MULTIPLE GINGIVAL RECESSION COVERAGE TREATED WITH VISTA TECHNIQUE USING ACELLULAR DERMAL MATRIX (ADM) COMBINED WITH PLATELET RICH FIBRIN (PRF): A CASE REPORT

Rosa Pratiwi, Ernie Maduratna Setiawatie***

Keywords:
Gingival recessions, Root coverage, VISTA technique, ADM, PRF

ABSTRACT

Background: Gingival recession is an exposure of the root surface due to migration of the marginal periodontal tissues apical to the cemento enamel junction. There are so many root coverage procedures, among these techniques, VISTA technique combined with ADM and PRF offers minimally invasive approach.
Case Management: A-40-year-old male visited Periodontics Clinic of Dental Hospital Airlangga University with the chief complaint of poor aesthetic resulting from exposed root surfaces in upper right front region of the jaw. Root coverage by VISTA technique using ADM combined with PRF was planned to this case.
Discussion: The minimal invasive VISTA technique approach, combined with ADM and PRF has a number of advantages for successful treatment of multiple recession defects. VISTA technique was used because it can maintain better blood supply and maintain critical papillary integrity. ADM works like an autogenous graft by providing a bioactive matrix consisting of collagen, elastin, blood vessel channels, and bioactive protein that support natural revascularization, cell repopulation, and tissue remodeling. Growth factors present in PRF plays a crucial role in hard and soft tissue repair.
Conclusion: VISTA technique together with ADM and PRF membrane can be successfully used as a treatment method for multiple gingival recessions of Miller's class I defects

PENDAHULUAN

Gingival recession is an exposure of the root surface due to migration of the marginal periodontal tissues apical to the cemento enamel junction. Gingival recession is a common clinical condition resulting in dentinal hypersensitivity, pain, carious and carious lesions, poor aesthetics and plaque retention.[1,2]

Tissue trauma caused by vigorous tooth brushing is considered to be a predominant causative factor for the development of recessions, particularly in young individuals. Traumatizing tooth brushing and tooth malposition are the factors frequently associated with marginal tissue recession. Other local factors include alveolar bone dehiscences, high muscle attachment and frenal pull, plaque and calculus, and iatrogenic factors related to restorative and periodontal treatment procedure.[2,3]

There are so many root coverage procedures have been suggested to correct recession defects. Among these techniques, various tunnel technique has been described in order to maintain the recipient site aesthetic and to prevent relapse of recession. These procedures while maintaining the critical papillary integrity and avoiding vertical releasing incision.[4]

In 2011, Zadeh HH modified the tunnel techniques offering the so-called VISTA (Vestibular Incision Subperiosteal Tunnel Access) technique for the treatment of multiple adjacent gingival recession. VISTA involves making an access incision in the maxillary anterior frenum, followed by elevation of subperiosteal tunnel. It also involves stabilization of the gingi-

Department of Periodontology, Faculty of Dentistry Universitas Islam Sultan Agung, Department of Periodontology, Faculty of Dental Medicine Universitas Airlangga*
Korespondensi: rosapratiwi@unissula.ac.id

val margins, referred to as coronally anchored suturing, so as to promote healing by preventing micromotions.[3]

The connective tissue graft (CTG) together with coronally advanced flap (CAF) has been suggested as the most predictable technique. CTG become the gold standard. However, the CTG technique necessitates a second surgical site and increases the risk of morbidity linked with harvesting the autogenous palatal donor mucosa. Donor area surgery may result in post-surgical bleeding and patient discomfort. In addition, if the patient has thin palatal tissues. It is very challenging to harvest sufficient donor tissue, an additional donor site may be required.[5]

To overcome these disadvantages, Acellular Dermal Matrix (ADM) has been used. ADM is an allograft that is chemically processed to remove all epidermal and dermal cells but preserve the remaining bioactive dermal matrix. ADM considered being a safe alternative to autogenous grafts.[5] Along with various technique for root coverage procedure, adjunctive agents like recombinant human growth factors, such as Platelet Rich Fibrin (PRF) used to accelerate healing and further enhance clinical outcome.[6] The aim of these articles is to present the treatment of multiple adjacent gingival recessions that was successfully corrected by VISTA technique using Acellular Dermal Matrix (ADM) combined with Platelet Rich Fibrin (PRF).

CASE REPORT

A-40-year-old male visited Periodontics Clinic of Dental Hospital Airlangga University with the chief complaint of poor aesthetic resulting from exposed root surfaces in the upper right front region of the jaw. No relevant medical and dental history was reported. Through clinical examination revealed, Miller's class I defect. The recession on buccal teeth 11, 12 and 13 (FDI notation) were 1 mm, 3 mm and 3 mm). Plaque and calculus were found on all teeth. The patient wanted the recessions to be corrected. The patient rejected soft tissue harvesting at the palatal area. Thus, the procedure carried out with ADM as a substitute. Root coverage treated by VISTA technique with ADM (Surederm®) and PRF membrane was planned.

