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Recession coverage by Coronally advanced flap with placental membrane- A case report

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Type of Publication: Case Report

# **Conflicts of Interest:** Nil

**Abstract:** Apical migration of marginal gingival from cemento enamel junction (CEJ) causing gingival recession may compromise esthetics smile and increases the risk of root caries, periodontal attachment loss and hypersensitivity. It could be associated with single or more teeth. This case report present recession coverage of single tooth class II Miller's recession. This procedure involved with coronally advanced flap (CAF) with use of chorion membrane in maxillary first premolar of right side. Posto perative follow-up showed uneventful healing and 6 months follow-up showed complete recession coverage without recurrence.

**Keywords:** Gingival recession, Coronally advanced flap, chorion membrane, Root coverage

#### Introduction

Gingival recession is defined as apical migration of gingival margin from cementoenamel junction. The most common factor of gingival recession is trauma from tooth brushing. However gingival recession is caused due to various reasons such as inflammation of periodontal structure, alveolar bone dehiscence, aberrant frenal attachment, high muscle pull, malpositioned tooth, uncontrolled orthodontic forces, improper periodontal procedures<sup>1</sup>. Patient with gingival recession may complain with compromised esthetics, teeth sensitivity due to opening of dentinal tubules, root caries due to exposure of root.

Various surgical techniques has been developed with time to treat gingival recession including connective tissue graft (CTG), Free gingival graft (FGG), Lateral pedicle flap, coronally advanced flap (CAF).

Nar Burge  $(1926)^2$  introduce coronally advanced flap which is commonly used method for root coverage and showed a high predictability of root coverage. Another advantage of CAF is, it is simple technique and can be implemented for the treatment of both single and multiple recession defect.

The most predictable plastic procedure for recession coverage is CAF with Subepithelial connective tissue graft (SECTG). It provides excellent result and improved long term root coverage.<sup>3</sup>

To avoid second surgical wound for soft tissue harvesting, various biomaterials have been developed which eliminate risk of donor site morbidity, reduces post operative pain and complication and increases patient acceptance. This includes use of root biomodification agents, EMDs, Acellular dermal matrix allograft (ADMA), Platelet rich fibrin (PRF), chorion membrane<sup>4</sup>, tissue engineered scaffolds with or without cell delivery etc. chorion membrane or placental allograft has been increased in various field of medicine and constructive surgery<sup>5</sup>. The human placenta comprises two membranes; inner aminotic and outer chorion membrane. Placental membrane has bio mechanical properties, anti-inflammatory, angiogenic, immuno genicity, antimicrobial and antiviral properties and also helps in epithelialization.

This case report present successful root coverage of right maxillary first premolar with Miller's class II recession by coronally advanced flap with chorion membrane.

## **Case Report**

A 26-year female patient reported to the department of periodontology in Career Post Graduate Institute of Dental Sciences & Hospital, Lucknow, India with chief complaint of the unaesthetic appearance and tooth sensitivity of her maxillary front teeth. During the clinical and radiographic examination, it was noted that there was Miller's class II gingival recession<sup>6</sup> in relation to 14. The patient was healthy non-smoker with no parafunctional habit.

On intraoral examination, the recession measured 3mm irt 14. The clinical attachment loss was 5mm from the cement-enamel junction (CEJ). Oral prophylaxis has been done and oral hygiene instructions were given so as to achieve satisfactory plaque control prior to periodontal surgery.

### **Surgical Procedure**

After measuring all the pre surgical parameters such as recession depth, recession width, width of keratinized gingival (Figure-1), intraoral asepsis were performed with 0.2% chlorhexidine gluconate rinse and an iodine solution were used to carry out extra oral asepsis. The surgical procedure were performed utilizing local anesthesia with 2% Lignocaine with epinephrine (1:100000) in concentration. After the adequate anesthesia is achieved the horizontal incisions were given at base of interdental papilla, on either side of involved tooth, without involving gingival margin of adjacent tooth. Then, two vertical incisions were given, starting from the mesial and distal extremities, extending apically from the horizontal incisions, one from each side and extending beyond the mucogingival junction. The resulting trapezoidal shaped flap was elevated with a split-full- split approach in the coronal-apical direction to make the flap mobile (Figure-2). The papillae adjacent to the involved tooth were deepithelialized. The exposed root was debrided with hand and ultrasonic instruments. Chorion graft was then placed at the level of the CEJ (Figure-3&4).

Finally, the flap was coronally advanced for full coverage of the de-epithelialized papillae. Sling sutures

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were used to secure the flap margin 1mm coronally from the CEJ (Figure-5).

A non-eugenol periodontal pack (COE-PAK) was used to cover and protect the surgical site for wound stabilization and patient comfort. Pressure was applied to the surgical site for 1 minute with moistened gauze.



Figure 1: Preoperative



Figure 2: Flap Elevated



Figure 3: Chorion membrane



Figure 4: Chorion membrane placed in defect



Figure 5: Suture placed securing flap coronally



Figure 6: Postoperative
Post Operative Care

All patients were prescribed Amoxicillin 500mg three times per day for 5days and Diclofenac-50mg BD along with chlorhexidine gluconate rinse (0.2%) twice daily for two weeks. Suture and periodontal dressing were removed a 7-days post-operatively Surgical wound were gently cleaned with 0.2% chlorhexidine solution and

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patient were given instruction for gentle brushing with a soft tooth brush. Each patient was instructed about proper oral hygiene measure postoperatively, examine up to one month after surgery and at 3 and 6 month postoperatively. At every visit, oral hygiene instruction was strengthened and surgical area was irrigated with normal saline.

### Discussion

The amount and thickness of keratinized tissue influence the outcome of root coverage. Thicker and large amount of residual keratinized tissue are perceived as favorable. The objective of mucogingival plastic surgery is successful coverage of exposed root surface along with good esthetics and function .<sup>7</sup> To correct a lack of keratinized tissue and attain root coverage, various techniques showed high predictability in miller's class II recession defect.

Coronally advanced flap technique is commonly used for single or multiple root coverage, this technique was introduced by Nar Burge (1926)<sup>2</sup>. The advantage of this technique as oblique vertical incision outline by very wide horizontal incision are made, this technique provide large area for anchoring the flap to the underlying periosteum.

Leong and Wand (2011)<sup>8</sup> stated that GTR based root coverage with this technique obtain new attachment. Pini Prato et al. (1996)<sup>9</sup> stated that thicker and more supported root coverage may potentially improves the long-term stability of the treatment and reduce the recurrence of recession. Placental allograft is now emerging a novel and versatile material in periodontal plastic surgery. Chorion membrane has three layers: reticular layer, basement membrane and trophoblast. Collagen present in chorion membrane stimulates the migration of adjoining connective tissue. Fibronectin helps in repair of tissue, clotting of blood, cell migration and adhesion and due to the presence of lamnin, chorion membrane does not require suturing separately.<sup>10</sup>

This case demonstrated complete root coverage with coronally advanced flap with adjunctive use of chorion membrane. 6 months follow up shows no recurrence of recession (Figure-6). Although long term clinical presentation was not provided in this case. Finally, it may be concluded that coronally advanced flap with chorion membrane in this case report achieved 100% root coverage and gain in keratinized mucosa however study in controlled condition with inclusion of parameters in large numbers of samples should be done to validate the outcome predictability of the protocol used in this study.

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