

VESTIBULAR INCISION SUBPERIOSTEAL TUNNEL ACCESS (VISTA) WITH PLATELET RICH FIBRIN (PRF) IN THE MANAGEMENT OF MULTIPLE GINGIVAL RECESSION: A CASE REPORT

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. It is a concern for both patients and clinician for several reasons such as root hypersensitivity, erosion, root caries, and esthetics. Recently, new techniques have been suggested for the surgical treatment of multiple adjacent recession type defects. The current case series introduce a novel, minimally invasive approach applicable for both isolated recession defects as well as multiple contiguous defects in the maxillary anterior region. This case series describes the use of the vestibular incision subperiosteal tunnel access (VISTA) technique in combination with platelet-rich fibrin (PRF) membrane for treating multiple gingival recession defects.

Key Words: Platelet rich fibrin, gingival recession, vestibular incision subperiosteal tunnel access technique.(VISTA)

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INTRODUCTION:

Gingival recession is defined as apical migration of gingival margin beyond the cemento-enamel junction (CEJ)^[1]. Patients with gingival recessions often seek treatment because of impaired aesthetics, increased sensitivity and fear of losing teeth. In the cases of multiple adjacent gingival recessions, patients request that treatment is done in a single stage. The surgical treatment of such recessions requires a larger volume of donor connective tissue. This tissue is taken from the palate which greatly increases the difficulty and the probability of complications throughout the surgery and even afterwards^[2]. In order to minimize these disadvantages, the method of GTR (guided tissue regeneration)^[3] with biodegradable and non-biodegradable membranes and biologically active substances such as acellular dermal matrix allograft (ADM), enamel matrix derivate (EMD), platelet-rich plasma (PRP), platelet-rich fibrin (PRF)^[4] and more.

The platelet-rich fibrin (PRF) was first introduced for the first time by Choukroun et al. in 2001 and is regarded as a second generation platelet concentrate. This autogenous biomaterial slowly releases growth factors which lasts for at least 7-28 days^[5-9].

Platelet rich fibrin (PRF) a second generation platelet concentrate, has been used extensively in combination with bone graft materials for periodontal regeneration, ridge augmentation, sinus lift procedures for implant placement and for

coverage of gingival recession defects in the form of a membrane^[10]. It has become a focus of current studies because of its potential to accelerate healing.

What is also important is that the resulting from the patient clot contains no chemical or biological additives while it has a solid structure and can easily be used to prepare strong, elastic fibrin membrane. Many publications with promising results appeared in the past few years about the treatment of gingival recessions with PRF.

In 2011 Zadeh H H modified the tunnel technique offering the so-called VISTA (Vestibular Incision subperiosteal Tunnel Access) technique for the treatment of multiple adjacent gingival recessions in the front part of the maxilla. The purpose of this case report is to evaluate clinically, the efficacy of the novel and minimally invasive VISTA in combination with PRF in the treatment of gingival recession defects.

2. Materials and Methods:

The clinical study was conducted at the Department of Periodontology and Implantology in the month of February. A 37 year old female patient came with chief complain of sensitivity and unfair esthetics due to exposed roots. On examination there were multiple Miller's class 1 and 2 gingival recession in maxillary anterior teeth in first quadrant. The surgical treatment was done using the VISTA technique with PRF. The affected and treated teeth were maxillary central, lateral and canine in first quadrant. The results were monitored for three months postoperatively.

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2. Surgical Technique:

The VISTA technique is essentially a modification of the double-layer tunneling technique that requires a single incision serving in the creation of the subperiosteal tunnel flap and an opening for the graft. Our modified technique is as follows: after the application of adequate local anesthesia, the affected by the recession teeth are cleaned, smoothed and polished with machinery tools.

A vertical incision is made on the mucous membrane and the periosteum with a scalpel. The incision is 8-10mm long, beginning from the mobile mucosa and reaching the apical end of the keratinized gingiva – **Figure 1a**. A small subperiosteal elevator is inserted through the incision and is used to free the subperiosteal tunnel flap. The flap includes the tissues of the mobile and immobile mucosa in the area of the affected teeth and about 1 cm distally and medially from them. A scalpel is used to make intrasulcular incisions covering up to a third of the papilla width medially and distally.



