

Vista Technique with Platelet Rich Fibrin – A Case Report

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ABSTRACT

Introduction: Gingival recession (GR) is clinically manifested by an apical migration of gingival margin which if left untreated leads to root hypersensitivity, erosion, root caries, and esthetics. Recently, various techniques have been employed to treat multiple recession site.

Case report: In the present case report, minimally invasive approach “vestibular incision subperiosteal tunnel access (VISTA) technique in combination with platelet-rich fibrin (PRF) membrane is used in the treatment of GR defects.

Conclusion: Clearly, long-term follow-up with clinical and histological studies will be required to obtain more information about the PRF-reinforced VISTA technique for the coverage of exposed root surface and to obtain the predictability of this technique.

Keywords: Platelet Rich Fibrin, Vista Technique, Minimally Invasive Technique

INTRODUCTION

Gingival recession is defined as apical migration of gingival margin beyond the Cementoenamel junction (CEJ).¹ The etiological factor for gingival recession includes faulty tooth brushing, malalignment (eg. crowding, proclination), inflammation of gingiva, high frenal attachment, faulty restoration near gingival margin and traumatic occlusion.² It is of concern for patients as well as clinician for several reasons such as root Hypersensitivity, erosion, root caries, and esthetics.³

Different surgical techniques are suggested to treat gingival recession and each technique has its pros and cons.⁴ Surgical treatment in multiple recession defects can be done but they are technique sensitive and wound healing is unfavourable.⁵ To avoid these complications in treatment procedures, the vestibular incision subperiosteal tunnel access (VISTA) approach has been introduced. To further augment the success of this procedure, platelet rich fibrin concentrate may be applied at the wound site. It is an autologous platelet concentrate which is prepared from patient's own blood. It is a fibrin-based biomaterial prepared from an anticoagulant-free blood harvest without any artificial biochemical modification that allows obtaining fibrin membranes enriched with platelets and growth factors.⁶ Platelets has rich amount of growth factors which plays a important role in regeneration of peridontium⁶

CASE REPORT

A 35-year-old male patient reported to the department of periodontology and oral implantology, Maharaja Ganga Singh Dental College and Research Centre with the chief complaint of receding gums in the upper front teeth region

on the right side.

On intraoral examination, an isolated Miller Class I gingival recession at the labial surface of the upper right central incisor, lateral incisor and canine (number 11, 12, 13) was present due to the deposition of plaque and calculus initially [Fig 1]. Recession was 3.5 mm, 4 mm, 4 mm in right central incisor, lateral and canine respectively and is recorded with the help of William periodontal probe which is measured from the mid buccal point of cemento-enamel junction (CEJ) up till the gingival margin. Intraoral periapical radiograph showed no bone loss. The patient underwent basic periodontal treatment of Phase I therapy including scaling and root planing and oral hygiene instructions were given.

Surgical treatment of gingival recession was planned once the patient was able to maintain full-mouth bleeding score of $\leq 20\%$ and full-mouth plaque score of $\leq 20\%$ along with the absence of plaque, that is, “plaque-free” (area where plaque could not be removed with a manual probe) and bleeding on probing at the surgical tooth site.

The surgical site was anaesthetized and the VISTA technique implemented with a vestibular access incision mesial to the recession defect. Subperiosteal tunnel was created and it was extended at one tooth beyond the tooth requiring root coverage so as to mobilize gingival margins and facilitate coronal repositioning with microsurgical periosteal elevator. Additionally, the subperiosteal tunnel was extended interproximally with the help of elevator under each papilla as far as the embrasure space permits, without making any surface incisions through the papilla.[Fig 2]

Platelet rich fibrin is used in the surgery to enhance the healing and regeneration of the tissue. Prior to surgery, 10ml of intravenous blood (from the antecubital vein) is collected in a sterile tube without anticoagulant and centrifuged immediately at 2700 rpm for 12 min [FIG 3 and 4]. After centrifugation, three layers are formed which comprise of

