

## Management miller class I recession with platelet rich fibrin and coronally repositioned flap

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### Abstract

**Background:** Gingival recession is associated with root exposure, often leading to hypersensitivity concerns esthetically and difficulty maintaining optimum oral hygiene. Several surgical procedures have been suggested to treat gingival recessions.

**Objective:** This treatment is done to eliminate tooth hypersensitivity and to get ideal crown proportion with coronally repositioned flap.

**Method and Treatment Result:** Dental health education (DHE) and scaling root planning (SRP) was completed before the coronally repositioned flap procedure. In result, gingival recessions and tooth hypersensitivity was reduced significantly.

**Conclusion:** Platelet rich fibrin and coronally repositioned flap is the appropriate technique to treat miller class I recession.

**Keywords:** Gingival Recession; Hypersensitivity; Platelet Rich Fibrin; Coronally Repositioned Flap

### 1. Introduction

Gingival recession (GR) is associated with root exposure, often leading to hypersensitivity concerns esthetically and difficulty maintaining optimum oral hygiene. Also, gingival recession increases the risk of root caries and cervical abrasion. Clinically, seen as apical migration of the gingival margin beyond the cemento-enamel junction (CEJ). The etiology of GR is multifactorial including periodontal disease, aging, toothbrush abrasion, and mechanical trauma, and thin phenotype, high frenal attachment, lip or tongue piercing position, tooth malposition, and orthodontic tooth movements [1]. Various techniques have been described for the treatment of GR, including laterally positioned flap [2], Free Gingival Graft [3], the Coronally Advanced Flap (CAF) [4], Subepithelial Connective Tissue Graft (SCTG) [5] and guided tissue regeneration with membranes [6], Enamel Matrix Derivative (EMD) [7] or the application of an Acellular Dermal Matrix (ADM) [8], Platelet-Rich Plasma (PRP) [9], and Platelet-Rich Fibrin (PRF) [10] in combination with CAF. Among these treatment options, the CAF + SCTG was accepted as the gold standard. However, the combination of CAF and PRF is a good alternative to replace SCTG. Using PRF can reduce the occurrence of multiple defects, leading to multiple surgeries. Besides discomfort in patients and postoperative injuries in the donor area can also be avoided.

PRF is a fibrin matrix which consists of growth factors and cytokines, can serve as a resorbable membrane facilitating wound healing. It is a second generation platelet concentrate which is prepared from the patient's own blood free of

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any anticoagulants. PRF helps in healing of the tissues by releasing an array of growth factors [11]. PRF is the second generation of platelet concentrate obtained from the patient's own blood that has been free of anticoagulants [12]. The ability of neovascularization in the injured area is a major advantage in the application of PRF [13]. This case report describes the use of platelet rich fibrin (PRF) in combination with a coronal repositioning flap to treat Miller class I recession.

## 2. Clinical Presentation

A healthy 51 years old female with no evidence of systemic disease or drug allergic reaction presented on Februari 17, 2019 to the postgraduate periodontics clinic at RSGM Faculty of Dentistry Airlangga University, Surabaya, Indonesia.



**Figure 1** Clinical examination revealed 2 mm Class I facial recession

The Patient was a non-smoker and had non contributory medical history, but complained about dentin hypersensitivity and esthetic concerns. Clinical examination revealed gingival recession of 2 mm facially. According to the Miller classification, there was a 2 mm Class I facial recession defect on the maxillary right central incisor, lateral incisor and canines. (Fig. 1) The amount of keratinized gingiva was measured using a periodontal probe by identifying the mucogingival junction and measuring the distance from the mucogingival junction to the gingival margin. A wide band of keratinized tissue (KT) was present on anterior teeth. Interdental papillary height was intact. The technique described is a coronally repositioned flap combined with platelet rich fibrin (PRF).