The Patient initially underwent phase I periodontal therapy that comprised scaling and root planing and oral hygiene instructions. Informed consent was obtained from the patient after discussion of the procedure that will be carried out. Complete aseptic precautions were taken using a 10% povidone-iodine solution. About 2 ml of anesthetic solution Pehacaine® (2% lidocaine with 1:80.000 adrenaline) was administered as a nerve block and/or infiltration. In the VISTA approach, a vertical access incision was made using blade no. 15c, close to the midline frenum (Fig. 1 (A)). The incision was made through the periosteum so

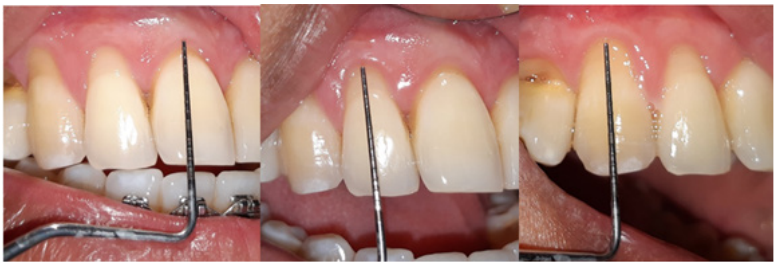

Figure 1: Preoperative baseline condition showed Miller's Class I recession on buccal teeth 11, 12, and 13 were 1 mm, 3 mm, and 3 mm.

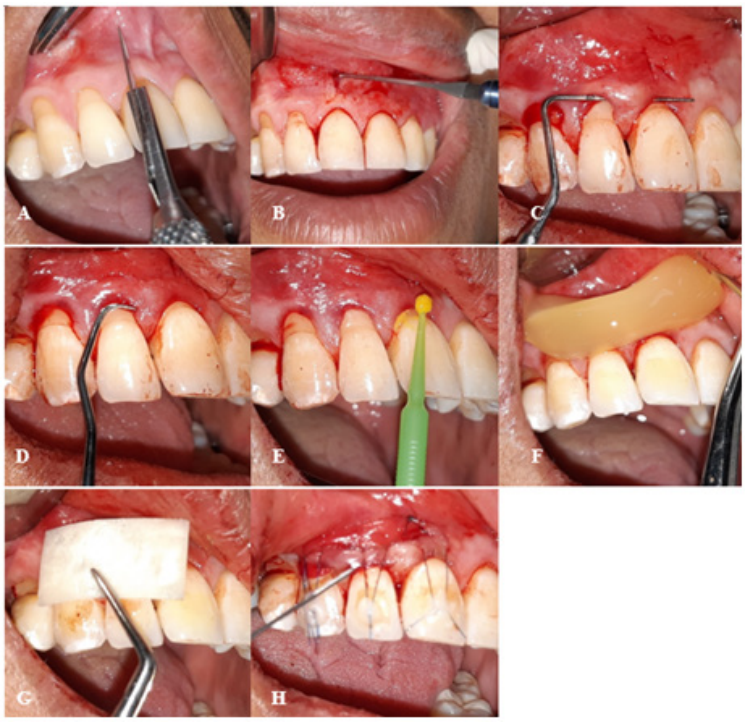

Figure 2: (A) Vertical incision using blade no.15C; (B) Periosteal tunnel preparation; (C)The tunnel elevation was extended interproximatelly under each papilla as far as the embrasure space permits (D) Curretagethe cementum; (E) The root surfaces were then conditioned for 4 minutes with Tetracycline to eliminate the smear layer; (F); Insertion of platelet-rich fibrin; (G) Insertion of acellular dermal matrix (Surederm®); (H)Coronally anchored suture with composite stop.

as to facilitate elevation of subperiosteal tunnel and exposure of the facial osseous plate. A microsurgical periosteal elevator was used to create the subperiosteal tunnel (Fig.1 (B)). The tunnel was extended one or two teeth beyond the teeth being treated to mobilize gingival margin and facilitate coronal repositioning.

Additionally, the subperiosteal tunnel was extended well beyond the mucogingival margin, through the gingival sulci to allow low tension coronal repositioning of the gingiva. The tunnel elevation was extended inter proximately under each papilla as far as the embrasure space permits, without making any surface incisions through papilla (Fig. 1(C)).

The root surfaces were then conditioned for 4 minutes with Tetracycline to eliminate the smear layer (Fig. 1(D)). The freshly prepared PRF membrane was trimmed and adjusted to cover the dehiscence on root through subperiosteal tunnel. ADM has been soaked in saline solution for 30 minutes before then inserted through subperiosteal tunnel and put more coronally than PRF membrane.

The membrane and mucogingival complex was then advanced coronally and stabilized in the new positioned with a coronally anchored suturing, by placing horizontal mattress at approximately 2-3 mm apical to gingival margin of each tooth. The suture was then tied to position the knot at the midcoronal point of the facial aspect of each tooth, which was secured with composite (Fig. 1(H)).

