



CASE REPORT

Zucchelli's Technique With Collagen and Platelet Rich Fibrin: A Strategic Approach In Multiple Gingival Recession Management



Raja Rajeswari.S¹, Triveni M. Gowda², Tarun A.B. Kumar³, Dhoom S. Mehta⁴, M. Rekha⁵

Abstract : Multiple gingival recession defects in esthetic zone demands a concurrent correction of all the involved teeth in a single surgery. Wound healing is a complex phenomenon and the concurrent use of collagen membrane and Platelet rich fibrin (PRF) will greatly enhance the process. Thus the aim of this case report is to evaluate the effectiveness of Zucchelli's technique (ZT) with collagen and PRF in the management of multiple gingival recession management. There was 90% mean root coverage and good patient esthetic satisfaction. Thus ZT with collagen and PRF is an effective treatment modality in the management of multiple gingival recession

Key words: *Gingival Recession; collagen membrane; platelet rich fibrin*

INTRODUCTION:

Esthetics is an inevitable part of dentistry. The generally accepted properties of an esthetic smile are harmony, balance and continuity of form. Any imbalance of these determinants will tip the balance in the favor of disease. Gingival recession with the exposure of root surfaces is a significant treatment challenge facing the clinician, and often must be corrected if an esthetic smile is to be achieved.

Because of their main traumatic etiology, multiple gingival recession (MGR) are even more frequent than localized type. Also in these types of defects the amount of avascular surface to be covered is even more extensive, further perplexing the scene.¹ Considering other anatomical characteristics such as thin biotype, decreased keratinized tissue width, root prominence and root proximity makes the choice of surgical treatment for multiple gingival recessions much more difficult than compared to localized gingival recession.² Thus periodontal plastic surgical techniques treating multiple defects at the same time are the clinician's first choice.

Among various surgical options available coronally advanced flap (CAF) is a widely used procedure, especially in the MGR management.³ There are various procedural modifications in the CAF owing to the improved understanding of the surgical specifics and the wound healing process. One such valid modification

is the ZT, resulting in a favorable outcome.⁴ A long term analysis of ZT has ascertained the predictability and sustenance of the results achieved over the study period of 5 years.⁵

The foremost challenge in any regenerative surgery is the directed delivery of growth promoting factors to the tooth root surface. PRF is a second generation platelet concentrate, allows the access to the growth factors in a simple and cost effective way. Moreover collagen membrane is another ideal bio-healing material mimicking natural healing. The principle of guided tissue regeneration (GTR) in periodontal recession management has provided the clinician's with chances of true regeneration.⁶ To the best of author's knowledge, no report has yet been published in the management of multiple recession with collagen membrane and PRF reinforced Zucchelli's technique. The current article presents a case report in which multiple gingival recession was treated with Zucchelli's technique with collagen membrane and PRF.

CASE REPORT:

Patient & Site Description:

A 35 year old male patient reported with a chief complaint of sensitivity in upper front teeth. No associated medical history was present. Enquiry regarding oral hygiene practices disclosed improper brushing habit. Intra Oral examination revealed Miller's class I gingival recession in relation to 11, 21 (Figure 1). The recession

depth was 3mm in 11 and 2.5 mm in 21. The width of keratinized gingiva was found to be in normal range. Also the involved teeth exhibited labial developmental groove, extending into the gingival margin.

Treatment Plan:

Oral hygiene instructions were provided to the patient and proper brushing technique was reinforced. After the completion of phase I therapy, ZT was planned for the correction of multiple gingival recessions in relation to 11, 21.

Surgical Procedure:

The procedure was explained to the patient and an informed consent was obtained. Under local anesthesia, modified envelop flap with #15C BP blade given. An oblique sub marginal incision in the interdental papilla and intrasulcular incisions at the recession defects were given, thus creating surgical papilla and anatomic papilla (Figure 2). A unique split–full-split thickness flap elevation done(Figure 3). Anatomic interdental papilla de-epithelization was completed to create a connective tissue bed over which the rotated surgical papilla will be placed. The exposed root surface was mechanically debrided. The developmental groove found on the labial surface was extending 1mm below cement of enamel junction and smoothed with finishing bur. The collagen membrane (conForm®, ACE surgical supply co, In, USA) trimmed to fit the defect area was adapted (figure 5). PRF was prepared using patient's blood following Choukroun's protocol⁷ (Figure 4) and placed over the defect (Figure 6). Then coronal mobilization of the flap was done & sling sutures were placed to obtain precise adaptation (Figure 7). The sutures were removed at 15 days postoperatively and healing was found to be satisfactory. 6 months postoperative review examination revealed complete coverage in relation to 21 and 2.5 mm coverage out of 3mm in 11 (Figure 8).

