A PINHOLE APPROACH TO ROOT COVERAGE USING SUB-EPITHELIAL CONNECTIVE TISSUE GRAFT : A CASE REPORT.

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ABSTRACT

Gingival recession presents as a common condition in periodontal patients which can cause major functional and aesthetic problems. A variety of surgical procedures have been described for root coverage. The Pinhole Surgical Technique introduced by John C. Chao requires a minimal horizontal incision of 2-3 mm in the alveolar mucosa near the base of the vestibule. This case report presents a 50-year-old male patient having Miller's Class I gingival recession in the maxillary right central incisor, lateral incisor and canine. Pinhole surgical technique was used to prepare the recipient site by raising full-thickness flap through the horizontal incision near the base of vestibule. Connective tissue graft was harvested from palate. The graft was placed at the recipient site and stabilized with holding sutures. Three months' follow-up shows proper healing and adequate root coverage in the defect area. Pinhole surgical in adjunct to CTG may serve as a good alternative to conventional coronally advanced flap procedures.

KEY WORDS

Gingival recession, root coverage, pinhole surgical technique, subepithelial connective tissue graft.

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INTRODUCTION

Gingival recession is one of the most common problems faced by periodontists in today's esthetically concerned society. Gingival recession is defined as location of gingival margin apical to the cemento-enamel junction^[1]. Gingival recession can lead to clinical problems such as root surface hypersensitivity, root caries, cervical abrasion, difficult plaque control, and diminished cosmetic appeal. Gingival recession can be either localized or generalized and its prevalence increases with age^[2].

The Miller's classification, that allows the clinician to predict the outcome of root coverage by evaluating the height of the interdental bone and gingiva adjacent to the tooth with recession, is as follows^[3]:

Class I. Marginal tissue recession does not extend to the mucogingival junction. There is no loss of bone or soft tissue in the interdental area. This type of recession can be narrow or wide.

Class II. Marginal tissue recession extends to or apical to the mucogingival junction. There is no loss of bone or soft tissue in the interdental area. This type of recession can be subclassified as wide and narrow.

Class III. Marginal tissue recession extends to or apical to the mucogingival junction. There is bone and soft tissue loss interdentally or malpositioning of the tooth facially.

Class IV. Marginal tissue recession extends to or apical to the mucogingival junction. There is severe bone and soft tissue loss interdentally or severe tooth malposition.

The prognoses for classes I and II are good to excellent; whereas for class III, only partial coverage can be expected. Class IV has a very poor prognosis with current techniques.

Periodontal plastic surgery is performed to correct or eliminate anatomic, developmental, or traumatic deformities of the gingiva or alveolar mucosa^[4]. Minimally invasive periodontal plastic surgical techniques has been the choice of periodontists over conventional procedures as they are predictable, effective, require less operative time and cost-effective. The Pinhole Surgical Technique



[Figure 1]



[Figure 3]

introduced by John C. Chao in 2012 is a minimally invasive periodontal plastic surgical technique for root coverage^[5].

Evidence suggests subepithelial connective tissue grafts^[6] provide significant root coverage, clinical attachment and keratinized tissue gain^[7]. Hence subepithelial connective tissue grafts are still considered as the 'gold standard' procedure in the treatment of recession defects^[8].

Pinhole surgical technique in combination with subepithelial connective tissue graft has been presented in this case report.

CASE REPORT

A 44 yearsold male patient reported with the complaint of sensitivity in relation to upper anterior teeth. On examination there was Miller's Class I recession in relation to 11, 12 and13 [Figure 1].The distance from CEJ to marginal gingiva was 2 mm in 11, 12 and 13 [Figure 2,3,4]. The width of attached gingiva was found tobe inadequate in the region of 11, 12 and 13since the tension test was positive. A pinhole surgical technique in adjunct to palatal connective tissue graft was planned for root coverage after Phase-I therapy.

SURGICAL TECHNIQUE

The patient rinsed with 15 ml of 0.12% of chlorhexidine gluconate to reduce the bacterial load preoperatively. Local anaesthesia was administered to anaesthetize 11, 12 and 13 region. After adequate anesthesia surgical procedure was performed. The exposed roots of the teeth with receded gingiva was scaled and planed using Gracey curettes [Figure 5]. Root biomodification was done using 10% EDTA to



[Figure 2]



[Figure 4]

remove the smear layer for better connective tissue attachment to the root surface.^[9] A minimal horizontal incision of 2 to 3 mm was made in the alveolar mucosa near the base of the vestibule, apical to the recipient site using a no. 15 scalpel (Bard-Parker). Microsurgical periosteal elevators were inserted through the horizontal incision to elevate a fullthickness flap [Figure 6]. The elevation of the flap was then extended coronally and horizontally to allow for elevation of the two adjacent papillae on each side of the denuded roots. The papilla were kept intact and carefully detached from the underlying bone, which allows coronal advancement of the papilla [Figure 7].Trapdoor technique was used to harvest connective tissue graft from palate [Figure 8, 9, 10].^[10] The graft was inserted through the horizontal incision into the flap and was sutured to the flap [Figure 11]. The buccal gingiva with underlying connective tissue graft was coronally advanced using sutures anchored tocomposite stops, placed at the labial surface (temporary) to prevent the collapse of the suspended sutures [Figure 12]. No periodontal dressing is required in this technique.^[5] The patient was prescribed Amoxycillin 500mg for 5days with analgesics. The patient was instructed to rinse daily with 15ml of 0.12% chlorhexidine gluconate. Sutures were removed after 15 days.



[Figure 5]



[Figure 6]





[Figure 7]

[Figure 8]



[Figure 9]



RESULTS

Healing was satisfactory. Patient was recalled every week for the first one month. Postoperative healing after 1month [Figure 13] & 6months [Figure 14] was satisfactory which revealed increased



[Figure 13]



[Figure 10]



[Figure 12]

attached gingiva with acceptable recession coverage [Table 1]. Adaptation of the edges of the graft to the surroundings and increased colour matching were observed.



[Figure 14]

Tooth number	Gingival recession at Baseline	Gingival recession at 6 months	Root coverage
11	2 mm	0 mm	2 mm
12	2 mm	1 mm	1 mm
13	2 mm	1 mm	1 mm

Table 1

DISCUSSION

Pinhole surgical technique is a minimally invasive technique performed where minimum of four interdental papilla is involved in the multiple gingival recession defect.^[5] The ultimate goal of any root coverage procedure is patient-based outcomes such as esthetic satisfaction, intensity and duration of postoperative pain, bleeding, reduction in sensitivity.^[5] As the results suggests satisfactory root coverage can be gained by pinhole surgical technique. The pinhole technique preserves the lateral and the apical blood supply of the flap by eliminating vertical incisions. The vertical releases may compromise the lateral blood supply leading to delay in healing. Thus the advantage of using this technique is less postoperative healing time as well as less postoperative pain. The major benefit of subepithelial connective tissue grafting is gingival colour matching at the recipient site and fulfils esthetic demands. In the present case satisfactory root coverage was achieved with good esthetic results.

CONCLUSION

The pinhole surgical technique combined with the advantages of subepithelial connective tissue grafting can be considered as a better alternative for treatment of multiple gingival recession in a single surgical procedure as it requires less operative time as well as better patient related outcomes.

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