Abstract: The increasing interest in esthetics and the subsequent need to solve related problems such as dentin hypersensitivity and root caries have favored the development of many surgical techniques that permit the coverage of exposed roots. In this case, a 47-year-old female patient presented seeking resolution of dentin hypersensitivity with multiple gingival recessions in the upper anterior region. A coronally positioned flap combined with connective tissue grafting using a single-incision technique was applied to achieve root coverage. The treated site showed improvement of root coverage with reduction of dentin hypersensitivity without any probing defect or significant complication. The single-incision technique may be an option for harvesting of graft material in the treatment of multiple gingival recessions. (J Oral Sci 51, 317-321, 2009)

Keywords: single incision; multiple gingival recessions; dentin hypersensitivity.

Introduction

Patients who present seeking esthetic improvement, a decrease of root sensitivity, treatment or reduction in the risk of root caries, or restoration of the gingival margin to its normal contour and position can be treated using root coverage procedures (1). Free gingival grafts (2,3), a coronally advanced or laterally positioned flap (4,5), guided tissue regeneration (6) and subepithelial connective tissue grafts (7) have been used in order to achieve root coverage.

A single-incision technique has been introduced to minimize the size of the palatal wound and to allow for primary closure of the donor site, which may result in a reduction of postoperative pain (8, 9). However, there are few reports on coverage of multiple defects using the single-incision technique (10).

The following case presentation describes the use of a coronally positioned flap with a subepithelial connective tissue graft employing the single-incision technique for the treatment of gingival recession and dentin hypersensitivity.

Case Presentation

A 47-year-old woman was referred to the Department of Periodontology at Seoul National Dental Hospital. The patient had a non-contributory medical history, but complained of dentin hypersensitivity with esthetic concerns. She had no underlying medical conditions and was not taking any medications that would have compromised a soft healing response. The patient had a Miller Class I 4-mm recession defect on the maxillary left canine and a Miller Class I 2.5-mm recession defect on the maxillary left first premolar (Fig. 1) (11). The clinical probing depths ranged from 2 to 3 mm and the patient had tactile and air blast sensitivity on both teeth, with a Schiff Air Index of 2 (12). The patient was given a detailed explanation concerning the procedure, and informed consent was obtained from her.

Immediately before the procedure, the patient rinsed for two minutes with a 0.12% chlorhexidine digluconate solution (Hexamedine, Bukwang, Seoul, Korea). Following an injection of 2% lidocaine with 1:100,000 epinephrine local anesthetic, a split-thickness flap was made on the proximal papillae and a full-thickness flap was raised...
below the papillary area to the mucogingival junction. Then a partial-thickness dissection was done apically, leaving the underlying periosteum in place. Root planing was carried out until the root surfaces were hard and smooth to reduce the convexity.

The connective tissue graft was harvested from the palate between the distal aspect of the canine and the mesial region of the first molar with a single-incision technique (8). A connective tissue graft of an adequate size was harvested, and pressure was applied to the donor site with gauze soaked in saline after the graft had been taken. The donor area was then closed with monofilament suture (Ethicon, Johnson and Johnson Medical Inc., Arlington, TX, USA) (Fig. 2). The connective tissue graft was positioned just apical to the cemento-enamel junction with the sutures, and the overlying flap was advanced to fully cover the donor tissue (Fig. 3). Dry foil was applied to the recipient area and then a non-eugenol periodontal dressing (Coe-Pak, GC America, Alsip, IL) was placed over the dry foil to stabilize and protect the donor tissue for 8 days after the procedure.

The patient was given a cold compress extraorally to minimize swelling and bleeding, then placed on amoxicillin 500 mg 3 times per day for 5 days, aceclofenac 100 mg 2 times per day for 5 days, and chlorhexidine digluconate 0.12% 3 times per day for 4 weeks. The patient was asked not to chew or brush the surgical area for the first four weeks after the procedure. Nine days after surgery, the periodontal dressing and any remaining sutures were removed, and the grafted area was carefully cleaned with 0.12% chlorhexidine solution (Figs. 4 and 5). The patient received oral hygiene instructions and was shown how to achieve a roll-stroke brushing technique. She was then seen regularly to monitor healing and plaque control (Fig. 6).

The final evaluation at 19 months after surgery showed good color blending of the treated area with the adjacent soft tissue, and the reduction of sensitivity was maintained up to the final examination (Fig. 7). The root coverage at the final evaluation was 93% and 76% for the canine and the first premolar, respectively.

**Discussion**

This case report has described the use of single incision for harvesting graft material from the palate for treatment of multiple gingival recessions. The root coverage at the final evaluation was 93% and 76% for the canine and the first premolar, respectively, and the reduction of sensitivity was maintained for up to 19 months.

Any removal of epithelium from the palatal masticatory mucosa leads to an uncovered wound area, which has to heal by secondary intention (8). It is very difficult to cover

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**Fig. 1** Buccal view before treatment, showing a recession defect on the upper left canine and first premolar.

**Fig. 2** The connective tissue graft was harvested from the palate using the single-incision technique.

**Fig. 3** The covering flap was advanced and sutured coronally to the cementoenamel junction.
the deepithelialized area by pulling neighboring tissue over it, due to the rigidity of the palatal mucosa (13). Edel introduced a trap-door approach using three incisions without removing epithelium from the donor site (14). Interruption of the vascular supply to the overlying tissue as a result of vertical incisions as well as over-thinning of the flap, may cause palatal sloughing (15). The use of parallel incisions and wedge techniques has been suggested to obviate the need for vertical incisions, and eliminates possible interruption of the vascular supply (16). Harris used specialized blade instruments to similarly obtain connective tissue via parallel incisions, and this may be a rapid way to harvest a connective tissue graft with a uniform thickness throughout (17). Another approach for enhancing the healing of the donor site has been suggested (18). A partial-thickness flap is raised, and a graft composed of epithelium and connective tissue is removed from the palate. The superficial layer (epithelium and a thin zone of connective tissue) is then dissected from the graft and replaced at the donor site to facilitate faster healing. The use of the single-incision technique has recently been suggested because it facilitates predictability of primary closure of the palatal wound (8). Large amounts of donor tissue can be made to cover multiple recession defects, as was shown in this case.

An adequate blood supply from the tissues adjacent to the graft bed seems to be the single most important factor for the survival of grafted tissue over the avascular root surface (19). In this study, a full-thickness flap was created above the mucogingival junction to provide a better gingival blood supply (20), and a partial-thickness dissection was performed apically to create a coronal displacement flap.
with passive adaptation without tension (21). In the present case, the recipient area was carefully evaluated before suturing because increased tension may lead to esthetic impairment and disturbance of initial wound healing, resulting in less root coverage (22).

Root planing was done until a hard clean surface was obtained. The objective of root preparation was to achieve a surface without irregularities and convexity, and to reduce the area of avascular contact with the graft (19).

Periodontal dressing is reported to protect the area from trauma during the healing period (23) and to provide a psychological feeling of protection and well-being (24). In this case, a non-eugenol dressing was used to minimize irritation (25), and monofilament suture was used because it has a lower likelihood of bacterial adhesion (26).

The treated site showed improved root coverage with reduction of dentin hypersensitivity without any probing defect or significant complication. The single-incision technique may be an option for harvest of grafting material in the treatment of multiple gingival recessions.

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References