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Figure-1: Pre operative picture



Figure-5:



Figure-2: Subperiosteal tunnel was made



Figure-6: Platelet rich fibrin



Figure-3:



Figure-7: Suture placed



Figure-4:



Figure-8: Post operative picture

red blood cells (RBC) base at the bottom, acellular plasma (platelet-poor plasma) as supernatant and platelet rich fibrin clot in the middle. Sterile non-toothed tweezers are used to extract the PRF clot from the tube. [FIG 5 and 6] It is separated from the RBC base using sharp scissors, and placed on a sterile gauze piece. To obtain an inexpensive autologous fibrin membrane the clot is mashed between two gauze pieces. Further, it is shaped easily with scissors and used in this procedure.

Mucogingival complex along with the platelet rich fibrin were then coronally advanced and sutured at approximately 2 to 3 mm apical to the gingival margin of each tooth. The suture was then tied to position the knot at the mid coronal point of the facial aspect of each tooth, which was secured with help of composite resin to prevent apical relapse of the gingival margin during initial stages of healing [Fig 7]. Periodontal dressing was placed over the surgical area. Suture removal done after one week and the healing was uneventful [Fig 8]

DISCUSSION

Apical migration of gingival margin called as gingival recession.¹ Exposed roots besides being unaesthetic also causes additional problem like dentinal hypersensitivity, pulp hyperemia, dental caries.³ Hence root coverage has become a very important procedure in periodontal today.

There are various techniques employed for root coverage procedure such as free gingival autograft, pedicle graft, coronally advanced flap, semilunar flap, subepithelial connective tissue graft, guided tissue regeneration technique, pouch and tunnel technique, etc.⁴ These techniques employ intrasulcular incisions which cause tissue trauma to the sulcular epithelium and leads to unfavorable healing and it is also technique sensitive.⁵

So in order to overcome the shortcoming of those techniques, a minimally invasive technique called "vestibular incision subperiosteal tunnel access (VISTA)" is presented in this case report which affords a number of advantages in treating gingival recession defects. In this technique, single vestibular incision can provide access to the underlying alveolar bone and reduces the possibility of traumatizing the gingiva of the teeth being treated.⁷

One of the most important and currently unsolved problems in clinical periodontics is the predictable successful treatment of covering of multiple adjacent recessions. Presently, the use of platelet-rich fibrin (PRF) has been predictably obtaining periodontal regeneration.⁸

Platelets in PRF release high amount of growth factors which take part in soft tissue and hard tissue repair and regeneration. It acts by augmenting the wound healing process through anabolic bone formation, angiogenesis, cementogenesis, osteoblast differentiation, mitosis, chemotaxis, and other processes that improve the healing environment. It is an intimate assembly of cytokines, glycan chains, and structural glycoproteins, which are enmeshed within a slowly polymerized fibrin network; it has the potential to accelerate soft and hard tissue healing.⁸

Singh AK⁶ et al used platelet rich fibrin reinforced periosteal pedicle graft with vestibular incision subperiosteal tunnel

access technique for the coverage of exposed root surface and attained 84.6% of the root coverage. Significant improvement during the early periodontal healing phase with 96% root coverage is seen with VISTA technique along with PRF in a recent 12 month study.⁹ Ready SP et al used PRF with VISTA technique and obtained 100% root coverage in millers class I recession.⁷ In this present case study, 98.7% root coverage was obtained after 4 months.

CONCLUSION

Many treatment options are available to treat multiple recession defects but they are technique sensitive and it is very difficult to get the success rate as compared to single defect. VISTA technique, therefore employed in our study to overcome the disadvantage of other treatment options and gives better results. Clearly, long-term follow-up with clinical and histological studies will be required to obtain more information about the PRF-reinforced VISTA technique for the coverage of exposed root surface and to obtain the predictability of this technique.

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