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Think Lateral, Think Pink a Case Report of Esthetic Root Coverage.

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ABSTRACT

Gingival recession is one of the common soft tissue problems faced by dentists and adults now a days . When in anterior teeth region,it is of common concern due to functional and aesthetic problems. Complete root coverage is one of the primary goal when treating gingival recessions. Variety of surgical techniques have been advocated for recession coverage . Among various techniques used , the Lateral pedicle grafts surgical technique provide complete root coverage with excellent post-operative colour and harmony with adjacent tissues.This case report highlights the use of the laterally positioned pedicle graft along with tetracycline hydrochloride as a root surface biomodification agent, in the management of single tooth gingival recession defect.

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INTRODUCTION

Gingival recession is defined as exposure of the root surface due to the displacement of gingival margin apical to the cemento–enamel junction.[1] The main causes resulting to gingival recession are inflammatory periodontal disease, trauma by faulty tooth brushing, tooth malposition, high frenal and muscle attachment and orthodontic tooth movement.[2]

A variety of periodontal plastic surgery procedures have been suggested for root coverage that can be classified as pedicle soft tissue grafts, free soft tissue grafts or a combination of these two.[3] Among the soft tissue grafts, the connective tissue graft, associated with or without coronally advanced flap, with full or partial-thickness papillary or lateral pedicle flap are the most commonly used techniques for root coverage. The pedicle graft was the first periodontal plastic surgical procedure proposed in 1956 by Grupe and Warren for root coverage.[4] It is based on the simple concept of moving donor tissue laterally to cover an adjacent defect. It provides sufficient esthetic result, but is less versatile than the connective tissue graft. At first it was described as the "lateral sliding flap" and later modified and named as the laterally positioned flap.When the lateral movement is both mesial and distal to the defect, the flap is called a double papilla flap.[5] However, an adequate width of attached gingiva and vestibular depth prior to root coverage procedures is reqiured. [6]

Advantages of Lateral Pedicle Graft:

- A single surgical site, no separate donor area
- Good vascularity of the pedicle flap.
- Post operative color is in harmony with the surrounding tissue.

This article describes a case report in which a laterally positioned flap was used for root coverage in Miller class-II recession defect in the mandibular anterior area. Lateral positioned flap is widely used successfully to cover Miller class-I and class-II recession defects[7] but its use in class-III and class-IV defects is not well documented.

CASE REPORT

A 22-year old female patient presented to the department of periodontics, Kalinga Institute of Dental Sciences, Bhubaneswar with chief complaint of receding gum in the lower front teeth region. On examination there was Miller's class II gingival recession in the lower left central incisor region i.e 31 with a recession of 5mm in depth and 2 mm in width. The attached gingiva was inadequate in relation to 31, with no signs of mobility and probing depth. I.O.P.A. radiograph revealed adequate interdental bone support. The patient's medical and dental histories were non-contributary, so a surgical procedure was planned.[Fig 1,Fig2]

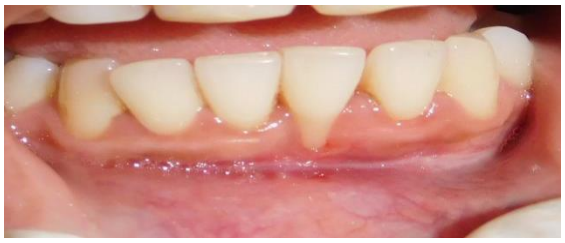

Fig 1:Pre-operative view showing Miller,s class II recession.

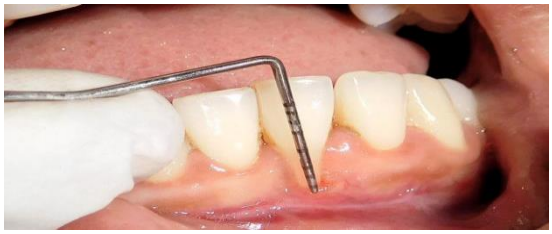

Fig 2: Pre-operative view showing Miller,s class II recession.

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Pre Surgical Protocol

Patient was motivated and educated and oral hygiene instructions were given. Scaling and root planing was done and the patient was periodically recalled to assess her oral hygiene and gingival status before taking up the case for periodontal surgery . The patient was examined for any occlusal interference, as it contributed to the etiology of recession in this case and so slight incisal grinding was done. Patient was explained about the surgical procedure and informed consent was obtained from the patient.

