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Research Article

VESTIBULAR INCISION SUBPERIOSTEAL TUNNEL ACCESS (VISTA) FOR ROOT COVERAGE WITH PLATELET RICH FIBRIN (PRF): A CASE REPORT

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ABSTRACT

Gingival recession is clinically manifested by an apical displacement of the gingival tissues, leading to root surface exposure. An array of therapeutic options are available for treatment of gingival recession defects, though many of these are better suited for treatment of isolated defects. Some of the limitations of current techniques include the need for harvesting of autogenous donor tissues and their associated morbidity, as well as scar formation at the recipient site resulting from surface incisions. Moreover, muscle pull during healing often leads to incomplete root coverage or relapse of the recession. To overcome this, an alternative method for root coverage of incisors is introduced i.e vestibular incision subperiosteal tunnel access (VISTA technique).

INTRODUCTION

Gingival recession is the apical migration of the gingival margin beyond the cemento-enamel junction (CEJ) (American Academy of Periodontology: Chicago, Illinois 2001). Gingival recession is a common clinical condition resulting into dentinal hypersensitivity, pain, carious and non-carious lesions, poor esthetics and plaque retention. There are various anatomic, pathologic, physiological and iatrogenic factors causing recession. It can be caused because of periodontal disease, improper aggressive tooth brushing, inflammation or occlusal discrepancies (Reddy S, Prasad MJS, Agnihotri J, Amudha D, Singh S, Krishnanand P 2013).

The treatment of recession defects associated with multiple teeth poses greater challenge to clinician as avascular root surface area is more extensive. Also, thin biotype, decreased keratinzed tissue width (KTW), root prominence and root proximity make the choice of surgical treatment difficult as compared to localized gingival recession type defects (America academy of periodontology 1996). Different tunnel techniques that can maintain the better blood supply and maintain critical papillary integrity have been attempted for management of recession defects. However, these procedures are technique sensitive and tissue trauma to sulcular epithelium led to unfavorable healing outcomes as reported in some studies (Zadeh HH 2011). To avoid these complications in treatment procedures, the vestibular incision subperiosteal tunnel access (VISTA) approach was introduced.

Various adjunctive agents like recombinant human growth factors and platelet rich plasma (Jankovic S, Klokkevold P, Dimitrijevic B, Kenney EB, Camargo 2012, (Agarwal K, Chandra C, Agarwal K, Kumar N 2013) have been used to accelerate healing and further enhance clinical outcomes. Platelet rich fibrin (PRF) a second generation platelet concentrate, is obtained from autologous blood with simplified processing without the need for biochemical blood handling (Choukroun J, Diss A, Simonpieri A, et al 2006). It has become a focus of current studies because of its potential to accelerate healing. The processing of PRF involves the sequestration and concentration of platelets in autologous whole blood through centrifugation and natural polymerization (Anitua E 1999).

The purpose of this article is to evaluate clinically, the efficacy of the novel and minimally invasive VISTA in combination with PRF in the treatment of gingival recession defects.

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Procedure

A 30 years old male patient reported to the Department of Periodontology, Bharati Vidyapeeth Deemed University Dental College and hospital, Pune. At the first visit after recording short case history of the patient, recession was diagnosed with 11, 21 and treatment procedure was planned for esthetic reasons. After thorough scaling, root planning and polishing, patient was recalled after one week for evaluation of plaque, subgingival calculus, inflammation and recession. After evaluation, the treatment was planned for Miller's class I recession defect in 11 and 21 by vestibular incision subperisoteal tunnel access technique(VISTA). After giving local anaesthesia, a vestibular access incision was given in the midline of labial frenum. A small subperiosteal elevator is inserted through the incision and is used to create the subperiostealtunnel. The tunnel was extended from 11 and21 till the mesial end of 13 and 23 so as to mobilize gingival margins and facilitate coronal repositioning. Subperiosteal tunnel was also extended interproximally under each papilla without making any surface incisions through the papilla. The PRF membrane was prepared by taking 10ml of intravenous blood and centrifuged at 3000 RPM for 10 minutes. After centrifugation, the PRF clot was removed from tube with the help of tweezer and separated from RBC base and transferred on to gauze. The PRF obtained was in the form of membrane by squeezing out the fluid from fibrin clot. The PRF membrane was trimmed and adjusted to cover root through the subperiosteal tunnel with a fine tipped curved serrated forceps. The membrane and mucogingival complex were then advanced coronally and stabilized in the new position with the help of suture.

Figure 1 Pre-operative view

Figure 2 Vestibular access incision and sub periosteal tunnel prepration

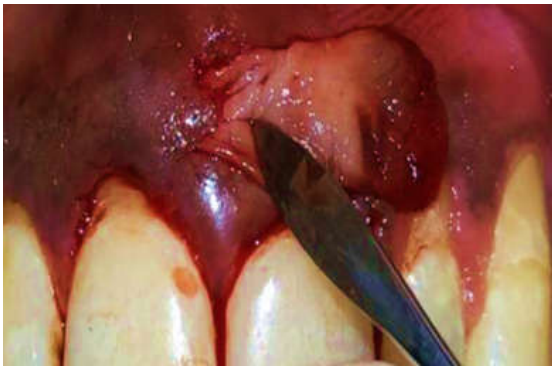

Figure 3 Insertion of PRF

Figure 4 3 months post-operative

The use of PRF membrane along with VISTA technique allows to successfully treat multiple recession defects with optimal esthetic results and excellent soft tissue biotype. Future clinical and histologic investigations should be conducted on this technique to assess its short and long-term effectiveness.

DISCUSSION

Gingival recession defects present clinicians with significant therapeutic challenges, including restoration of the protective anatomy of the mucogingival complex, reestablishment of the esthetic balance between soft tissues and adjacent tooth structures, and, ideally, regeneration of lost cementum, periodontal ligament, and supporting alveolar bone. Such therapeutic challenges become even greater when clinicians confront multiple contiguous recession defects, where issues of limited tissue availability and post harvesting morbidity are magnified. In addition, the need for optimizing esthetic results through simultaneous treatment of contiguous defects tends to further challenge therapeutic success (Zucchelli G, De Sanctis M 2000), (Carvalho PFM, da Silva RC, Cury PR, Joly JC 2006). The minimally invasive VISTA approach, with a PRF has a number of advantages for the successful treatment of multiple recession defects. The vertical incision that is given mesial to the defect reduces the possibility of traumatizing the gingiva of the teeth being treated. Also subperiosteal dissection reduces the tension of the gingival margin during coronal advancement and maintaining blood supply to interdental papillae. In VISTA technique advancement of gingival margin with augmented membrane or graft coronal to CEJ and

securing the gingival margin in fixed stable position to prevent relapse in earlier stage of healing gives better results in gingival recession coverage.

CONCLUSION

This technique can be used successfully in the treatment of multiple gingival recessions as an alternative to previous techniques that result in morbidity associated with donor tissues and scar formation. Studies with large sample size and longer duration are advised to determine the success and predictability of this technique.

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