Pre-operative view



Figure 1a

Instruments for tunneling plastic are used through the vertical incision to free the mucosa and the periosteum around the affected by the gingival recessions teeth. This is continues at the base of the gingival papillae without affecting their entirety. The mucosa and the periosteum, below adjacent unaffected teeth laterally and medially from the affected ones, are freed using the method described below – **Figure 2 a-b**



Figure 2 a



Figure 2 b

The previously prepared platelet-rich fibrin membranes --**Figure 3 a** are inserted through the entrance vertical incision – **Figure 3 b**. With a ½ needle and biodegradable thread 0000 the vertical incision is stitched.



Figure 3 a

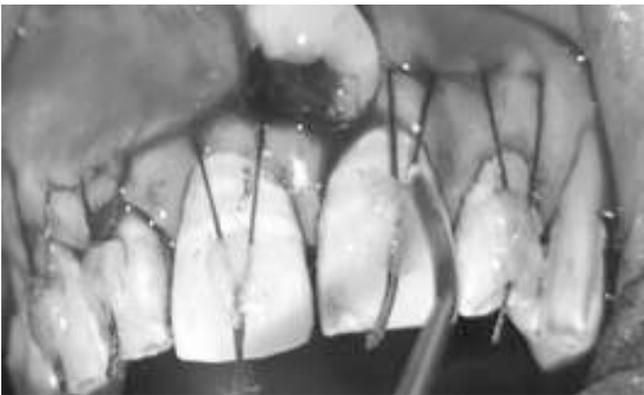


Figure 3 b

Single horizontal sutures are made 2-3 millimeters below the gingival margin in the area of the affected teeth. They are knotted in a way that the knots can be fixed to the coronary surface of the corresponding tooth – **Figure 3 b**. The place where the knots (sutures) are fixed is defined in advance by the affected teeth and the occlusion type. The knots are fixed to the vestibular or lingual tooth surfaces with light curing liquid composite resin



Post operative 3 months follow up

Postoperative Care: Postoperatively patient was assigned therapy with NSAIDs for 3 days and mouth rinsing with 0,12% solution of chlorhexidine one minute three times a day for 14 days. The application of cold compresses in the surgery area and mushy-liquid diet for the first seven days were recommended. Checkup examination was done on the first day after the surgery, and the threads were removed on the 14th day after. Patient was given instructions about the technique of personal hygiene and to avoid brushing the treated teeth for the next 14 days.

3. Results: The results demonstrated 100% root coverage in this case at 3 month.

4. Discussion: Earlier periodontal therapy was limited to eliminate and to avoid disease by maintenance of a functional healthy dentition and supporting hard and soft tissues. However, more recently periodontal therapy is increasingly directed at esthetic outcomes for patients. Patients have become more conscious of dental esthetics and are demanding precision treatment for exposed root surfaces^[11]

In order to minimize the surgical procedures and optimize the aesthetic results all adjacent gingival recessions should be treated in a single treatment stage. This can be achieved by making use of different surgical techniques, but most commonly different modifications of the tunneling technique are used. One important feature that makes the VISTA technique stand out of the rest is the difference in the approach used in the formation of the tunnel flap. In the VISTA technique there is a wide dissection of the soft tissues in order to eliminate possible pull. This allows for a maximal move of the tissues over the cemento-enamel junction (CEJ) while the stitching technique effectively prevents possible apical movement of the marginal gingiva during the initial healing period. The elimination of the pull on the gingival tissues is essential in achieving good final results when treating gingival recessions. Preserving the entirety of the interdental papillae by avoiding their dissection ensures stability and fine local blood supply to the soft tissues. The stable fixation of the gingival tissues accounts for the lowering of their micro movement during the healing stage which is a great step ahead of the other techniques. In this study we use platelet-rich fibrin membrane in

combination with the VISTA technique. The usage of this autogenous biological material eliminates completely the danger of adverse reactions to foreign (non-autogenous) materials. We used PRF membrane prepared in our own way from two A-PRF clots. The forming of the PRF membrane using our method aims to increase the concentration and the distribution of the platelets and leukocytes in the final membrane.

5. Conclusions

Based on the results from this clinical study we can conclude that the VISTA technique in combination with platelet-rich fibrin membrane can successfully be used as a treatment method for multiple gingival recessions of Miller's Class I and Class II. Additional clinical studies with a longer monitoring period and larger number of patients are need for better assessment of the VISTA technique with PRF for the treatment of these recessions.

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