

# A Case Report on Combination of Vista with Connective Tissue Graft as A Predictable Surgical Approach in Management of Multiple Gingival Recession

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**Abstract:-** Gingival recession, a common occurrence across various populations, is characterized by the displacement of gingival tissues towards the root, leading to exposure of the root surface. This condition can raise concerns for patients due to root hypersensitivity, erosion, root caries, and aesthetic reasons. In recent times, novel techniques for surgically treating multiple adjacent recession type defects have been proposed. These techniques are primarily based on the coronally advanced flap approach, which involves a supra- or subperiosteal tunnel technique combined with a subepithelial connective tissue graft, graft substitutes or growth factors. The aim of the the present case reports is to outline a minimally invasive approach known as vestibular incision subperiosteal tunnel access along with connective tissue graft, which overcomes the drawbacks of other conventional tunneling techniques or classic root coverage procedures. Overall, this innovative technique offer promising solutions for addressing gingival recession and its associated concerns, providing potential benefits to patients seeking treatment for this condition.

**Keywords:-** *Coronally Advanced Flap, Gingival Recession, Root Coverage, Subepithelial Connective Tissue Graft, Vestibular Incisional Sub Periosteal Tunnel Access.*

## I. INTRODUCTION

The gingiva is a crucial part of the periodontium, that encircles the cervical portion of the teeth and the alveolar processes of the jaws. The gingival tissues are closely adapted in a healthy state, thus offering excellent defense against physical injuries and bacterial infiltration. Additionally, it plays a vital role in maintaining esthetics.

Multiple factors like the presence of plaque and calculus, tooth malposition, high frenal attachment, improper tooth brushing, faulty restorations, smoking, tooth

movement by orthodontic forces and some periodontal surgeries by conventional/or chemicals methods can lead to the apical shift of the gingival margin. Gingival recession exposes the root surface resulting in hypersensitivity, formation of plaque retentive area, root caries and poor aesthetics particularly in the anterior aesthetic zone <sup>[1]</sup>.

Evidence suggest that gingival recession mostly affects individuals with age 30 years or more. Furthermore, it has been observed that at least 40% of young adults and 88% of older adults experience gingival recession in at least one area with marginal tissue recession of 1 mm or more <sup>[2,3]</sup>.

Different surgical techniques incorporating soft tissue grafts i.e., Free gingival graft (FGG), sub-epithelial connective tissue graft (CTG), guided tissue regeneration (GTR) membrane, enamel matrix derivative (EMD), acellular dermal matrix allograft (ADM), xenogenic collagen matrix (XCM), platelet-rich fibrin (PRF) etc. have been proposed for the management of gingival recession <sup>[4]</sup>. CTG technique has been considered as the gold standard for the management of gingival recession. It has yielded predictable and reproducible results with the dual advantage of optimal donor site healing as well as outstanding color matching of the tissues.

The efficacy and predictability of various root coverage procedures rely on several factors including the anatomy of the defect site, the width of attached gingiva, the height of interdental papilla, the vestibular depth and the type of frenulum attachment <sup>[5]</sup>. The treatment of recession defects associated with multiple teeth poses a greater challenge to clinicians as avascular root surface area is more extensive. The vestibular incision subperiosteal tunnel access (VISTA) approach was introduced with the aim to avoid the complications of the conventional treatment procedures for root coverage<sup>[6]</sup>.

The purpose of the present case report is to outline and discuss the effectiveness of the VISTA technique in combination with CTG in the management of multiple gingival recession defects.

**II. CASE REPORT**

A 32 year old female patient reported to the Department of Periodontology, with a chief complaint of receding gums and sensitivity in the upper right front and back tooth region. The patient’s general health status was fair with no relevant medical and dental history. She was using the horizontal scrub technique for tooth brushing. On intraoral examination, miller class I recession defect was present w.r.t 13,14,15,16 (Fig. 1). On radiographic evaluation, there was no bone loss interproximally.

