

# Treatment of Gingival Recession Using VISTA Technique Along with Titanium Prepared Platelet Rich Fibrin (T PRF) - A Case Report

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## ABSTRACT

**Background:** Both functional and esthetic concerns can result from gingival recession (GR), which manifests as the collapse of both soft and hard tissues. Several recession flaws, in particular, must be addressed within a single surgical session to repair GR, which is difficult to do while minimizing patient suffering. In order to achieve predictable root coverage, new materials and methods are currently being researched. This case report highlights the use of the platelet-rich fibrin (PRF) membrane in conjunction with the vestibular incision subperiosteal tunnel access (VISTA) approach to correct GR abnormalities.

**Case Presentation:** This case report describes the use of the T-PRF membrane and the Vestibular subperiosteal tunnelling access technique (VISTA) to treat a Mandibular Miller Class I recession in a 27-year-old male patient. The gingival margin could be repositioned coronally using the VISTA technique, and was afterwards stabilized using the coronally anchored suturing method. The subperiosteal tunnel was lined with T-PRF membrane, and the vertical incision was stitched. Patients were monitored for a period of three months.

**Conclusion:** Activation of platelets with titanium compared with activation with silica particles provided the distinctive characteristics of T-PRF, including its increased biocompatibility and growth factors in it helped in periodontal healing. This use of T-PRF membrane along with the VISTA technique seems to be a novel approach in managing gingival recession defects with satisfactory results.

**Keywords:** [Recession Coverage, Vestibular Incision Subperiosteal Tunneling Access, Growth factors, T-PRF.]

## INTRODUCTION

Patients with issues like gingival recession brought on by improper toothbrushing technique or high frenal attachment are becoming more frequently seeking out for esthetic treatments. This has forced dentists to improve their abilities to meet the aesthetic requirements using a variety of newly emerging treatment techniques.<sup>[1]</sup> It is debatable what function the attached gingiva serves in maintaining gingival health. A

minimum width of attached gingiva was first thought to be necessary to keep the gingival tissue in ideal condition and to stop recession.<sup>[2]</sup>

It has been proven that healthy gingiva, including limited or no attached gingiva, can exist with good oral hygiene, absence of bacterial plaque, and absence of illness.<sup>[3]</sup> The sixth most common disease in the world is thought to be periodontitis.<sup>[4]</sup> If left untreated, it may result in the loss of

periodontal soft and hard tissues, which could expose the root surface. Patients with periodontitis exhibit various gingival recessions as well as changes to the oral environment.<sup>[5]</sup> In adult patients, gingival recession is a frequent finding, and its frequency rises with age.<sup>[6]</sup> Regions with 1mm or less of attached gingiva frequently showed symptoms of inflammation clinically. The marginal tissue's position apical to the cemento-enamel junction is referred to as gingival recession.<sup>[7]</sup> Several long-term investigations have shown that marginal tissue recession does not always occur as a result of the absence or presence of connected gingiva, even in small amounts.<sup>[8]</sup>

Moreover, studies have demonstrated that a tooth with a limited zone of attached gingiva exhibits the same resistance to recurrent attachment loss as a tooth with a vast zone of attached gingiva.<sup>[3]</sup> The present case intends to make use of VISTA technique for gingival recession coverage.

## **MATERIALS & METHODS**

### **Clinical case presentation:**

A case of Millers class I and class II multiple gingival recession in the mandibular anterior region extending from 33 to 43 was reported to the Department of Periodontics [Figure 1-2]. Prior to surgery, a written informed consent was obtained from the patient.

### **Presurgical Therapy:**

At the beginning of procedure patient was directed to rinse their mouth for one minute with mouthwash containing 0.12% chlorhexidine digluconate. Gracey curettes (Hu-Friedy, Mfg. Co. LLC, Chicago, USA) were used to thoroughly scale and plane the exposed root surfaces at the initial appointment. The patient was then placed on a strict oral hygiene maintenance regimen and recalled one week later.

### **Surgical Procedure:**

#### ***T-PRF Preparation:***

In order to obtain T-PRF, 20 ml of venous blood was drawn by syringe from the

antecubital vein of each participant, and immediately transferred to two sterile titanium tubes (10 ml for each tube) and centrifuged at 2800 rpm for 15 minutes according to the protocol developed by **Tunali et al.**<sup>[9]</sup> After centrifugation, the T-PRF clots were removed from the tubes using sterile tweezers, separated from the red corpuscles base (preserving a small red blood cell layer) using scissors, and placed in a glass slab.

