup>

Healing after mucogingival surgeries relies on maintenance of blood supply, revascularization, and clotting. After the healing was complete, a significant difference was observed in the parameters including clinical attachment level (CAL), the width of keratinized tissue and recession width and depth.<sup>14</sup> Formation of the new connective tissue epithelial attachment leads to the gain in the probing depth.<sup>15, 17</sup>

The limitations of this case report is that the period of post-surgical observation is short. However, this procedure is simple, cost effective and gave good aesthetic results.

#### **5. Conclusion**

This case of GR on treatment with coronally advanced flap resulted in complete root coverage along with marked improvement in the clinical parameters. This procedure is a valuable tool for clinicians in treating relatively shallow GR defects both in the maxillary and mandibular regions.

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