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RESEARCH ARTICLE
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TCAF ALONG WITH T-PRF FOR THE COVERAGE OF MULTIPLE GINGIVAL RECESSION: A CASE REPORT

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Abstract
A beautiful smile can boost an individual's self-esteem and confidence. Your smile is often one of the first things people notice about you. Gingival recession, also known as receding gums, is a condition where the gum tissue pulls away from the tooth, exposing more of the tooth's root. In the context of smile aesthetics, gingival recession can have a significant impact on the overall appearance of the smile. The aim of this case report is to prevent the progression of gingival recession with the help of minimally invasive technique called Tunnelled coronally advanced flap procedure (TCAF). Patient reported with chief complaint of unesthetic appearance in lower front teeth region. Using TCAF, multiple gingival recessions (RT2) in lower front anterior region were successfully treated and satisfactory results were achieved within 6 months.

Keywords: Gingival recession, Multiple recessions, Tunnelling technique, Coronally advanced flap.

INTRODUCTION:
A beautiful smile can boost an individual's self-esteem and confidence. When people feel good about their smiles, they are more likely to engage in social interactions, speak and laugh freely, and present themselves with confidence. Receding gums also known as gingival recession expose the sensitive tooth roots, which can be aesthetically unpleasing and may also lead to tooth sensitivity. Exposed roots may appear darker and more yellowish compared to the rest of the tooth, further affecting smile aesthetics.

There are various classifications of gingival recession but the most accepted out of all is Miller's classification[1] given by Dr. P.D. Miller in 1985. Miller's classification divided gingival recession into four main classes:

Class I (Marginal Tissue Recession): In this class, the gingival recession is limited to the marginal gingiva, without any loss of interdental bone or soft tissue.

Class II (Marginal Tissue Recession with Interdental Bone or Soft Tissue Loss): In this, the gingival recession extends beyond the marginal gingiva, leading to a loss of interdental bone or soft tissue.

Class III (Marginal Tissue Recession that Extends to or Beyond the Mucogingival Junction): Involves gingival recession that extends to or beyond the mucogingival junction, which is the boundary between attached gingiva and alveolar mucosa.
Class IV (Severe Marginal Tissue Recession with Severe Bone or Soft Tissue Loss): This is the most severe classification, where the gingival recession is extensive and often results in severe loss of both hard and soft tissues.
Another recently accepted classification of gingival recession is by Cairo et al.[2]
Recession Type 1 (RT1): Gingival recession with no loss of interproximal attachment. Interproximal CEJ was clinically not detectable at both mesial and distal aspects of the tooth.
Recession Type 2 (RT2): Gingival recession associated with loss of interproximal attachment. The amount of interproximal attachment loss (measured from the interproximal CEJ to the depth of the interproximal pocket) was less than or equal to the buccal attachment loss (measured from the buccal CEJ to the depth of the buccal pocket).
Recession Type 3 (RT3): Gingival recession associated with loss of interproximal attachment. The amount of interproximal attachment loss (measured from the interproximal CEJ to the depth of the pocket) was higher than the buccal attachment loss (measured from the buccal CEJ to the depth of the buccal pocket).
In cases where gingival recession is affecting smile aesthetics, there are various dental treatments available to address the issue. [3,4] In this case report, multiple gingival recessions (RT2) in the lower anterior region are treated with the surgical procedure called Tunnelled coronally advanced flap (TCAF) combining two techniques – Tunnelled technique and coronally advanced flap procedure.[5] TCAF procedure is designed to cover the exposed root surface and improve the appearance of the gumline. TCAF technique is considered less invasive compared to traditional gingival recession procedures, such as the lateral sliding flap or free gingival graft, which involve creating larger flaps or harvesting tissue from another area of the mouth. TCAF typically results in less discomfort and a quicker recovery.

CASE REPORT

A female patient aged 21 years reported with chief complaint of unesthetic appearance and receding gums in lower front tooth region. Intraoral examination revealed Miller's Class II gingival recession due to faulty toothbrushing method (Fig 1). Therefore to prevent the progression of gingival recession, TCAF surgical technique was planned. The patient was informed about the procedure and an informed consent was signed by the patient. Before surgery, Phase-1 therapy was performed which consisted of scaling and root planing, oral hygiene instructions, motivation and education.

Fig. 1: Pre-operative view.

