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"SEAMLESS GINGIVAL REPAIR: TUNNELED CORONALLY ADVANCED FLAP WITH SUBEPITHELIAL CONNECTIVE TISSUE GRAFT - A CASE REPORT"

A. Abdul Miran[1*], Lubna Firdose. A[2], R. Shanmuga Priya [3], Arunmozhi. U[4], R. Kadhiresan[5]

1 Postgraduate student, Department of periodontology and oral implantology, Sri Venkateswara dental college and hospital, Chennai, Tamilnadu, India, Pincode-600130, orcid id- 0009-0005-8095-3251

2 Postgraduate student, Department of periodontology and oral implantology, Sri Venkateswara dental college and hospital, Chennai, Tamil Nadu, India, Pincode-600130, orcid id-0009-0004-7029-1285

3. Professor, Department of periodontology and oral implantology, Sri Venkateswara dental college and hospital, Chennai, Tamilnadu, India, Pincode-600130, orcid id- 0000-0003-2121-4932

4.HOD and Professor, Department of periodontology and oral implantology, Sri Venkateswara dental college and hospital, Chennai, Tamilnadu, India, Pincode-600130, orcid id-0000-0002-6061-6654

5 Professor, Department of periodontology and oral implantology, Sri Venkateswara dental college and hospital, Chennai, Tamilnadu, India, Pincode-600130, orcid id- 0000-0002-9606-2964

Corresponding Author Address: Off. Old Mahabalipuram road, Thalambur Rd, Near Navalur, Chennai, Tamil Nadu 600130

ABSTRACT:

Single and multiple gingival recession problems in the aesthetic zone necessitate contemporaneous repair of all affected teeth in a single procedure. This case report seeks to assess the efficacy of tunneled coronally advanced flap (TCAF) with connective tissue graft (CTG) in the treatment of numerous gingival recessions. There was 100% mean root coverage, an increase in the keratinized tissue and high patient aesthetic satisfaction. Thus, (TCAF + CTG) is a successful treatment and also a less invasive method to correct options for single and multiple gingival recession.

KEYWORDS: connective tissue graft, gingival recession, tunneled coronally advanced flap, root coverage.

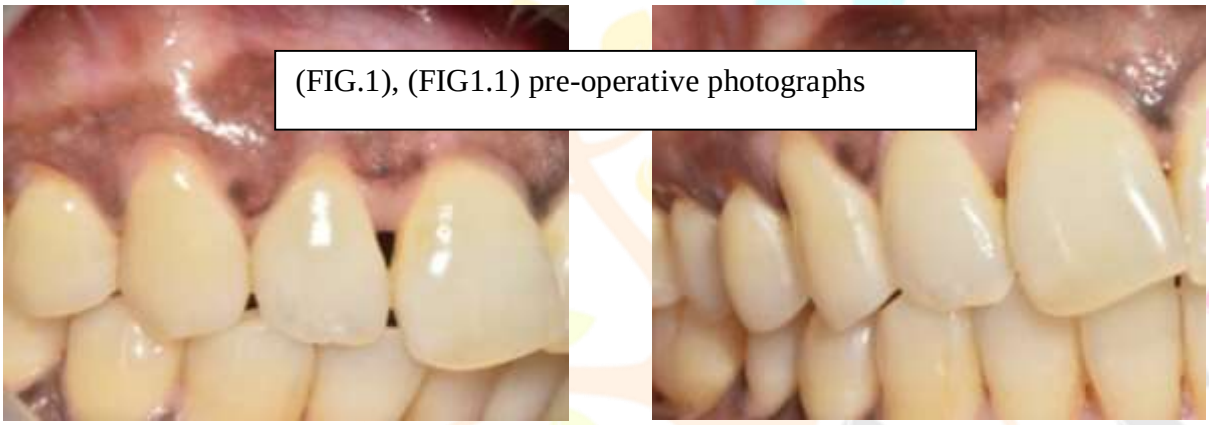
INTRODUCTION:

Gingival recession is defined as the location of the marginal tissue, apical to the cementoenamel junction (CEJ) with exposure of the root surface[1]. Several etiology and predisposing factors like Periodontitis, high occlusal stresses, traumatic injury, improper orthodontic forces, improper brushing habits, muscle position, and a thin periodontal phenotype have all been linked to the development of gingival recessions [2,3]. Mucogingival surgery is performed to treat gingival recessions by covering the exposed root surface with soft tissue. This improves the aesthetic appearance, increases the width of the attached gingiva, and decreases tooth sensitivity[4]. Several surgical procedures have been offered to address gingival recession like Pedicle grafts, free gingival grafts, connective tissue grafts and the barrier membrane for guided tissue regeneration technique[5]. In this case, we have used a

connective tissue graft (CTG), an autologous subepithelial tissue extracted from the palate, is placed between the flap and the root surface, thus receiving a double blood supply from the underlying periosteum and the pedicle that covers it[6]. This case report describes a tunneled coronally advanced flap (TCAF) with a connective tissue graft for root coverage in multiple recessions.

Case report

A 47-year-old guy presented to the Department of Periodontology with a complaint of tooth sensitivity in the maxillary right tooth region for the past 4 months. Sensitivity rises when brushing, and consumption of hot and cold foods. On clinical examination, According to Cairo classification [7]gingival recession RT2 is evident in the region of 12 and 13 (FIG.1, FIG1.1). The periodontium was healthy and showed no symptoms of inflammation. The recession is caused by improper and excessive tooth brushing. Scaling and root planing were completed, and OHI was reinforced. A proper brushing technique was recommended with enough time to adjust. After 2 months, root coverage by tunneled coronally advanced flap (TCAF) with connective tissue graft (CTG) was planned. Prior informed consent was obtained from the patient.