## 3. Case Management

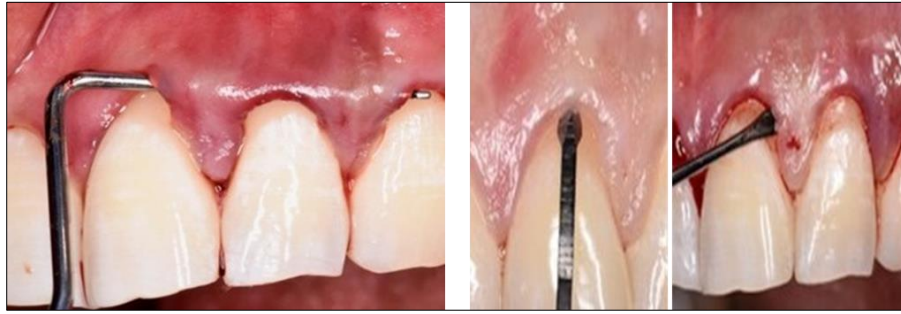
Non-surgical periodontal treatment was completed as part of phase I treatment. Anesthesia was achieved via local infiltration. (Fig. 2a) The exposed root was thoroughly planned and conditioned with tetracycline (50 mg/mL) for 5 minutes, because tetracycline root conditioning may promote attachment of fibroblasts to treated dentin surfaces (Fig. 2b).



**Figure 2** Anaesthesia with local infiltration (2a) Root conditioned with tetracycline 50 mg/mL (2b)

Sulcular incisions on the labial and buccal only were performed with microblade to begin the full thickness dissection on attached gingiva. The partial thickness dissection then was extended until continuity to mucosa was established between all the recession sites without raising the papillae. To enhance the efficacious performance of periodontal plastic procedures in these difficult areas, specialized curved microsurgical tunnelling kit were used (Fig. 3) These

instruments not only have the curvature required to follow the root surfaces during dissection, but also are small enough to cut safely in the restricted areas of the papillae.



**Figure 3** Tunneling technique

PRF membrane (2 mm thick) was applied over the dehiscence, PRF were secured to the interdental papillae and adjacent soft tissue at the apical part with horizontal mattress sutures (Fig 4a). Each partial-thickness flap was further released and positioned over the graft to cover the CEJ and sutured with vertical mattress sutures (Fig. 4b). Gentle pressure for 3 minutes to minimize the thickness of clot between flap and grafted tissue and apply hyaluronic acid gel 0,2%.

Patients were instructed to maintain oral hygiene and were educated to avoid the operating area when brushing teeth and to clean the surgical area using a cotton pellet. And patient was also given a 500 mg amoxicillin and a paracetamol 500. Sutures were removed 2 weeks later and control was done on first and second month post operative (Fig. 5). On 2 months postoperative visit, the result was adequate and the gingiva was fully recovered (Fig. 6).



**Figure 4** PRF membrane applied over the dehiscence (4a) Suturing with horizontal mattress on buccal and vertical mattress on papilla (4b)

The quality of vascularity in the surgical area will affect the predictability of the success of the root closure procedure. By using the tunnel, or envelope technique, vascularization can be optimized because this technique eliminates the need for a vertical detachment incision. When there are recession defects that are close together and connected by papillae in the esthetic area, the tunnel technique is an appropriate treatment of choice in maintaining the elevation of the papillae [15]. Combining partial thickness dissection and this technique can create the most optimal subgingival and vascularized environment for placement of a subepithelial or acellular collagen matrix. However, this surgical technique requires more skill than a standard full thickness flap due to its narrower visibility and access. To do this, a microsurgical instrument is needed to release and align the flap and papilla precisely in a narrow area. Using the right procedures and tools, this method is predictable and has a high success rate for treating multiple adjacent root recession while maintaining the interdental papillae height.



**Figure 5** Second week post-operative control (5a) one month post-operative control. (5b)



**Figure 6** Control after two month post-operative

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#### **4. Conclusion**

In this case, it can be concluded that platelet rich fibrin and coronally repositioned flap is the appropriate technique to treat miller class I recession.

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#### **Compliance with ethical standards**

##### *Acknowledgments*

We thank the patient for allowing us to share her details.

##### *Disclosure of conflict of interest*

No conflict of interest.

##### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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