The midline access incision was then approximated and sutured with interrupted suture using 5.0 nylon suture. Postoperatively the patient was prescribed three times daily with NSAID (Mefinal 500 mg) for pain management and antibiotic (Amoxycillin 500 mg). The patient was instructed to use hyaluronic acid

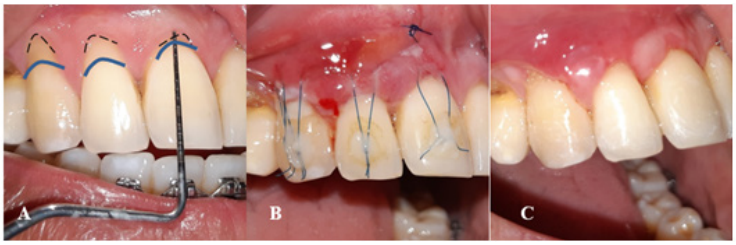

Figure 3: (A) Preoperative photographs. Black lines showed level of the gingival margin and blue lines showed a level of CEJ; (B) One week postoperative photograph; (C) Two weeks post operative photographs.

gel three times daily for postoperative maintenance. The patient was recalled after one-week postoperative. Suture removal was done after two weeks postoperative.

One week postoperative it can be seen redness, the sutures were still there. The patient then recalled and evaluated again for two weeks. Two weeks postoperative it can be seen 100% root coverage on tooth 11, and decrease of a recession on teeth 12 and 13 from 3 mm became 0,5 mm. The patient was very satisfied with the result.

DISCUSSION

Gingival recession is a problem affecting almost all middle and older aged to some degree. Gingival recession is the apical migration of gingival margin to the cemento enamel junction (CEJ). The distance between the CEJ and gingival margin gives the level of recession. Gingival recession can be caused by periodontal disease, accumulation of plaque and calculus, inflammation, improper flossing, aggressive tooth brushing, incorrect occlusal relationship, and dominant roots.[7]

Classification of gingival recession according to Miller's divided into 4 class. (1) Class I: Marginal tissue recession that does not extend to the mucogingival junction. There is no bone loss or soft tissue in the interdental area; (2) Class II: Marginal tissue recession extends to or beyond mucogingival junction. There is no bone loss or soft tissue in the interdental area; (3) Class III: Marginal tissue recession extends to or beyond mucogingival junction. There are bone and soft tissue loss interdentally or malposition of the tooth; and Class IV: Marginal tissue recession extends to or beyond mucogingival junction. There is severe bone and soft tissue loss interdentally or severe malposition of the tooth.[8]

This classification is useful when deciding on treatment options. Nowadays, it is the most widely used. The key factors which determine the successful management of gingival recessions are the identification of its etiological agents and their elimination, the assessment of the degree of tissue involvement and selection of surgical procedure to achieve optimal root coverage.

The choice of surgical modality and material is based on different factors such as degree of recession, location, a width of keratinized tissue, gingival tissue biotype, the level of interdental papillae and the alveolar bone, the vestibular depth and positioned of a labial frenulum, aesthetic demands and patient's preference.[9,10]

Connective Tissue Graft (CTG) has been considered the gold standard for the treatment due to its significant outcomes incomplete root coverage, attachment gain, keratinized tissue gain, and overall long-term stability. On the other hand, the need for the second surgical site to harvest the CTG is a main disadvan-

tage due to increased risk of bleeding, pain, and swelling that leads to the need for other root coverage alternatives. As a result, Acellular Dermal Matrix (ADM) has been approved as a substitute for CTG.[10,11]

ADM is an allograft that is chemically processed to remove all epidermal and dermal matrix. ADM works like an autogenous graft by providing a bioactive matrix consisting of collagen, elastin, blood vessel channels, and bioactive protein that support natural revascularization, cell repopulation, and tissue remodeling. ADM considered to be a safe alternative to autogenous grafts and no cases of viral transmission have been reported in more than 10 years of use more than 900.000 grafts.[5]

In this case, we used ADM combined with PRF. Growth factors present in PRF plays a crucial role in hard and soft tissue repair. These growth factors include PDGF, EGF, TGF-β, VEGF, and IGF-1. These growth factors have been shown to accelerate and promote fibroblastic proliferation, and increase tissue vascularization.[6,10,12]

The minimal invasive VISTA technique approach, combined with ADM and PRF has a number of advantages for successful treatment of multiple recession defects. VISTA technique was used because it can maintain better blood supply and maintain critical papillary integrity. The vertical incision that is given mesial to the defect reduces the possibility of traumatizing the gingiva of teeth being treated. Subperiosteal dissection reduces the tension of the gingival margin during coronal advancement. Besides, this technique can avoid tissue trauma to the sulcular epithelium that led to unfavorable healing outcomes.[6]

CONCLUSION

Based on the results from this case report, we can conclude that VISTA technique together with ADM and PRF membrane can be successfully used as a treatment method for multiple gingival recessions of Miller's class I defects. However, additional clinical studies with a longer monitoring period and a larger number of patients are needed for better assessment of the VISTA technique for the treatment of multiple gingival recession, especially in the aesthetic zone.

CONFLICT OF INTERESTS

The authors declared there is no conflict of interests

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