(FIG.1), (FIG1.1) pre-operative photographs

SURGICAL PROCEDURE:

The surgical site was disinfected with 2% betadine. The surgery was performed under local anaesthesia (Lignocaine HCl with 2% epinephrine 1:200,000). To generate a trapezoidal surgical papilla, make a horizontal incision at a distance equal to the recession plus 1 mm apical to the papilla tip. A little divergent vertical incision was made using blade No 15c.
And intrasulcular incision was given on both the treated location and the tooth near the preserved papilla (FIG.2). To achieve tension-free flap, advancement at least one tooth after the recession defect (not next to the vertical incision) must be tunneled. The midfacial aspect of the tooth was elevated with tunneling knives no. TITU1 and TITU2 (osung ss tunneling) (FIG.3).

The flap was termed tension-free if it could passively reach a level around 2 mm coronal to the cementoenamel junction. Mechanical debridement (FIG.4) and chemical root conditioning with 17% ethylenediaminetetraacetic acid (EDTA) for 3 minutes (FIG.5), followed by rinsing with sterile saline was done. The anatomical papilla was incised and de-epithelialized (FIG.6) using No.15c blade. Using a single incision technique the connective tissue graft is procured from the palate extending from the distal canine and mesial area of the first molar (FIG.7). After harvesting the graft, saline-soaked gauze was used to apply pressure to the donor site. A connective tissue graft of 10 mm length and 5 mm height was obtained. The graft was then placed under the flap and tunneled below the non-incised papilla and suturing was done using simple interrupted suture (5/0 PGA) (FIG.8). The flap was coronally advanced and sutured with sling sutures from the incised papilla to the tunnelled papilla and from the incised papilla to the papilla of the next tooth not included in the flap (5/0 Polypropylene) (FIG.9). Simple interrupted sutures (5/0 Polypropylene) were used to close the vertical incision in the palate (FIG.10).

(FIG.2) Horizontal and vertical incision is given in the distal aspect of the tooth.

(FIG.3) Tunneling is done mesial aspect of the tooth.

(FIG.4) scaling and root planning done in 33.

(FIG.5) 17% EDTA applied for 3 minutes.

(FIG.6) de-epithelialized done in non-incised papilla.

(FIG.7) Single-incision is given in the palate.

(FIG.8) The CTG was inserted below the flap and sutured to the anatomical papillae.

(FIG.9) A flap is coronally advanced and sutured using sling and simple

(FIG.10) A palatal closure is done using simple interrupted.

POST – OPERATIVE CARE :

Post-operative instructions were given. The patient was recommended to take (Amoxicillin 500mg, Ibuprofen 400mg) for three days postoperatively. A 0.2% chlorhexidine rinse was also recommended. Two weeks after surgery, the sutures were removed (FIG11), (FIG11.1). Healing was satisfactory, and enough root coverage was achieved. After 6 months, recall revealed consistent findings with no sensitivity observed (FIG12), (FIG12.1).

(FIG11), (FIG11.1): REVIEW AFTER 2 WEEKS

(FIG12), (FIG12.1): REVIEW AFTER 6 MONTHS

RESULTS :

The current case report shows the success of the tunneled coronally advanced flap approach with 100% root coverage and excellent tissue contour. TCAF are effectively integrated with connective tissue grafts, resulting in good aesthetic, rise in keratinised tissue and also increased in gingival thickness.

DISCUSSION :

Gingival recession can be caused by a multitude of factors and the most common symptom resulting from such exposure is hypersensitivity. Tooth hypersensitivity can result from loss of enamel by processes including abrasion and erosion, or by denudation of the root surface due to gingival recession or periodontal treatments. Although the predisposition to dentinal hypersensitivity is multifactorial, enamel loss and gingival recession may be more severe with advancing age.

The present article describes a minimally invasive surgical approach for treating isolated and multiple gingival recession defects.

According to a study done by Lorenzo Tavelli in 2018 the Tunnel technique is a highly effective treatment for localized /multiple GR deficiencies. However, when using comparable grafts (connective tissue or ADM) in both procedures, coronally advanced flap appears to be associated with a larger proportion of Complete root coverage than the Tunnel technique[8].

Santamaria et al. demonstrated in a 2-year randomized trial comparing the Coronally advanced flap and Tunnelling technique that although both CAF+CTG and TUN+CTG resulted in significant clinical and esthetic improvements and provided similar results in the treatment of single maxillary gingival recession[9].

In 2022, Shayan Barootchi concluded that the TCAF combined with a CTG can effectively cure isolated RT2 GRs with insufficient papilla. This procedure may increase flap blood supply and graft vascularization, as well as clinical, aesthetic, and patient-reported results, when compared to traditional surgical methods[10].

According to Shayan Barootchi's 2022 document, the minimally invasive method (TCAF) is effective for treating MAGRs with a VXCM following the case series. This procedure could enhance flap blood flow and graft vascularization, as well as clinical, aesthetic, and patient-reported results when compared to traditional surgical techniques[11].

In the present case report, the minimally invasive approach (TCAF) followed by Connective Tissue Graft (CTG), complete root coverage was obtained

In the case report currently reported, post 6 months root coverage with stable results was achieved with minimal scar formation and excellent colour matching. An adequate increase in the width of the keratinised attached gingiva was also noted.

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