Preparation of the Recipient Site

Profound analgesia was obtained using local anesthesia (2% lignocaine hydrochloride with 1:80,000 epinephrine) for the recipient site. Root conditioning was achieved by burnishing the root using a cotton pellet saturated with tetracycline hydrochloride solution for about 3 minutes.[Fig 3] A no. 15 scalpel was used to make a "V" shaped incision about the denuded root, removing adjacent epithelium and connective tissue.

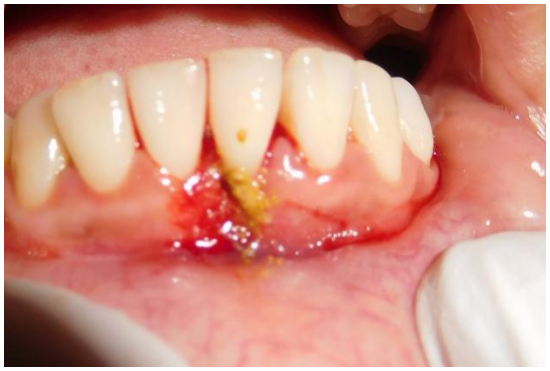

Fig 3: Root conditioning with tetracycline

Preparation of Donor Site

The donor flap should be at least one and half times the size of the recipient area to be covered to avoid the shrinkage later on. The root surface over 31 was covered by pedicle graft from lateral incisor i.e. 32 by giving incision around it such that interdental papilla was preserved and partial thickness flap was taken to cover the denuded root, removing the adjacent epithelium and partial connective tissue in order to preserve the periosteal bed over the donor site. The vertical incisions were extended far apically into the mucosal tissue to permit adequate mobility of the flap. The base of the flap must be wide to permit adequate vascularity.[Fig 4] The flap was sharply dissected, giving the acute angled incisions at the base of interdental gingiva over both the sides and collar of marginal gingival was relieved. This helped in obtaining graft with two hook shaped extensions of marginal collar, making sure to carefully preserve the interproximal papilla.

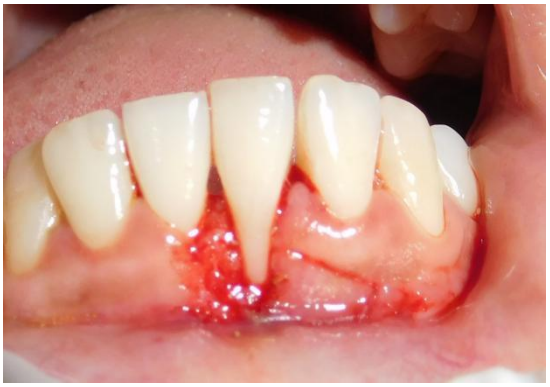

Fig 4: Preparation of the recipient site

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Preparation of Pedicle Flap

A partial thickness pedicle flap was raised using sharp dissection, such that it permitted free movement to the recipient site, with no tension. The pedicle flap was rotated and positioned coronally 1 to 2mm on the enamel of the recipient site.[Fig 5] Suturing was done using 4-0 silk suture. One sling suture was placed, to pull the papilla interproximally and hold the tissue tightly against the neck of the tooth. Second suture was two periosteal sutures, which were given on both the sides. The third suture was papillary suture, where the pedicle flap was stabilized from interproximal papilla.[Fig 6] The flap lied passively with no tension and was pink. Pressure was applied to the flap with gauze for three to four minutes to create fibrinous union. The area was protected with aluminium foil and Coe-Pack.

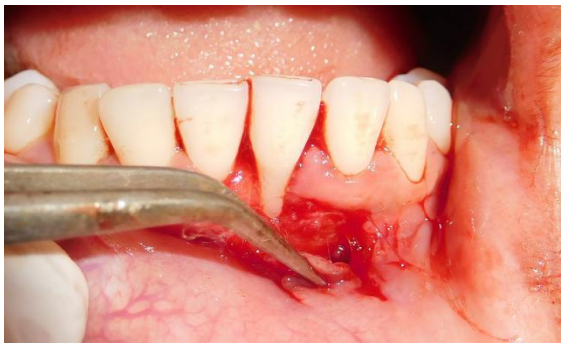

Fig 5 :Lateral Pedicle Graft Rotated To Recipient Site.

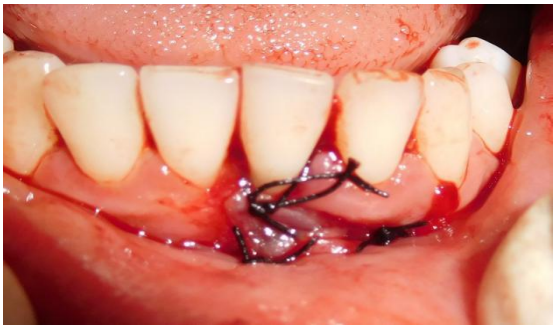

Fig 6: Pedicle Graft Is Stabilized With Sutures.

