International Journal Dental and Medical Sciences Research
Volume 4, Issue 1, Jan-Feb 2022 pp 709-715 www.ijdmsrjournal.com ISSN: 2582-6018

Management of gingival recession with VISTA and CGF combination-A Novel clinical technique

Submitted: 10-02-2022 Revised: 22-02-2022 Accepted: 25-02-2022

ABSTRACT

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.These techniques employ intrasulcular incisions which causes tissue trauma to the sulcular epithelium and leads to unfavorable healing and they are also technique sensitive.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.

I. INTRODUCTION

Gingival recession implies the loss of periodontal connective tissue fibres along the root cementum and alveolar bone. Recession of the gingival margin results in impaired esthetics and sometimes hypersensitivity.Envelope technique for recession coverage was first introduced by **Raetzke in 1985**.The Subperiosteal envelope was first demonstrated by **Allen** the tunnel technique created by **Zabalegui et al** and its modification by**Azzi**andcoworker**s** introduced tunnel technique which was modified as VISTA (Vestibular Incision Subperiosteal Tunnel Access) technique as proposed by **Zadeh HH** in **2011.**Concentrated Growth Factor was first developed by **Sohn et al** in 2009.Concentrated Growth Factors is a fibrin matrix of growth factors which has better regenerative capacity than other platelet concentrates.So VISTA combined with CGF was used to treat gingival recession.

II. CASE REPORT

A 29 year old male reported to **Department of Periodontology at TamilnaduGovernment Dental College,Chennai** with a chief complaint of sensitivity on upper front teeth.Intra oral examination showed preclinical parameters depicted in **Table 1.**

PRE CLINICAL PHOTOGRAPH SHOWING RECESSION ON 12,13,14

TABLE 1

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Parameters	12	13	14
Recession Depth	3mm	5mm	4mm
Probing Depth	2mm	1mm	2mm
Clinical attachment level	5mm	6mm	6mm

Preoperative parameters

Case history was taken and an informed consent was obtained from the patient. Clinical examination revealed Miller's Class I recession in the maxillary anterior teeth.A thorough scaling and root planing was done 3 week prior to the surgical procedure.

Surgical Procedure

Teeth were anesthetized using buccal infiltration using lidocaine2% with adrenaline 1:80,000. Using a 15c blade, sulcular incisions were made 2-3 mm short of the tip of the papillae following the curvature of the gingival margin. The incisions were made with an undermining motion such that a tunnel was created with the papillae intact.

Picture showing tunnel creation

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Vertical incision near labial frenum to given to access the created tunnel

Blood collected from patient in clot activating tube was centrifuged to obtain CGF

CGF was separated from blood

Vertical incision was given mesial to the defect to access the prepared the prepared tunnel.

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CGF packed into tunnel and sutures given were secured on composite rails on tooth

CGF preparation

Intravenous blood was collected in two 10-ml glass-coated plastic tubes without anticoagulant solutions that were then immediately centrifuged using a CGF centrifuge machine with a one-step centrifugation protocol for 14.6minutes.At the end of the centrifugation, there were four phases or layers namely

1) the upper serum layer

2) the second fibrin buffy coat layer

3) the third layer with growth factors and 4) the lower layer with red blood cells (RBCs). After centrifugation the CGF clot was removed from the tube and separated from the RBC layer using surgical scissors.Procedure was done by Dr.Noufa.M, Postgraduate student in Periodontology ,under the guidance of Dr.P.Bhuvaneswari,M.D.S Professor at Department of Periodontology,Tamilnadu Government Dental College,Chennai 600003,Tamilnadu,India.

The CGF was compressed using a gauze piece and the membrane obtained was immediately tucked into the tunnel flap through a vertical incision created adjacent to maxillary midline frenum. With the help of 5-0 Vicryl absorbable sutures, a buccal bite was taken about 3mm apical to the gingival margin of each tooth and suspended upto the point of composite stop. At this point, the suture ends were cured using light cure (LC)-composite. Vertical incision created mesial to frenum was also sutured. Periodontal dressing was then placed over the surgical site.The patient was instructed not to brush on the surgical site until sutures were removed. Analgesics and Amoxicillin were prescribed(Amoxicillin 500mg thrice daily for 2 days) 0.2% Chlorhexidine mouth wash was prescribed to use twice daily.The patient was recalled 14 days after surgical procedure and the sutures were removed.

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One week postoperative view

TABLE 2

Parameters	12	13	14
Recession depth	2mm	3mm	3mm
Probing depth	1mm	2mm	2mm
Clinical attachment loss	3mm	5mm	5mm

POST OPERATIVE CLINICAL PARAMETERS

- Percentage root coverage obtained in Lateral incisor(12)=33%
- Percentage root coverage obtained in Canine(13)=66.7%
- Percentage root coverage obtained in Premolar(14)=33%

III. DISCUSSION

VISTA techniques maintains an intact papilla that allows the maintanence of blood supply,esthetics and less postoperative discomfort.VISTA combined with CGF is a cost effective method to treat recession.The technique demonstrated can also be used to treat teeth with isolated gingival recession.Aftersulcular incision undermining of the tissue should be done carefully to avoid perforation.CGF increases tissue vascularization,stimulate fibroblast proliferation and growth factors contained in it will help in regeneration.

IV. CONCLUSION

Use of CGF along with Vestibulo Incisional Subperiosteal Tunnel Access allows the

clinician to successfully treat multiple recession defects techniques.A minimally invasive technique called" vestibular incision subperiosteal tunnel access (VISTA) when combined withCGF release high amount of growth factors which take part in soft tissue and hard tissue repair and regeneration. It act by augmenting the wound healing process through anabolic bone formation, angiogenesis, cementogenesis, osteoblast differentiation, mitosis, chemotaxis, and other processes that improve the healing environment.Long-term follow-up with clinical and histological studies will be required to obtain more information about the CGF-reinforced VISTA technique for the coverage of exposed root surface and to obtain the predictability of this technique.

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