

Treatment of Gingival Recession with Modified Coronally Advanced Tunnel Technique: A Case Report

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Abstract: *Gingival recession (GR) is the displacement of gingival margin apical to the cemento - enamel junction (CEJ) with a resultant exposure of root surface. Treatment for GR is primarily done for improving esthetic, eliminating dentin hypersensitivity and for minimizing the risk of root caries. Modified coronally advanced tunnel technique (MCAT) is a highly effective and predictable procedure in the treatment of multiple GR defects. This case report presents the treatment of root coverage with MCAT and subepithelial connective tissue autogenous graft as a means of aesthetic and functional rehabilitation of the keratinized gingival tissue. One month post operatively, uneventful healing was observed with a 3 mm root coverage.*

Keywords: Gingival recession, connective tissue, autograft

1. Introduction

Gingival recession (GR) is the displacement of gingival margin apical to the cemento - enamel junction (CEJ) which contributes to the exposure of root surface [1]. These defects were categorized following the 2018 World Work- shop into three categories: (1) recession type 1 (RT1) with no loss of interproximal attachment, (2) recession type 2 (RT2) when the amount of interproximal attachment loss is lower than of buccal attachment loss, and (3) recession type 3 (RT3) if interproximal attachment loss is greater than Gingival recession (GR) is the displacement of gingival margin apical to the cemento - enamel junction (CEJ) which contributes to the exposure of root surface [1]. These defects were categorized following the 2018 World Work- shop into three categories: (1) recession type 1 (RT1) with no loss of interproximal attachment, (2) recession type 2 (RT2) when the amount of interproximal attachment loss is lower than of buccal attachment loss, and (3) recession type 3 (RT3) if interproximal attachment loss is greater than Gingival recession (GR) can be defined as the displacement of gingival margin apical to the cemento - enamel junction (CEJ) resulting in root surface exposure¹. According to 2018 World Workshop classification these defects are classified into the following categories: (1) recession type 1 (RT1) with no loss of interproximal attachment, (2) recession type 2 (RT2) when the amount of interproximal attachment loss is lower than of buccal attachment loss, and (3) recession type 3 (RT3) if interproximal attachment loss is greater than buccal attachment loss². Predisposing factors for GR include thin periodontal phenotype, improper tooth brushing, the presence of restorations with intra - crevicular margins,

orthodontic treatment, and persistent gingival inflammation.³ Treatment for GR aims primarily for improved esthetic, to eliminate dentin hypersensitivity and minimized risk of root caries. Available data from recent literature indicate that tunnel technique (TUN) is a highly effective and predictable procedure in the treatment of multiple GR defects.^{4, 5} Positive outcomes of root coverage with TUN might be attributed to inherent advantage of this approach being a minimally invasive procedure with limited flap opening and lack of vertical releasing incisions. All of this contributes to decreased tissue trauma, enhanced wound healing, and greater blood supply to the graft. The use of subepithelial connective tissue graft (SCTG) with TUN approach further improves the clinical outcomes.

This paper is a clinical case report in which the patient presented dentin hypersensitivity due to gingival recession, whereby the treatment of root coverage with MCAT and subepithelial connective tissue autogenous graft was chosen as an alternative to aesthetic and functional rehabilitation of the keratinized gingival tissue.

2. Clinical Presentation

A 35 years old male patient reported to Post graduate institute of dental sciences, Rohtak, Haryana with a chief complaint of hypersensitivity in upper left front tooth region since 3 to 4 years. Medical history was non - contributory. On intra - oral examination RT1 gingival recession with recession depth and width of 5mm was observed with respect to maxillary left canine (Figure - 1A). Moreover, sufficient width of attached gingiva of approximately 3mm was noted. No loss of interdental papilla was observed radiographically. On the first visit, full mouth scaling and root planing was performed and oral hygiene instructions were given to the patient.

3. Procedure

A written informed consent was obtained from the patient. Complete haemogram levels were within normal limits.

After achieving local anaesthesia with 2% lignocaine hydrochloride with adrenaline (1: 100, 000), a sub periosteal tunnel was prepared by raising a full - thickness flap till the mucogingival junction (MCJ) using a small elevator. Beyond the MGJ a split - thickness flap was elevated using tunneling instruments (Figure - 1B, 1C). The papillary regions were detached at the base of papilla from the underlying periosteum leaving the tip of papillae intact. The exposed root surfaces were planed using designated curettes. After achieving local anaesthesia, a sub epithelial connective tissue graft (SCTG) was harvested from the palate with a single incision technique. The SCTG obtained was of approximately 11 mm in length and 4 mm in width (Figure 1D). SCTG was inserted inside the tunnel and stabilized at CEJ with resorbable sling sutures. In the next step, the mobilized buccal flap was advanced coronally to fully cover SCTG, and secured with 6 - 0 resorbable vicryl sling sutures (Figure 1E).

4. Results

The postoperative period (Figure 1F) was monitored at one week and one month after the surgery, with the aim of verifying the result on aesthetic basis. 3 mm root coverage was obtained. The patient was satisfied with the esthetic result but reported symptoms of slight pain at one week follow up which gradually decreased at one month. On clinical examination, surgical wound healing process was found to be uneventful, free from any infection.

5. Conclusion

The tunnel approach was first described by Zabalegui et al. as a split thickness flap raised on the buccal aspect.⁶ The adjunctive use of SCTG further improved clinical outcomes.⁷ To achieve the expected results successfully, proper diagnosis is a must to select the best possible procedure for root coverage. Accordingly, several factors must be observed and controlled before attempting any kind of root coverage procedure. In the current case reported, the technique described for root coverage includes grafting of subepithelial connective tissue along with a modified

advanced tunnelling approach. When all the parameters as described in the literature were followed, the result was significant root coverage with an improved prognosis. However, it should be kept in mind that this procedure when performed in patients with the correct indication, can result in a highly significant aesthetic and functional rehabilitation.

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Figure

Legend

1A - Preoperative view showing 5 mm recession at maxillary left canine

1B - 1C - Intraoperative view showing subperiosteal tunnel preparation

1D - Subepithelial connective tissue graft 1X4 mm harvested from the palate

1E - SCTG stabilized at CEJ and mobilized buccal flap was advanced coronally and secured with 6 - 0 resorbable vicryl sling sutures.

1F - 1 month postoperative image showing 3mm of root coverage