Post Operative Instructions

Patient was instructed to take analgesics and antibiotics and was asked to discontinue tooth brushing around the surgical site during the initial 15 days after surgery. During this period plaque control was achieved with a 0.2% chlorhexidine mouth rinse used twice a day. After this period, gentle tooth brushing with modified Stillman's technique using a soft bristle tooth brush was allowed.

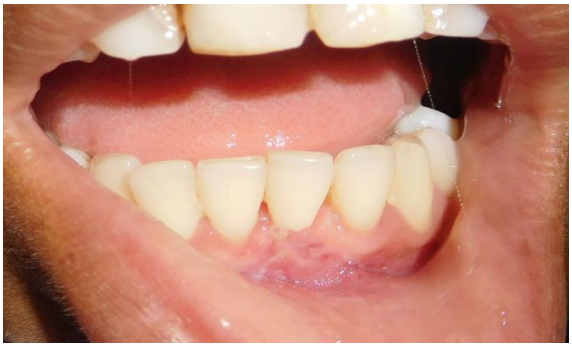

Fig 7: Post-Operative Photographs - One Month after surgery.

After ten days following surgery, the dressing and sutures were removed and the surgical site was irrigated with normal saline. There was no postoperative complication and healing was satisfactory. The defect created at the donor site healed by secondary intention. The patient was monitored on weekly schedule post operatively, to ensure good oral hygiene in the surgerized area. The re-evaluation of this area at 3-month follow-up showed no recurrence.[Fig 7]

DISCUSSION

Gingival recessions may occur without any symptoms but may give rise to the patient concern about poor esthetics, dentine hypersensitivity, inability to perform oral hygiene procedures, and loss of the tooth. There are currently different techniques for root coverage, but it is often difficult to anticipate the success rate of root coverage procedures since coverage depends on several factors, including the classification and location of the recession and the technique used. The selection of the surgical technique depends on the anatomy of the defect site, size of the recession defect, the presence or absence of keratinized tissue adjacent to the defect, the width and height of the interdental soft tissue, and the depth of the vestibule or the presence of frenula.[8]

In this case report a lateral pedicle flap technique was used for successful root coverage. The reported mean percentage of root coverage ranges between 34% and 82%.[9] Indication of this technique is to repair an isolated area of gingival recession with sufficient width, length, and thickness of keratinized tissue adjacent to the area of gingival recession.[10] It is well stated that better root coverage outcomes were only achieved in cases with adequate height and width of keratinized tissue.[11] It is recommended in Millers class I and II shallow recessions.[7] Contraindications include if the donor site lacks sufficient attached gingiva or if the donor site has a fenestration or dehiscence of its supporting bone.

To preserve the integrity of marginal gingiva at the donor site, submarginal incision was performed. Stability and dimension of the laterally positioned flap (the wider the pedicle, the greater the blood supply to the marginal portion of the flap) are critical for accomplishing root coverage. The tissue thickness of the flap is an important aspect on the root coverage predictability and an improvement in esthetic outcome.[12] Precise determination of the location of the CEJ and mucogingival junction prior to surgery and precise placement of incisions are necessary in order to achieve optimum esthetics.[13] Studies have shown that with a rigid case selection the laterally positioned flap is an effective method in treating isolated gingival recession[14]

The advantages of pedicle graft are that predictable correction of gingival recession is possible as the graft has an uninterrupted blood supply, and that postoperative discomfort is usually minor because no second surgical site is involved. Also the color of the graft matches the adjacent gingiva; this technique provides good esthetics. The disadvantages of this method are possible bone loss and gingival recession at the donor site.[15]

In this case the postoperative esthetic result was satisfactory for the patient. The secondary outcome variables were recession reduction, clinical attachment gain, keratinized tissue gain, aesthetic satisfaction, reduced root sensitivity, and postoperative patient pain. Clinical results 3 months postoperatively were favorable with no recurrence.

CONCLUSION

Esthetic surgery is performed to reshape normal structures in order to improve the patient's appearance. Careful preoperative diagnosis and appropriate case selection are prerequisites for surgical success. This is a case report that presents lateral pedicle graft in Miller class II gingival recession in lower anterior teeth region. This technique along with tetracycline hydrochloride not only provides a biocompatible surface, but also improves the tenacious connective tissue attachment of the flap to the root surface and, as a consequence, enhances the clinical outcome in the form of significant coverage of the denuded root.

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