Application of Platelet Rich Fibrin in laterally repositioned flap for root coverage
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Abstract
Mucogingival surgical procedures aimed at root coverage should able to restore the tissue margin at the cementoenamel junction and to achieve an attachment of the tissues to the root surface. This article describes the application of platelet rich fibrin in laterally repositioned flap for root coverage.

Key Words: Platelet Rich Fibrin; Root Coverage; Laterally Repositioned Flap

Introduction
A recent innovation in dentistry is the preparation and use of platelet concentrates, a concentrated suspension of growth factors found in platelets. These growth factors are involved in wound healing and are postulated as promoters of tissue regeneration. This paper reports the application of platelet rich fibrin in laterally repositioned flap for root coverage.

Case Report
A 32 year old female patient reported to the Department of Periodontics at Sree Balaji Dental College and Hospital with a chief complaint of stains and downward movement of the tissue around the lower front tooth region for last one year. Medical history was noncontributory. General examination of patient appeared normal. Extra oral examination was of not much significance. Intraoral examination revealed presence of 6 mm recession in lower anteriors in relation to 31 and generalized stains (Figure 1). On investigation, routine blood examination was found to be within the normal limits and intraoral periapical radiograph revealed no bone loss pertaining to lower anterior. The patient was diagnosed with localized periodontitis with gingival recession of Class III in relation to 31.

Phase I therapy was initiated with scaling and root planning and patient was evaluated after two weeks for elimination of inflammatory conditions so that the tissue handling properties were improved. After two weeks of review, patient preparation was done. The area where the mucogingival surgery was to be performed was anesthetized using 2% Lignocaine with 1:80,000 adrenaline. Using a #15 BP blade a V-shaped incision that crosses the apical area around the area of gingival recession was made. An external bevel given obliquely on the distal aspect of 31 to which the pedicle flap was displaced to overlap the connective tissue of the recipient site. An internal bevel incision placed towards the bone from the free gingival margin on the recipient site. A vertical incision made at the distal line angle area at least 1½ teeth away from the donor site. The pedicle flap was reflected sufficiently to enable displacement without tension. A full-thickness flap is prepared in the gingival area. Using a 24 gauge needle and syringe whole blood was drawn into 5 ml blood collection tubes without any anticoagulant and was immediately centrifuged for 3000 rpm for 10 minutes. The absence of anticoagulant allowed activation of the platelets contained in the test tube to activate a coagulation cascade. The result was a fibrin clot containing the platelets located in the middle of the tube, just between the Red blood cell layers at the bottom due to increased density of Red blood cells. Platelet rich fibrin (Figure 2) was placed in the area and sutures were given (Figure 4). A periodontal pack was placed. Post-operative medication was advised. The patient was reviewed after 2 weeks and healing was satisfactory (Figure 5).

Discussion
The purpose of root coverage should be to restore the tissue margin at cementoenamel junction and to achieve attachment of tissues to the root surface. Although various surgical procedures had been described to treat gingival recessions but the major drawbacks were they all end up healing with long junctional epithelium and regeneration in apical area. Use of platelet rich fibrin (PRF) provides the necessary cells, growth factors, and inhibitors to initiate the osteogenic biomineralization cascade. PRF is a matrix of autologous fibrin, in

Figure 1. Preoperative View, Figure 2. Platelet Rich Fibrin, Figure 3. Pedicle Flap in Position, Figure 4. Postoperative View
which embedded a large quantity of platelets and leukocyte cytokines during centrifugation.(6) PRF alleviated the need for donor site procurement of connective tissue.(3)

The platelets and leukocyte cytokines play an important role in the biology of the PRF, the fibrin matrix supporting them certainly constitutes the determining element responsible for the real therapeutic potential of PRF.(7) It helps in restoring the functional properties of labial gingiva along with maintaining the integrity of the zone of keratinized gingiva.(3) The intrinsic incorporation of cytokines within the fibrin mesh allows for their progressive release over time (7-11 days), as the network of fibrin disintegrates.(8) PRF membrane acts much like a fibrin bandage, serving as a matrix to accelerate the healing of wound edges.(9) It also provides a significant postoperative protection of the surgical site and seems to accelerate the integration and remodeling of the surgical site.(8) PRF membrane used in this case report has the advantage of the absence of an anticoagulant, blood begins to coagulate as soon as it comes in contact with the glass surface.

Conclusion

In conclusion, placement of PRF membrane in recession defects can be used to restore the functional properties of the labial gingiva of the mandibular anterior teeth by repairing gingival defects and re-establishing the continuity and integrity of the zone of keratinized gingiva.

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