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Coronally Advanced Flap For The Treatment Of A Single Recession: A Two-Year Follow-Up

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ABSTRACT

Gingival recession defects associated with cervical abrasions are usually treated by periodontal plastic surgery to correct the deformities of the gingiva. Numerous surgical procedures have been implicated for root coverage. Coronally advanced flap (CAF) is a simple pedicle flap that can be utilized for root coverage and aim to restore gingival esthetic and resolve hypersensitivity of teeth. A case report is presented dealing with the treatment of a Miller Class I recession and cervical abrasion on the lower right region of a 36-year-old male patient. A CAF procedure was chosen to treat the single defect regarding the adequate thickness of keratinized gingiva. Horizontal interdental incisions were made to preserve the adjacent papillae. Two years after surgery showed favorable root coverage although the result was not significant. The treatment helped to resolve hypersensitivity and achieved patient’s satisfaction.

Key words: coronally advanced flap, esthetic, gingival recession, root coverage

INTRODUCTION

Gingival recessions associated with cervical abrasions may cause negative impacts on both esthetic appearance and dentine hypersensitivity. Numerous surgical procedures have been implicated for root coverage. Coronally advanced flap (CAF) as a periodontal plastic surgery aim to restore gingival esthetic and resolve hypersensitivity of teeth by root coverage. Restrepo introduced the original procedure in 1973; it was designed to cover isolated gingival recessions. The procedure included vertical incisions mesial/distal to the recessed area, a partial-thickness flap elevation, and removal of epithelium from the papillae adjacent to the recession to coronally position the flap. Considering that the design of the flap and the papilla involvement during surgical procedures are important factors that may interfere with clinical outcomes, the present case was performed with horizontal interdental incisions. The CAF technique with horizontal interdental incisions as an attempt to preserve
interdental papillae aimed to resolve tooth hypersensitivity by root coverage and achieve satisfaction of the patient’s esthetic.

CASE REPORT

A 36 year-old male patient reported to the Department of Periodontology, Universitas Padjadjaran, Bandung, Indonesia, with a chief complaint of tooth hypersensitivity on the lower right region [Fig. 1a]. Clinical examination revealed 2 mm gingival recession of Miller Class I was present in mandibular buccal region of 44 accompanied with tooth abrasion. Presence of more than 3 mm width of attached gingiva was noted. There was minimum amount of plaque seen and the gingiva was free of inflammation. The patient was first submitted to initial preparation comprising scaling, root planing, restoration on 44, and oral hygiene instructions before scheduled for surgery.

CASE MANAGEMENT

The CAF was made with horizontal interdental incisions to preserve the interdental papillae and followed by two oblique vertical incisions. One was made on the distal aspect of tooth 44, and the other was on the mesial [Fig. 1b]. They were extended beyond the mucogingival junction to relieve muscle tension [Fig. 1c]. The epithelium on the adjacent papillae was de-epithelized. The root surface was instrumented with curettes and conditioned with tetracycline HCl 100mg/mL for 3 minutes, then irrigated with sterile saline solution for 5 minutes. The tissue flap is coronally advanced, adjusted and secured at the level of 1 mm above the CEJ by suturing the flap with continuous sling sutures (Ailee, Co., Ltd., non-resorbable nylon 5.0 suture material) and interrupted sutures on the vertical incisions [Fig. 1d]. Noneugenol periodontal dressing (Coe-Pak) was placed over the surgical site for a week.

Patient was instructed to discontinue tooth brushing around the surgical site for the first three weeks after the surgery. During this period, patient was advised to use 0.2% chlorhexidine gluconate solution twice daily for two weeks. Systemic antibiotics and analgesics were prescribed for seven days post surgery (Amoxicillin 500mg t.i.d., Mefenamic acid 500 mg t.i.d when needed). The sutures were removed after 14 days [Fig 1e and f].

RESULT

Recession defect was resolved and root coverage was seen in 44 in terms of recession height. Even though the esthetic result was not significant, the patient reported to be completely satisfied with the outcome and tooth hypersensitivity was also totally abolished. The follow up examination of 1 and 3 months post operation showed an uneventful healing and the periodontal tissues presented normal colour, texture and contour [Fig. 2a]. However, the follow up of 2 years post operation showed a slight shrinkage [Fig. 2b].
One of the most common esthetic concerns associated with the periodontal tissue is gingival recession. It is the displacement of the gingival margin apical to cemento-enamel junction (CEJ), resulting in higher incidence of attachment loss, root caries, and root hypersensitivity. Its development has been frequently associated with periodontal disease, traumatic tooth brushing, frenal pull, and tooth malposition.3,2,5–9

Surgical treatments like free graft and pedicle flap are indicated when the gingival recession causes functional or esthetic problems. Coronally advanced flap technique have shown more predictable recession coverage with apparently satisfactory esthetic results.5,10,11 This technique was chosen as the patient demonstrated more than 3 mm of attached gingiva and thick gingival biotype. Additions of horizontal interdental incisions were made to preserve the adjacent papillae to maintain the esthetic outcome, although after two years the gingiva shrunk. Recent study demonstrated a shrinkage post CAF procedure from 89% in 1 month postoperatively to 58.8% after 6 months.12

Root planing was performed after the flap was elevated, then conditioned with tetracycline HCl 100 mg/mL. Root surface conditioning by topical application of acidicsolutions have been demonstrated to remove not only root instrumentation smear layer, but also any remaining root surface contaminants. Demineralization of the root
surface with root conditioning agents have been associated with uncovering and widening of the dentinal tubules with exposure of dentin collagen, thereby providing a matrix which supports migration and proliferation of cells involved in periodontal wound healing resulting in enhanced connective tissue cell attachment to the root surfaces.13–15.

In this case report, improvements in clinical parameters such as recession height and clinical attachment level was achieved.

CONCLUSIONS

Coronally positioned flap procedure is a simple technique that provides satisfactory results for treating a single class I recession defect associated with shallow abrasion. This technique also resolves hypersensitivity though the esthetic aspect was not significant.

REFERENCES