*A. Pre-Surgical Phase:*

Phase I therapy was carried out and the patient was educated for plaque control. Moreover, the patient was also motivated to modify her brushing habit. She was instructed to follow the vertical oriented roll method instead of the horizontal scrub technique to minimize toothbrush trauma as advocated by Wennström and Zucchelli [7]. Basic blood investigations were done which were in the normal range. The patient was recalled after 4 weeks to evaluate the gingival health status. VISTA technique was planned in combination with CTG w.r.t 13,14,15,16 for the management of gingival recession.



Fig 1 Pre-Operative Photograph; Miller Class I Recession Evident w.r.t 13,14,15,16

*B. Surgical Phase:*

After taking patient’s consent and obtaining profound anesthesia, a vestibular access incision was made through the periosteum mesial to the recession defect. A subperiosteal tunnel was prepared using a microsurgical periosteal elevator thus exposing the buccal bone plate and root dehiscences (Fig.2) The gingival sulcus of each tooth to be treated was connected via the tunnel. The extended well beyond the mucogingival junction, so as to allow for tension free coronal advancement of the gingiva. Interproximal extension of the tunnel was also carried out to mobilize the gingivo-papillary complex as far as the embrasure space permitted. No surface incisions were made through the papillae (Fig.3).

CTG was harvested from the right premolar-molar region of the hard palate using the trap door technique (Fig. 4). The palatal donor site was sutured and protected with an adhesive intraoral band-aid (Fig. 5). The graft was trimmed to fit the dimensions of the recipient site and carefully inserted inside the subperiosteal tunnel (Fig. 6). Measures were also taken to place the graft just below the gingival margin of each tooth with its apicocoronal extent of at least 3-4 mm beyond the bony dehiscences over the root surfaces to ensure the adequate blood supply to the graft.

The graft along with the mucogingival and the gingivo-papillary complex were then stabilized in the new coronal position using the coronally anchored suturing technique using 6-0 polypropylene sutures. This suturing technique incorporates modified horizontal mattress sutures, knots of which is positioned at the coronal third of the tooth crown. The knots are then stabilized at that position by using composite buttons which prevents the apical pull of the gingival margin during the initial healing. The vertical access incision was approximated and sutured using 6-0 polypropylene suture (Fig. 7). Analgesics (ibuprofen 400 mg) and antibiotics (amoxicillin 500mg) three times a day for 5 days were prescribed. Cold fermentation was also prescribed in on and off mode at the surgical site in the initial 24 hours. All the sutures were removed after 14 days. The follow-up was done at 3 weeks, 1 month and 3 months postoperatively (Fig. 8).



Fig 2 Vestibular Access Incision Mesial to the Defect and Subperiosteal Tunneling using Microsurgical Periosteal Elevator



Fig 3 The Gingival Sulcus of each Tooth to be Treated was Connected via the Tunnel



Fig 4 CTG Harvested from the Palate



Fig 5 Palatal Donor Site Suturing and Protected with Adhesive Intraoral Dressing



Fig 6 CTG Secured Inside the Tunnel



Fig 7 Double Mattress Suturing at the Recipient Site Stabilized with the Help of Composite Stops



Fig 8 :- 03 Months follow-Up

*C. Result:*

Both the recipient site and the donor site healed uneventfully. A satisfactory clinical outcome was achieved in terms of the amount of root coverage achieved postoperatively. The tooth sensitivity was reduced and the patient was satisfied with the improved esthetics as well. The post-operative pain and swelling were also minimal.

**III. DISCUSSION**

One of the most critical components of a person's attractive personality is a pleasing smile. With this rationale, improving the esthetics in addition to restoring the functional integrity of the periodontium has become an integral part of periodontal therapy [8]. Gingival recession occurs due to the apical shift of the gingival margin, exposing the root surface, which ultimately leads to compromised esthetics, increased susceptibility for root caries and dentinal hypersensitivity are the chief indications for root coverage procedures [1].