SURGICAL PROCEDURE

Adequate anaesthesia was achieved by administering 2% xylocaine HCl with adrenaline 1:80,000. Pre-operative view with multiple gingival recession (RT2) can be seen (Fig 1 & 2).

Fig. 2: Pre-Operative View. Recession Lengths Using UNC-15 Probe

Fig. 3: Crevicular incision using ophthalmic knife

Crevicular incision was given on the site using the ophthalmic knife (Fig.3).
Also, a small vertical incision (Fig. 4) is made at the base of the tunnel, which provides the necessary flexibility to move the gingival tissue.

Fig. 4: Vertical incision mesial to canine

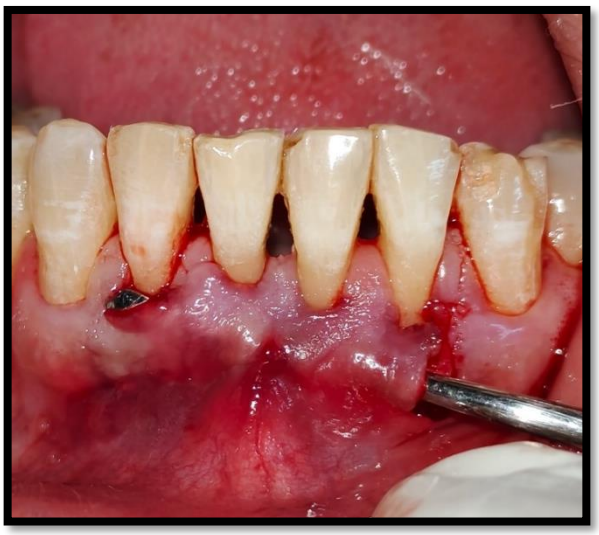

Fig. 5: Tunnelling done using tunnelling knives

Fig. 6: T-PRF membrane inserted into the tunnel.

A tunnel is created (using tunnelling knives TKN #1 and #2 HuFriedy®; Fig. 5) under the existing gum tissue. This tunnel allows for the repositioning of the gum tissue without the need for a traditional full-thickness flap. The gum tissue is gently moved coronally (towards the crown of the tooth) to cover the exposed root surface. This can involve stretching and repositioning the gum tissue.

T-PRF membrane was inserted into the tunnel (Fig. 6) for increasing the bulk of the keratinised gingiva. PGA/PLA sutures were used to ensure proper healing and stabilization of the approximated tissue. (Fig. 7)

Fig. 7: Suture placement

Fig. 8: Post-operative view: 6months

Patient was advised not to do brushing in that region and not to consume any hot & spicy food for at least 10 days postoperatively and asked to take antibiotics and anti-inflammatory drugs as recommended. 10 days postoperatively patient recalled for follow up. No postoperative complications were seen & healing was proceeded uneventfully and satisfactory and patients consistently reported minimal discomfort. After 6 months, the T-CAF resulted in complete root coverage (Fig 8).

DISCUSSION

The present manuscript illustrates the combined application of TCAF + T-PRF for the treatment of multiple GRs in a periodontally healthy individual. The rationale for this approach was to gain access for the insertion and stabilization of the growth factor, i.e., T-PRF, aiming for root coverage and simultaneous gingival phenotype modification.[6] TCAF with one vertical incision on the mesial aspect of the canine was performed and this vestibular access incision has simplified tunnel preparation to a great extent. TCAF preserves the patient's existing gum tissue, minimizing the risk of aesthetic issues or complications that can arise from removing tissue from another part of the mouth.

T-PRF, a third generation platelet concentrate discovered by Tunali et al.[7] Titanium has one of the highest strength-to-weight ratios and corrosion resistance among metals.[8] Due to its noncorrosive properties, titanium has excellent biocompatibility.[9] The material passivates itself in vivo by forming an adhesive oxide layer.[10] The immunofluorescent microscopy analysis of the T-PRF and L-PRF fibrin network structure showed the mature and dense T-PRF fibrin network with small gaps whereas the mature and dense L-PRF fibrin network exhibited large gaps between the fibrin meshwork.[6] For these reasons, the combination of T-CAF and T-PRF was used in this case.

CONCLUSION:

The optimum results were obtained in the present case. This is a viable technique for multiple gingival recession coverage procedure in the mandibular regions.

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