

# Palatal Gingival Recession Root Coverage: A Case Report

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## Abstract

The treatment of palatal gingival recession is technically challenging due to difficult accessibility and the nature of the palatal mucosa. Treatment of this defect was not reported routinely in the literature and perhaps is not usually performed. However, palatal gingival recession defects might be indicated for the treatment in some cases. This case report presents a method of using a rotational connective tissue pedicle flap to correct a palatal gingival recession defect. Substantial amount of root coverage was obtained with this technique (85.7%). Therefore, whenever indicated, the rotational connective tissue pedicle flap can be used to correct palatal gingival recession defects.

## Keywords

Gingival recession/palatal, Pedicle flap, Periodontal surgery, Root coverage.

## Introduction

Treatment of gingival recession is a common periodontal therapy. The procedures for root coverage demand functional and esthetic considerations. Many periodontal surgical procedures to treat gingival recession have been described previously in the literature and have been shown to be effective in covering denuded root surface<sup>[1]</sup>. Literature reports on treated palatal gingival recession are limited<sup>[2]</sup>. Although the etiology of the condition is multifactorial<sup>[1,3]</sup>. Nevertheless, regardless of its cause, gingival recession may occur without symptoms or it may lead to dentin hypersensitivity, esthetic concerns, root caries and difficulty in maintaining proper oral hygiene procedures<sup>[4,5]</sup>. The mucosa of the hard palate is entirely keratinized such that it precludes functional and esthetic consideration in this anatomical site. A thorough assessment of the etiological factors and the degree of tissue involvement is mandatory prior to the commencement of treatment of the gingival recession defects. There are also other factors that cause technical difficulties in treating palatal recession defects. These factors include difficulty in repositioning palatal mucosa coronally or laterally, the limited accessibility to perform periodontal surgery at this site compared to the buccal

recession site and difficulty to protect the area of surgery from trauma after periodontal surgery during the healing period<sup>[6]</sup>.

Regardless of these anatomical and technical limitations, there are clinical situations where root coverage of palatal gingival recession is the preferred choice of treatment<sup>[2]</sup>. The aim of this study is to describe a rotational connective tissue pedicle flap technique that was used successfully to cover a palatal gingival recession on the right maxillary first molar (palatal root of tooth#16).

## Case Report

A 53-year-old male was referred to the periodontology clinics at the King Abdulaziz University Faculty of Dentistry, (KAUFD), Jeddah, Saudi Arabia for treatment. His chief complaint was tooth hypersensitivity in the upper right posterior area. The patient had no habits contributing to his chief complaint, and he was medically fit. Medical and family history was non-significant and he was a non-smoker.

Dental examination showed that his teeth were generally sound with few restorations in good condition.

**Table 1.** Pre- and post-surgical measurements (mm).

	Pre-Surgical Measurements	Post-Surgical Measurements	Change
Recession Depth	7	1	6
Probing Depth	3	1	2
Attachment Level	10	2	8



**Figure 1a.** Incision



**Figure 1b.** Connective tissue pedicle flap was created and was passively rotated and secured to underneath the periosteum at the distal part of the recession.



**Figure 1c.** Final sutures placed with tension free closure. Connective tissue pedicle was sutured over the recession defect using 4-0 chromic gut sutures.

**Figure 1.** Surgical procedure.

Periodontal examination did not show any probing depth of > 4mm at any location, and his oral hygiene was fairly satisfactory in most areas (Plaque index = 20%) and his bleeding index was 23%. The patient had no other dental concerns apart from the hypersensitivity, which was attributed to the palatal gingival recession. The palatal gingival defect on tooth #16 measured approximately 7 mm in length, and together with the probing depth in the area, the total clinical loss of attachment from the cemento-enamel junction (CEJ) to the base of the sulcus was 10 mm on the palatal surface of the tooth (Table 1). There was no loss of papilla height on the mesial or distal aspect of tooth #16. The thickness of palatal masticatory mucosa was measured by "Bone Sounding" using a graded periodontal probe (Michigan 'O' probe, with Williams markings) and a rubber stopper

and it was 3 mm in thickness in the middle of the donor site. The decision was made to cover the palatal gingival recession at tooth #16 with a rotational connective tissue pedicle flap procedure after completion of Phase-I therapy. The patient had no contraindications to surgical periodontal therapy. Explanation of the surgical procedure was done, and an informed consent was obtained from the patient prior to treatment following KAUFD standard of care.

Under local anesthesia, 1 carpule of 1.8 mL (2% lidocaine with 1:100,000 epinephrine), the exposed root was debrided thoroughly using hand instruments to eliminate plaque and any soft cementum. The exposed root was treated with tetracycline solution (125 mg tetracycline per 1cc of saline) for two minutes and rinsed with water. A no. 15C scalpel blade was used to make a full thickness horizontal incision starting at the CEJ of tooth #16 and extended mesially to tooth #15, approximately 3mm apical to the adjacent gingival margins. Tension releasing vertical cut-back incision was done extending just mesial to the second premolar (Fig. 1a). A new no. 15C scalpel blade was used parallel to the surface of the palatal tissue with sharp dissection to split the subepithelial connective tissue. The sharp dissection began at the vertical releasing incision area (*i.e.*, mesial of the second premolar) working the scalpel blade distally

toward the recession. This dissection was deep enough to maintain adequate palatal cover tissue thickness to minimize unwanted postoperative sloughing. A Buser periosteal elevator was then used carefully to begin the subperiosteal elevation of the sub-epithelial connective tissue. The connective tissue pedicle was then pulled gently with tissue forceps while a no. 15C scalpel blade was used to apply a horizontal incision internally through the connective tissue to free the pedicle. Then the pedicle flap was passively rotated and secured underneath the distal margins of the recession after achieving sufficient sub-periosteal undermining (Fig. 1b). The pedicle graft was immobilized using 4-0 chromic gut sutures (Fig. 1c).