The VISTA technique started with a vestibular access incision medial to canine 33 [Figure 3] after local anesthesia (Articaine) was administered. This allowed access to the entire region of anterior mandible. The vestibular access incision was used to establish a subperiosteal tunnel by cutting through the periosteum and introducing a tunnelling knife (TKN#1,2-HuFriedy) between the periosteum and bone. The tunnel was extended at least one or two teeth beyond the teeth that necessitated root covering in order to mobilize gingival margin and enable coronal repositioning.

The tunnel was adequately elevated beyond the mucogingival junction and across the gingival sulci of the teeth being augmented in order to produce a low-tension coronal repositioning of the gingiva. Without making any incisions, interproximally below each papilla, subperiosteal tunnel extension was performed [Figure 4]. After being freshly prepared, a titanium platelet-rich fibrin (T-PRF) membrane was cut to the specifications of the recipient site and its width was set to extend at least 3 to 4 millimeters [Figure 5] beyond the recession covering the root surfaces. The T-PRF membrane was then carefully repositioned below the gingival border of each tooth after being carefully placed into the subperiosteal tunnel [Figure 6].

Following that, the membrane and mucogingival complex were advanced coronally and secured in the new position using a coronally anchored suturing approach. Using 5-0 silk suture, direct interrupted sutures were positioned 2-3 mm apical to the gingival margin of each tooth.

Each tooth had sutures knotted, with the knots placed at the midpoint of the coronal portion of each tooth and secured there with composite stops [Figure 7].

### Postoperative Care:

The post-surgical protocol included the following steps: (a) taking amoxicillin 500 mg / clavulanic acid 125 mg (Mankind Pharma Ltd UP,India) orally thrice a day 5days after food; (b) taking Acetaminophen 325mg / Diclofenac Potassium 50mg/ Serratiopeptidase 10mg in combination ,orally thrice a day for 5days after food; (c) taking Gutcade capsule a probiotic (Cascade-India Pharmaceuticals) twice a day for 5days; (d) taking Domperidone 30mg/ Rabeprazole 20mg empty stomach ones a day for 5days was advised; (e) carrying out mouthwashes with chlorhexidine digluconate 0.12%, twice a day for 6 weeks; (f) avoiding the brushing of the surgical site during the first 3 weeks post the intervention; (g) local application of cold for 2 days; and (h) having a soft diet, avoiding trauma in the treated area and avoiding physical exercise during the first week after the surgery. Suture removal was done after 10 days. After 3 months of follow-up, it was noticed that 90% of root coverage was achieved [Figure 8].

### RESULT

Healing was satisfactory and 95 percent root coverage was obtained which remained stable through the 3rd month postoperative visits. This coincided with the resolution of dentinal hypersensitivity. Patient was highly satisfied with the treatment outcome.



FIGURE 1: Pre-Operative pic Recession Defect site i.r.t 33 to 43.



FIGURE 2: Recession height marked using UNC 15 probe.



FIGURE 3: Vestibular incision medial i.r.t 33



FIGURE 4: Subperiosteal Tunnel created using tunnelling knife.

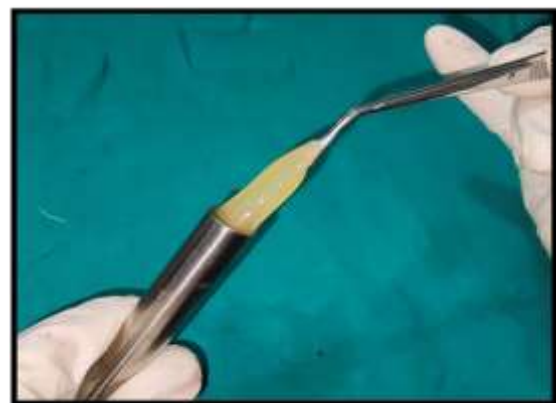


FIGURE 5: T-PRF membrane prepared.





FIGURE 6: T- PRF Membrane placed into subperiosteal tunnel below gingival border of each tooth.



FIGURE 7: Coronally anchored sutures with composite buttons.



FIGURE 8: 3 months follow up.

