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Original Article

Comparative evaluation of surgical modalities for coverage of gingival recession: An Armed Forces Medical College perspective

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ABSTRACT

Background: Esthetics represents an inseparable part of today's oral therapy, and several procedures have been proposed to preserve or enhance it. Gingival recessions may cause hypersensitivity, impaired esthetics and root caries. Keeping in mind patient's desire for improved esthetics and other related problems, every effort should be made to achieve complete root coverage.

Methods: Different types of modalities have been introduced to treat gingival recession including displaced flaps, free gingival graft, connective tissue graft, different type of barrier membranes and combination of different techniques. The aim of this study was to compare the commonly used techniques for gingival recession coverage and evaluate the results obtained. 73 subjects were selected for the present study who were randomly divided into four groups and were followed at baseline and 180 days where following parameters were recorded: (a) Assessment of gingival recession depth (RD); (b) Assessment of pocket depth (PD); (c) Assessment of clinical attachment level (CAL) and (d) Assessment of width of attached gingiva (WAG).

Results: Results of this study showed statistically significant reduction of gingival recession, with concomitant attachment gain, following treatment with all tested surgical techniques. However, SCTG with CAF technique showed the highest percentage gain in coverage of recession depth as well as gain in keratinized gingiva. Similar results were obtained with CAF alone. The use of GTR and other techniques showed less predictable coverage and gain in keratinized gingiva.

Conclusion: Connective tissue grafts were statistically significantly superior to guided tissue regeneration for improvement in gingival recession reduction.

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Introduction

One of the commonest esthetic complaints of a patient reporting to dental surgery is loss of gum over root surfaces leading to unsightly defects and/or hypersensitivity. "Gingival recession is defined as the displacement of the soft tissue margin apical to the cementoenamel junction (CEJ)".[1] Gingival recessions are predominantly found on buccal root prominences, especially canine and premolar sites, where bone dehiscences and fenestrations are common.[2] Surgical coverage of recessions is mainly indicated for esthetic improvement rather than functional aspects.[3] Success of mucogingival surgical interventions may depend on several factors, (i) bacterial contamination (ii) local factors;- defect morphology, tooth position, tooth surface characteristics (iii) surgical technique.[4] Benefits of microsurgical approaches in addition to conventional periodontal therapy have also been described for a better treatment outcome.

Materials & methods

The study population comprised of 73 patients who reported at Dept of Dental Surgery AFMC between 01 Jan 2005 to 31 Dec 2008. 27 female and 46 male patients who all desired coverage of their single gingival recessions for esthetic reasons were recruited. Inclusion criteria were (1) good systemic health, (2) non-smokers, (3) no medication intake affecting the periodontal tissues, (4) absence of periodontal diseases, and (5) presence of root denudations of Class I or II (Miller 1985).[5] An informed consent was obtained and patients were allotted to 4 study groups as follows:

Group A – coronally advanced flap alone (17 cases).

Group B – coronally advanced flap with subepithelial connective tissue graft (20 cases).

Group C – guided tissue regeneration using resorbable collagen membrane (15 cases).

Group D – other procedures (21 cases).

Presurgical phase I therapy consisted of scaling and root planning, restoration of carious lesions/endodontic therapy, occlusal correction followed by maintenance therapy consisting of follow up appointments at biweekly intervals.

Surgical phase

Periodontal plastic surgery for all selected cases was carried out using modalities as described below:

Group A – coronally advanced flap alone (Fig. 1).

Group B – coronally advanced flap with subepithelial connective tissue graft (Figs. 2 and 3).

Group C – guided tissue regeneration using resorbable fish collagen membrane (Fig. 4).

Group D – other procedures including laterally displaced flap (Fig. 5), double papilla flap, free gingival graft and adjunctive procedures for root biomodification namely, platelet-rich plasma and tetracycline prior to periodontal plastic surgical procedures.

Baseline measurements were taken for probing depth (PBD), clinical attachment level (CAL), recession depth at mid buccal region (RD), recession width at cementoenamel junction (RW), width of attached gingiva (WAG), plaque index and gingival index scores were taken. Same measurements were repeated at 6 month intervals postoperatively.

Fig. 1 – Coronally advanced flap.

Results

A total of 73 subjects were selected for the present study who were randomly divided into four groups (Group A, B, C and D) as described above and were followed at baseline and 180 days where following parameters were recorded:

(a) Assessment of gingival recession depth (RD).
(b) Assessment of pocket depth (PD).
(c) Assessment of clinical attachment level (CAL).
(d) Assessment of width of attached gingiva (WAG).

Patient selection

Group A comprised of 17 cases, Group B consisted of 20 patients, Group C consisted of 15 cases, whereas Group D comprised of 21 subjects. Cases were selected randomly in each clinical grouping to rule out any selection bias.

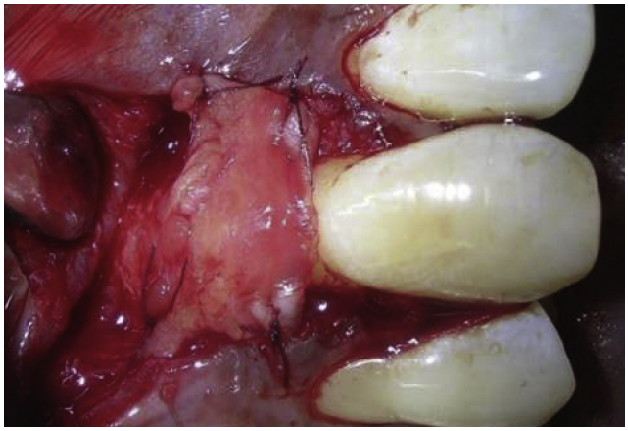

Fig. 2 – Subepithelial connective tissue graft.