The patient was advised to take a non-steroidal anti-inflammatory drug (400 mg ibuprofen) if needed for pain and was instructed to rinse with 0.2% chlorhexidine gluconate mouthwash twice a day for two weeks. No systemic antibiotics were prescribed. At one week, healing was uneventful with evidence of survival of the graft (Fig. 2a). After two weeks, the graft had completely survived with 1mm of exposed root surface present (Fig. 2b). The patient was instructed to discontinue the mouthwash and to start cleaning

the area with a soft brush and gentle flossing. The final reevaluation was done three months post-operatively and clinical measurements were recorded. There was 1.0mm recession and probing depth was 1.0mm that represented 8.0mm attachment gain and 6.0mm root coverage (85.7%) (Table 1). The tissue covering the palatal recession was considered adequate with complete epithelization, and there was no area of color mismatch (Fig. 2c). Clinically, this technique resulted in uneventful healing with significant gain in clinical attachment level and root coverage of the palatal gingival recession of #16. The grafted tissues appeared attached to the root surfaces, and the thermal sensitivity got sufficiently reduced to the point that the patient was no longer bothered.

### Discussion

This case report has shown that root coverage of palatal gingival recession is an achievable goal. However, there are only a few reports in the literature on root coverage of a palatal root surface<sup>[6,7]</sup>. The surgical technique used in the present case report was a rotational connective tissue pedicle flap<sup>[8]</sup>. The pedicle flap allows maintenance of blood supply to the pedicle during and after the procedure. This adequate vascular supply from the pedicle flap allowed the surgical site to heal favorably<sup>[9]</sup>. Another contributing factor to the success in this case was the thick nature of the palatal mucosa in the area adjacent to the defect. Another important



Figure 2a. One week postoperative.



Figure 2b. Two weeks postoperative.



Figure 2c. Three months postoperative.

factor influencing the prognosis of pedicle flaps is sufficient immobilization (fixation) of the pedicle. In this case report, the rotational connective tissue pedicle flap was secured after the sub-periosteal dissection which influenced the prognosis positively and gave a better chance of success. Two significant advantages result from the use of a pedicle flap in comparison with free soft tissue grafts: the flap remains vascularized; and it is much easier to stabilize because the pedicle has a fixed base. Other advantages of rotational connective tissue pedicle flap were similar to connective tissue graft which include: The satisfactory color match with neighboring soft tissues; a less invasive palatal wound as well as long-term results in terms of root coverage<sup>[10]</sup>. Additionally, in this technique where the donor site remains primarily covered, the risk-to-benefit ratio was favorable to this technique as opposed to other harvesting techniques.

This report describes a single procedure technique that allowed a clinically considerable amount of root coverage with satisfactory clinical results. With a 6.0mm (85.7%) root coverage and 8.0 mm gain of clinical attachment of the palatal recession, the surgical therapy could be described as a substantial clinical success. The root coverage obtained in the present report compared well with another reported palatal root coverage technique described by Harris at 84.6%<sup>[6]</sup>. Regarding case selection of the rotational connective tissue pedicle flap; it can be used in any case of palatal gingival recession with thick palatal mucosa in patients with no contraindication to surgical periodontal therapy. The use of this technique together with other periodontal plastic surgical procedures has expanded the available armamentarium in periodontics to treat palatal gingival recession with the goal of reconstruction of normal functional architecture. Future studies comparing this technique to subepithelial connective tissue graft (the Gold Standard) in patients with bilateral palatal gingival recession are warranted.

There were some surgical limitations in this case report. Access limitation in the palatal aspect unlike performing surgeries in the buccal aspect of the teeth. Also, the nature of the tissue in the area has to be sufficiently thick palatal masticatory mucosa type which might not be the case in all patients<sup>[11,12]</sup>. Moreover, bleeding at the donor site may cause problems although this complication has also been reported with other harvesting techniques from the palate<sup>[1]</sup>.

### Conclusion

Whenever there is an indication to treat a palatal gingival recession, a rotational connective tissue pedicle graft permits safe and satisfactory results provided the periodontal surgery is performed meticulously along with the patient's proper compliance.

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## الترقيع اللثوي لتغطية الجذور الحنكية المكشوفة: دراسة حالة

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**المخلص.** ان العلاج الترقيعي الجراحي لتغطية الجذور الحنكية المكشوفة غالبا ما يمثل تحديا اكلينيكيًا وذلك لصعوبة الوصول إلى موقع الجراحة وللطبيعة المختلفة للنسيج الضام في الجزء الفكي العلوي الحنكي. بناء على ذلك فإن العلاج الجراحي لمثل هذه الحالات لم يرد ذكره كثيراً في أبحاث طب الأسنان وقد يكون من النادر القيام به في الواقع، ولكن في بعض الأحيان يكون الترقيع الجراحي لمثل هذه الحالات ضرورياً وهاماً في الخطة العلاجية للمريض. تعرض دراسة الحالة هذه استراتيجية جديدة لعلاج مثل هذه الحالات وذلك عن طريق الرفرف الجراحي الالتفافي المعلق. وقد أظهرت النتائج زيادة واضحة لتغطية الجذور بنسبة ٨٥,٧% مما يدل على أن استخدام الرفرف الجراحي الالتفافي المعلق من الممكن أن يمثل حلاً جيداً في حالات الانحسار اللثوي للجذور الحنكية المكشوفة.