



Case Report

ISSN: 2581-3218

IJDR 2026; 11(2): 22-25

Received: 02-03-2026

Accepted: 05-06-2026

Published: 16-07-2026

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www.dentistryscience.com

doi: 10.31254/dentistry.2026.11201

Management of Multiple Gingival Recession Defects Using VISTA and PRF Membrane- A Case Report

M. Selvakumar¹, V. Krishnan², S. Srinivasan³, S. Sofiya¹

¹ Post Graduate, Department of Periodontics, Government Dental College and Hospital, Cuddalore- 608002, Tamil Nadu, India

² Professor & Head, Department of Periodontics, Government Dental College and Hospital, Cuddalore- 608002, Tamil Nadu, India

³ Professor, Department of Periodontics, Government Dental College and Hospital, Cuddalore- 608002, Tamil Nadu, India

Abstract

Mucogingival deformities resulting in root exposure may lead to dentinal hypersensitivity, plaque accumulation, and esthetic concerns. The Vestibular Incision Subperiosteal Tunnel Access (VISTA) technique is a minimally invasive periodontal plastic surgical procedure that provides predictable root coverage with minimal soft tissue trauma. This case report describes the management of multiple Miller Class I recession defects in the maxillary anterior region (teeth 13–23) using the VISTA technique in combination with Platelet-Rich Fibrin (PRF) membrane. Following initial periodontal therapy, a vestibular access incision and subperiosteal tunnel preparation were performed to facilitate coronal advancement of the gingival tissues. PRF membrane was placed within the tunnel to enhance wound healing and improve soft tissue thickness through the sustained release of growth factors. Postoperative healing was uneventful. Clinical evaluation at 3- and 6-month follow-up demonstrated satisfactory esthetic outcomes, increased gingival thickness, reduced hypersensitivity, and approximately 2–3 mm clinical attachment gain with complete root coverage in most sites. The combination of VISTA and PRF appears to be an effective minimally invasive approach for the treatment of multiple recession defects with favorable clinical and esthetic outcomes.

Keywords: Mucogingival deformity, VISTA technique, Platelet-Rich Fibrin, Root coverage, Periodontal plastic surgery.

INTRODUCTION

Gingival recession is defined as the apical movement of marginal gingiva towards or below the cemento-enamel junction [1]. The etiology is considered to be multifactorial. However, the possible causes include mechanical factors such as trauma due to vigorous brushing, traumatic occlusion, anatomic factors such as higher frenulum attachment, fenestration and dehiscence and narrow gingival areas and due to infection by bacteria such as a response to bacterial plaque and calculus [2]. Management of gingival recession can be done by both surgical as well as non-surgical approach. The main indication of treating gingival recession were an aesthetic concern, dentin hypersensitivity, prevention of cervical and root caries, cervical abrasion or erosion and improvement in oral hygiene measures [3,4].

The first line of treatment included removal of etiological factor followed by surgical correction. The primary aim of any surgical approach is to achieve complete root coverage and regeneration of periodontal supporting tissue that help to improve aesthetics and restore function. Over the years, various periodontal plastic surgical procedures have been developed for the management of gingival recession, including free gingival grafts, subepithelial connective tissue grafts (SCTGs), and pedicle grafts such as laterally positioned flap, double papilla flap, coronally advanced flap (CAF), and semilunar flap. In addition, biomaterials including acellular dermal matrix allograft (ADMA) and enamel matrix derivative (EMD) have been used as adjuncts to enhance clinical outcomes [5].

The root coverage of multiple gingival recessions pose a more significant challenge to the periodontist. In order to overcome this, a new technique called VISTA has been introduced by Zadeh in 2011 [6]. The Vestibular Incision Subperiosteal Tunnel Access (VISTA) technique is a recently introduced minimally invasive procedure for the treatment of gingival recession. This approach preserves the vascular supply of the surgical site while maintaining the integrity of the marginal gingiva and interdental papilla, thereby promoting favorable healing following periodontal surgery [7].

*Corresponding author:

Dr. M. Selvakumar

Post Graduate, Department of Periodontics, Government Dental College and Hospital, Cuddalore- 608002, Tamil Nadu, India

Email:

drselvakumar96@gmail.com

PRF has been used as an adjunct in root coverage procedures because of its ability to enhance wound healing and soft tissue regeneration through the sustained release of growth factors. When combined with the VISTA technique, PRF may improve gingival thickness, clinical attachment gain, and root coverage outcomes while avoiding donor site morbidity associated with connective tissue grafts.

This case report describes the treatment of Miller's Class I gingival recession defects involving the maxillary canine-to-canine region using the VISTA technique combined with PRF membrane bilaterally.

Case Report

A 54 year old male patient reported to the Department of Periodontology, with chief complaint of receding gums in the upper front teeth for the past one year, associated with hypersensitivity to cold water and air. Patient was subjected to general medical examination in which he was found systemically healthy with no history of any medical disorders. On intra oral examination, Miller's class 1 gingival recession with a recession depth of approximately 3mm was observed on the labial surfaces of the maxillary right central incisor, lateral incisor, canine and upper left central incisor, lateral incisor, and canine (Figure 1). Width of attached gingiva and vestibular depth found to be adequate.



Figure 1: Miller class 1 recession in anterior teeth



Figure 2: Vestibular incision

Prior to the procedure, written informed consent was obtained from the patient. Phase I therapy, including the scaling and root planing, was completed, and oral hygiene instructions were provided. The surgical procedure was carried out under local infiltration anesthesia using 2% lignocaine with adrenaline (1:200,000). The VISTA procedure was initiated with a vestibular access incision placed at the midline of the maxillary frenum, allowing access to the anterior maxillary region (Figure 2). The incision was extended through the periosteum to create a subperiosteal tunnel, exposing the facial osseous plate and areas of root dehiscence. The tunnel was then carefully extended to the involved recession sites to permit mobilization and coronal advancement of the gingival margins using the VISTA kit (Figure 3).