DISCUSSION:

The correction of multiple gingival recessions has become highly critical due to high esthetic demand and other patient centered complaints such as hypersensitivity, risk of root caries, pulpal symptoms due to root exposure, food lodgment, plaque deposition in the developmental grooves. The decision of selection

of a particular technique over the array of modalities requires careful evaluation of various patient related and surgical variables. The surgical technique selected should be highly predictable with less patient morbidity. ZT is a modification of CAF, exhibiting innovative split-full-split thickness elevation. This approach exploits the basic tissue characteristics and wound healing dynamics.

Ensuring adequate blood supply in the critical interdental area is crucial in maintain adequate blood perfusion.⁸ Hence instead of a uniform full thickness elevation, the split elevation in the interdental areas ensure sustenance of the vascularity in this area and also provides for a connective tissue bed for the surgical papilla, resulting in esthetic tissue blend. The flap thickness is important determinant in the prediction of probability of complete root coverage and a minimum thickness of 0.8 mm has been advocated for the same.⁹Hence the full thickness elevation above the recession defect leads to a more predictable outcome in the ZT. The untoward tension on the flap may lead to necrosis of the flap in its coronal position³ and thus the split elevation above the mucogingival junction in the ZT permits complete mobilization of the flap for its tension free repositioning. Furthermore the avoidance of vertical releasing incision prevents unaesthetic scar tissue formation.

The gold standard grafting technique in recession coverage is connective tissue grafting (CTG) with good color match and predictable outcome.¹⁰Nevertheless it is also associated with complications such as increased patient morbidity, limited tissue availability.GTR as a regenerative option for recession coverage is promising, with no statistical difference in the treatment outcome when compared with that of CTG.¹¹The use of collagen membrane as a resorbable barrier aids in the maintenance of principles of GTR namely: space provision, stability, compartmentalization, and angiogenesis.

PRF as an alternative soft tissue grafting material has various advantages over the CTG.¹²A study comparing CTG and PRF has concluded that the PRF group exhibited early vascularization in wound.¹³Its usefulness in recession management has been ascertained in the dental literature.¹⁴Thus PRF is an ideal bio-healing material with positive wound healing response in the

gingival recession management. In the current report, the uncomplicated wound healing reflects the wound healing potential of PRF. In the present case report, at 6 months, 90% mean root coverage was noted, with complete coverage in relation to 21. The present case report has shown that the ZT with PRF and collagen membrane with their tissue healing properties gives an

added benefit in tackling these confounding defects.

CONCLUSION:

1. The success of the recession coverage procedures depend on the proper respect to the vascular specifics and wound healing dynamics. The ZT, owing to its distinctive flap elevation and the maintenance of flap thickness is strategic in the MGR management. The current case report demonstrates the



Figure 1: Preoperative view



Figure 2: Oblique sub marginal incision



Figure 3: Split-Full-Split Flap Elevation



Figure 4: PRF Prepared



Figure 5: Collagen Membrane Positioned



Figure 6: PRF placement



Figure 7: Sling suturing



Figure 8: 6 Months Postoperative

advantage of using ZT with the growth factors presence of PRF and bio matrix of collagen membrane in MGR with superior wound healing, satisfactory patient esthetics and improved functional result.

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Address of Correspondence

Dr. Raja Rajeswari S.,
Senior Lecturer, Department of Periodontics,
SRM Kattankulathur Dental College,
Chennai, Tamil Nadu
Email: rajarajeswari.mk@gmail.com
Contact No : 9884133345

Authors:

¹Senior Lecturer, Department of Periodontics, SRM Kattankulathur Dental College, Chennai, Tamil Nadu

²Professor, Department of Periodontics, Bapuji Dental College & Hospital, Davangere, Karnataka.

³Professor, Department of Periodontics, Bapuji Dental College & Hospital, Davangere, Karnataka.

⁴Professor & Head, Department of Periodontics, Bapuji Dental College & Hospital, Davangere, Karnataka.

⁵Senior Lecturer, Department of Conservative Dentistry, Ragas Dental College, Uthandi, Chennai, Tamil Nadu.

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