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Case Report

Treatment of multiple adjacent gingival recessions in a single surgical approach with expanded subepithelial connective tissue graft – An innovative approach

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ABSTRACT

Background: Gingival recession on anterior teeth compromises facial esthetics and is associated with dentinal hypersensitivity. Multiple teeth recession requires multiple surgeries for adequate coverage.

Methods: Six anterior mandibular teeth were treated with single Subepithelial Connective Tissue Graft (SCTG) expanded with the use of alternate vertical incisions. A brief review of SCTG is included.

Results: 90 days evaluation revealed adequate recession coverage. Patient was satisfied with the esthetic results.

Conclusion: The present technique may be an innovative approach for single surgical harvesting and placement of SCTG over long expanse multiple adjacent gingival recessions. This technique prevents multiple surgical traumas to the patient and enhances esthetics.

Keywords: *Dentinal hypersenstivity, Gingival recession, Periodontal plastic surgery, Subepithelial connective tissue graft*

INTRODUCTION

A localized gingival recession continues to be a special problem. Root exposure poses a cosmetic concern. Smile esthetics can only be enhanced by restoration of normal gingival anatomy, may be with gingival augmentation using various recession coverage techniques. Exposed root surfaces besides esthetic concern, are also associated with dentinal hypersensitivity, root caries, limitations in proper plaque control and low maintenance of adequate oral hygiene measures.

Obtaining predictable root coverage has been the goal of reconstructive periodontal plastic surgery. Patient acceptance and desire for cosmetic dentistry have increased the demand for root coverage procedures. Several techniques have been advocated for covering exposed root surfaces with conflicting rates of success.

Currently, subepithelial connective tissue grafts (SCTGs) remain the most reliable to cover denuded root surfaces. The following case of gingival recessions in six mandibular anterior teeth was treated with expanded SCTG harvested from the palate using a single-incision technique to evaluate its feasibility and esthetic outcome.

REVIEW

The SCTG graft was originally conceived by Langer and Calagna,[1] to augment damaged edentulous ridges. This concept to maximize the biological advantages of the pedicle with double blood supply from bed, coupled with genetic potentials of connective tissue, allows tissue survival over larger areas. This led to genesis of SCTG graft to cover denuded root surface. It was equally successful in maintaining grafts viability over avascular root surfaces.[1]

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A detailed technique has been elaborated on use of SCTG grafts to gain total root coverage at isolated and multiple sites where an increase of 2–6 mm of root coverage was achieved in 56 cases over a period of 4 years.[2] Additionally, this technique reported less post operative discomfort.

Raetzke described a new method to cover localized areas of root exposure with free connective tissue grafts obtained from the depth of the hard palate, the length of which is double the width of it.[3] The graft is positioned directly over the exposed root, but its major part is placed in an "envelope" previously created by an undermining partial thickness incision in the tissue surrounding the defect. In this way, both sides of the graft are in intimate contact with the tissues which offer support and nourishment. He recommended the envelope procedure as a method of choice where only a single recession area is to be treated. It cannot be used in patients with a more generalized periodontal recession because of limited availability of donor tissue from the palate.

Nelson[4] used a bilaminar graft composed of free connective tissue and an overlying pedicle graft, to obtain root coverage. In this report, 29 teeth were treated and monitored for 6–42 months. The total average success was 91% coverage. A tunnel technique has been described where multiple adjacent gingival recessions were treated. The graft was placed into pouches beneath papillary tunnels formed by undermining partial thickness incisions around teeth.[5]

Edel described trap door technique instead of the regular parallel incision method[2] to harvest the graft, using three incisions where no epithelium was removed from the palate.[6] Incisions were made 10–12 mm deep into the palate with vertical releases at the mesial and distal extent of the incision. An incision at the base of the connective tissue between the parallel incisions frees the graft from the palatal bone. Raetzke employed incisions that intersected deep within the palate, just short of the bone, producing a wedge of connective tissue.[3] Harris compared trap door and parallel incision harvesting techniques to find no significant difference in the two techniques for mean root coverage.[7] However, a sloughed trap door caused considerable morbidity. Hurzeler, 1999 suggested a single-incision technique. Initially, the incision was made with the blade 90° to the palatal bone, after which the blade was angled from 135 to 180° to undermine the palatal tissues toward the midline.[8]

CASE REPORT

A 37-year-old male patient was referred to the Department of Periodontology, Faculty of Dental Sciences, CSMMU, with a complaint of dentin hypersensitivity with esthetic concerns. He had no positive medical history and was not taking any medications that would compromise a soft tissue healing response. The patient had Miller Class II 8-mm and 7-mm recession defects on the mandibular left and right canines respectively and Miller Class I defect ranging from 2 to 4 mm on mandibular central and lateral incisors bilaterally (Fig. 1). The clinical probing depths ranged from 2 to 3 mm and the patient had tactile and air blast sensitivity on recessed teeth. The patient was given a detailed explanation concerning the procedure, and informed consent was obtained.

Immediately before the procedure, he was asked to rinse for 2 min with a 0.2% chlorhexidine solution. Under local anesthesia, a sulcular incision was made around the teeth adjacent to the defect and a tunnel was created beneath the adjacent buccal papillae. A split thickness pouch was prepared apical to the tunneled papillae, and the adjacent radicular surface. This pouch was extended 10–12 mm apical to the recessed gingival margin and 6–8 mm mesial and distal to the denuded root surfaces. Root planing was carried out until the root surfaces were hard and smooth.

The connective tissue graft was harvested from the palate between the distal aspect of the canine and first molar with a single-incision technique and sutured. Pressure was applied to the donor site with gauze soaked in saline. Expansion of the connective tissue graft was done by giving alternate incisions in opposite sides of the grafts as is done in Accordian technique for free mucosal graft.[9] The graft is then stretched and placed under the tunnel fully covering the denuded root surfaces to the cemento-enamel junction.

The overlying flap was advanced passively for maximum coverage of the donor tissue and 5.0 silk sutures were placed. A non-eugenol periodontal dressing was placed to stabilize and protect the donor tissue for a week after the procedure. The patient was given a cold compress extraorally to minimize swelling and bleeding, and then placed on antibiotics, analgesics and mouthwash. Patient was asked not to chew or brush the surgical area for the first 4 weeks after the procedure. Eight days after surgery, the periodontal dressing and sutures were removed, and the grafted area was carefully irrigated. Oral hygiene and roll-stroke brushing technique instructions were provided. He was put on recall visits to monitor healing and plaque control.

The final evaluation at 90 days 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. The root coverage at the final evaluation was in the range of 87.5% to 75% (average 83%) for the mandibular anterior teeth.