L-PRF was prepared using the patient's venous blood, in which 10 mL of blood was collected in a sterile glass test tube without anticoagulant. The sample was centrifuged at 2700 rpm for 12 minutes. Following centrifugation, three distinct layers were obtained: a top layer of acellular plasma, a middle fibrin clot layer, and a bottom layer containing red blood cells. The PRF clot was separated from the upper layer (Figure 4), trimmed appropriately, and inserted into the subperiosteal tunnel over the maxillary anterior teeth. It was then stabilized in position using gentle pressure for approximately 3 minutes (Figure 5).



Figure 3: Subperiosteal tunneling



Figure 4: Isolated PRF

The facial enamel surface of each tooth was etched with 37% phosphoric acid, followed by thorough rinsing and drying to aid in suture stabilization. To minimize apical displacement of the gingival margin during the early healing phase, 5-0 Vicryl sutures were secured to the facial surface of each tooth using a small amount of flowable composite resin over the suture knot. The vestibular incision was then closed with 5-0 Vicryl sutures, and a periodontal dressing (Coe-Pak) was placed over the surgical area (Figure 6).



Figure 5: Insertion of PRF



Figure 6 : Suturing

The patient was reviewed 3 and 6 months after the surgery and there were no visible signs of inflammation or discomfort (Figure 7,8). Root coverage with gain of approximately 2-3 mm in the clinical attachment level and improved esthetics were observed in the upper anterior teeth region.



Figure 7: 3 months post-surgery



Figure 8: 6 months post-surgery

DISCUSSION

The major aim of gingival recession treatment is to achieve complete coverage of the root exposure by increasing the gingival thickness to improve the patient esthetics and self-confidence. Over many years, various surgical methods have been introduced to achieve better results of root coverage. In spite of its advantages and efficacy, there were also some complications regarding tissue morbidity of the donor site and terms of patient satisfaction [8,9]. In order to overcome these complications, minimally invasive techniques were introduced.

The concept of Minimally Invasive Surgery is mainly introduced to embrace all positive effects of surgical procedures to achieve minimal tissue wound, less flap elevation, and proper handling of the soft and hard tissues [10]. The VISTA technique used in our case report, a single vestibular incision was made which gives wider access to the full surgical area and minimize the possibility of the gingival trauma by maintaining the integrity of the interdental papilla without reflecting the papilla. Also, the various limitations of the several techniques of the Connective Tissue Graft can be eliminated with the use of PRF membrane [11].

PRF promotes the sustained release of growth factors within the fibrin matrix and enhances fibroblast proliferation in the connective tissue and periodontal ligament over an extended period, thereby contributing to improved root coverage outcomes [11]. In addition, the VISTA technique differs from conventional tunneling and gingival augmentation procedures by allowing greater coronal advancement of the gingival margin during surgery [6].

Very limited studies are available in literature that have mentioned the use of PRF with VISTA technique in the treatment of multiple gingival recession defects. In a study by Zadeh, Bioguide membrane was used in the VISTA technique for root coverage of maxillary anterior teeth [6]. In the present case, the use of PRF with the VISTA technique demonstrated favorable clinical outcomes, including reduction in probing depth, approximately 2-3 mm gain in clinical attachment level, increased width of keratinized gingiva, and complete root coverage of recession defects measuring approximately 3 mm, resulting in satisfactory esthetic improvement.

The findings of the present case are in accordance with previous studies evaluating the VISTA technique with PRF and other regenerative materials for root coverage procedures. Zadeh *et al.* reported

predictable root coverage and improved esthetic outcomes using VISTA with platelet-derived growth factor (PDGF). Reddy *et al.* demonstrated significant reduction in recession depth, gain in clinical attachment level, and increased gingival thickness with VISTA combined with PRF in multiple recession defects. Jain *et al.* also observed improved mean root coverage and reduction in recession depth using VISTA with A-PRF and collagen membrane.

Similarly, Abdelhaleem *et al.* reported significant improvements in recession depth, recession width, and clinical attachment level with VISTA and A-PRF at 3- and 6-month follow-up. The clinical outcomes observed in the present case, including complete root coverage of approximately 3 mm recession defects and 2-3 mm clinical attachment gain, are comparable with these previous reports.

CONCLUSION

Within the limitations of a single case report, the VISTA technique used in combination with PRF membrane demonstrated favorable clinical outcomes, including improvement in clinical attachment level, reduction in recession depth, and satisfactory esthetic results. The minimally invasive nature of the VISTA approach, along with improved access and minimal scarring, may contribute to enhanced patient comfort and esthetic acceptance. However, further long-term clinical studies with larger sample sizes are required to validate the effectiveness and predictability of this technique for root coverage procedures.

Conflicts of Interest

The author reports no conflicts of interest.

Funding

None declared.

ORCID ID

M. Selvakumar: <https://orcid.org/0009-0007-6496-5361>

V. Krishnan: <https://orcid.org/0000-0003-1093-0060>

S. Sofiya: <https://orcid.org/0009-0007-3891-7673>

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HOW TO CITE THIS ARTICLE-

Selvakumar M, Krishnan V, Srinivasan S, Sofiya S. Management of Multiple Gingival Recession Defects Using VISTA and PRF Membrane- A Case Report. *Int J Dent Res* 2026; 11(2):22-25. doi: 10.31254/dentistry.2026.11201

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