## DISCUSSION

In the past, periodontal therapy has been primarily focused on the eradication of disease and maintenance of a healthy, functional dentition and supporting tissues.<sup>[10]</sup> Even so, more recent periodontal therapy, equivalent to dental therapy in general, is increasingly focused on esthetic outcomes for patients, which go beyond tooth replacement and tooth colour to encompass the soft tissue component framing the dentition.<sup>[9]</sup> Clinical signs of gingival

recession include an apical displacement of the gingival tissues, which exposes the root surface and frequently results in poor esthetics<sup>[11,12]</sup> greater susceptibility to root caries, and dentinal hypersensitivity.<sup>[13]</sup>

Studies have also revealed that teeth with narrow zones of attached gingiva have the same resistance to continuous attachment loss as teeth with vast zones of attached gingiva. On the other hand, Dorfman, Lang, and Loe proposed that gingival health requires a minimum width of 2mm of gingiva to be present.<sup>[14,15]</sup> The primary reason for root coverage procedures is the patient's desire for aesthetics owing to exposure of some of the root surface during function or while smiling. So, when a patient complains about the aesthetics of their teeth, full root coverage up to the cemento-enamel junction is the ideal to be accomplished.<sup>[16]</sup>

In addition, even if total root coverage is surgically achieved, the outcome might not be entirely desirable if the gingiva is too thick or the area is not blended well. When free or connective tissue grafts are taken from the palate and used for root covering, this usually occurs. Another aspect to take into account is the fact that gingival recession rarely affects only one tooth. All adjacent recessions should be treated at the same time to reduce the number of procedures required and to improve the aesthetic outcome.<sup>[21]</sup> This technique depends on a variety of parameters, including the size of the defect, the presence or lack of keratinized tissue next to the defect, and the gingiva's thickness, all of which are associated to the patient and/or the defect.<sup>[17]</sup>

The requirement to collect autogenous donor tissues and the related morbidity, as well as scar development at the recipient site as a result of surface incisions, are some of the drawbacks of the current procedures. Additionally, muscle strain during healing frequently results in insufficient root coverage or recurrence of recession site.<sup>[18,19]</sup> The vestibular incision subperiosteal tunnel access (VISTA) technique is a minimally invasive recession coverage method that has gained popularity. In this case report, the

minimally invasive VISTA technique provides several unique and distinguishing benefits for the effective treatment of numerous gingival recession abnormalities. This procedure is distinctively different in that it offers larger vestibule access and can enter the entire region through a single vestibular incision. This makes the underlying alveolar bone and root architecture visible. Also, because the incision is made far from the region of the defect, there is a lower risk of trauma to the delicate marginal gingiva, which lessens the invasiveness of this approach.

One significant technological distinction between the VISTA and other more established gingival procedures, such as tunnelling, is the degree of coronal advancement of the augmentation is the gingival margin was encouraged throughout the treatment.<sup>[16,20]</sup> As mentioned earlier, the gingival margin's membrane is further advanced to the highest coronal level of the surrounding interproximal papillae instead of the junction of cementum and enamel. After that, sutures were held firmly in place on each tooth's facial surface avoiding apical relapses of gingival margin throughout the early stages of recovery.

With the use of the current coronally anchored suturing approach, the gingival borders are rigidly fixed, which reduces micromotion at the regeneration site. A decrease in the new methodology has shown to have a significant advantage over traditional methods in that it minimizes micromotion, which reduces the risk of gingival margin displacement during facial motions.<sup>[17]</sup> Several recession flaws might be treated with the VISTA approach without the need for further harvesting steps.

In a study by Zadeh, they used Bioguide as a membrane in the VISTA method.<sup>[18]</sup> There are various benefits to using T-PRF in this case report as opposed to alternative membranes or grafts like they serve numerous crucial functions in the formation of a normal vasculature, early wound healing, and cost-effectively reduce the risk of an immunological reaction.

## CONCLUSION

There are several treatment options for gingival recession, some of which are more suited for localized recession abnormalities.<sup>[17]</sup> Defects in multiple contiguous gingival recessions, nonetheless, provide serious functional and aesthetically problematic issues for a huge portion of the population. It is frequently hard to fix many recession problems at once and impeded by the built-in flaws in some of the practices used today. These shortcomings may be addressed by the current VISTA approach. VISTA has been used in different areas, but its use in the aesthetic zone is most beneficial.<sup>[18]</sup> In summary, this method can be utilized successfully to treat numerous gingival recessions, and additional research involving more patients will provide further information.

### Declaration by Authors

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