Many therapeutic options have been suggested for the treatment of gingival recession, most of which are more suitable for isolated defects. But in clinical scenarios, gingival recession is very rarely localized to a single tooth, rather it involves a group of adjacent teeth. Multiple contiguous recessions should be treated simultaneously to minimize the surgeries and optimize the esthetic result [9].

Most of the conventional therapies pose limitations like reduced blood supply and scar formation at the recipient site resulting from surface incisions and muscle pull during healing often leading to incomplete root coverage or recurrence of the recession [6].

The VISTA technique was originally described by Dr. Homa Zadeh which was further modified and improved by Dr. Chris Chang [6]. This technique either alone or in combination with CTG or other soft tissue graft alternatives, GTR membrane, EMD, or a broad wound-healing growth factor like PRF or PDGF-BB has several of advantages in the successful management of multiple recession defects. The subperiosteal dissection done in the VISTA approach reduces the tension of the marginal gingiva during the coronal advancement. It also maintains the integrity of the interdental papillae by avoiding papillary reflection. A remote incision enhances the esthetic outcome in the surgical area by resulting in little to no visible scarring [6].



An important technical difference between the VISTA and other tunneling approaches or other classical techniques of root coverage is the amount of coronal advancement of the gingival margin that could be achieved during the procedure. Moreover, the coronally anchored suturing technique minimizes micromotion of the regenerative site<sup>[6]</sup>. In the present case, advancement of the gingival margin along with the graft was carried out till the most coronal level of the adjacent interproximal papillae beyond the cemento-enamel junction. Sutures were then secured to the facial/palatal aspect of each tooth using the composite stops. This aid in preventing the apical relapses of the gingival margin during the initial stages of healing, thus ensuring a stable clinical outcome.

Many systematic reviews have identified the advantages of CTG in root coverage and increased keratinized tissue width<sup>[10]</sup>. Authors have also suggested the CTG to be more effective than GTR, ADM or XCM with respect to the clinical outcome in root coverage procedures.<sup>4</sup> Other studies examining the long-term results of the CTG seem to further support the long-term efficacy of the CTG in maintaining root coverage<sup>[11]</sup>. However, CTG is most commonly used in conjunction with Coronally advanced flaps (CAF), which necessitate buccal vertical incisions consequently hampering the esthetic results. With the advent of tunneling techniques, the need for vertical incisions was eliminated, thus aiding in quick early healing<sup>[12]</sup>. However, sometimes the conventional intrasulcular tunneling becomes technically challenging as the access is gained through a small sulcular access point. This potentiates the risk of trauma and perforation of the sulcular tissues. The VISTA approach overcomes these drawbacks of conventional tunneling techniques used for periodontal root coverage<sup>[6]</sup>.

In a randomized clinical trial, it was demonstrated that VISTA+CTG showed a higher frequency of complete root coverage compared to CAF+CTG<sup>[13]</sup>. Another study also evaluated the clinical outcomes of VISTA in combination with CTG in the treatment of Miller classes I and II gingival recession. Clinical outcomes indicated a decrease in recession depth and width, and an increase in the width of keratinized tissue. The patients suffered little pain during the operation and the healing phase healing and accessed good esthetic satisfaction<sup>[14]</sup>. In accordance with these studies, we also encountered similar clinical results along with minimal patient-centered outcomes like pain and postoperative swelling with the VISTA approach in combination with CTG in our case.

#### IV. CONCLUSION

Gingival recession is one of the common concern among many patients. The VISTA technique has been found to be very predictable in the successful management of multiple gingival recessions. This technique preserves the interdental papilla thus helping in early accelerating the initial wound healing. The tunneling further causes less traction and preserves the gingival height. This procedure may be superior to other techniques like coronally repositioned envelop flap or trapezoidal flap in treating

multiple gingival recession defects as there is minimum trauma to the recipient site. Furthermore, CTG being the gold standard for root coverage procedures, when combined with the VISTA technique seems to yield superior clinical outcomes. Further multicentric studies are required to validate the observations of the present case report.

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