Case Report:

Multiple recession coverage using Semilunar vestibular technique: a case series

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Abstract:

Introduction: Soft tissue recession, defined as an exposure of the root surface caused by an apical shift of the gingival margin results in an unesthetic appearance, root hypersensitivity and root caries. Meeting the functional and esthetic demands of patients with multiple gingival recession remains a major therapeutic challenge. Techniques which claim success almost always involve a second surgical site.

Objective: To cover multiple recessions without second surgical site and with good predictability.

Methodology: Three patients corresponding to a total of 11 sites participated in the study. Maxillary teeth with miller's class I gingival recession were included in the study. All the sites were treated using semilunar vestibular technique and evaluated after 3 and 6 months.

Results: Successful root coverage with gain in the height of keratinized tissue was obtained at 6 months evaluation after surgery in relation to the teeth**.** Good color blending of the treated area with the adjacent soft tissues and the reduction of sensitivity was obtained.

Conclusion: The technique has an advantage of avoiding second surgical site, besides predictable root coverage with good colour blend, enhanced vestibular depth and esthetic marginal morphology.

Keywords: Gingival recession, semilunar vestibular technique, vestibular depth

Introduction:

Gingival recession is defined as the displacement of the gingival margin apical to the cemento enamel junction (CEJ) with the loss of periodontal connective tissue fibers along with root cementum and alveolar bone[1]. Root coverage procedures are indicated in root hypersensitivity, root caries lesions, cervical abrasions and to meet esthetic demands. Thus, root coverage surgery is carried out for the mentioned conditions[2]. If untreated, gingival recession might progress to the point that the prognosis of the tooth in question may be compromised. The amount of recession is assessed clinically by measuring in millimeters the distance from the CEJ and the soft tissue margin. The gingival recession, either localized or generalized, may be associated with one or more surfaces, resulting in loss of attachment and root exposure. Marginal gingival recession, therefore should be

viewed as more than a soft tissue defect- the destruction of both the soft and hard tissues[3].

OBJECTIVES OF PERIODONTAL PLASTIC SURGERY

1. To create an adequate zone of gingiva
2. To eliminate pockets that extend beyond the muco gingival line
3. To eliminate muscle and frenal pull
4. To cover denuded root surfaces for esthetics or hypersensitivity\
5. To deepen the vestibule
6. To stabilize and maintain a healthy mucogingival complex
7. To correct ridge deformities and undercuts

CAUSES OF GINGIVAL RECESSION

- ❖ Predisposing factors:

• Minimal attached gingiva

• Aberrant frenal pull

• Tooth malposition (fenestration and dehiscence).

- ❖ Precipitating factors:

• Inflammation related to plaque

• Improper tooth brushing

• Iatrogenic factors such as crown preparations extending subgingivally, impression techniques involving gingival retraction

• Poor orthodontic treatment where the teeth are moved outside the labial or lingual plate

- ❖ Anatomical factors include abnormal tooth position in the arch, aberrant path of eruption,

individual tooth shape

- ❖ Pathological factors such as bone resorption due to periodontal disease[4].

Single root coverage procedures are not complicated by inadequate vascular supply from surrounding areas whereas in multiple recession defects, complications with inadequate vascularity apart from avascular root surface, thin gingival biotype, inadequate gingival and muscular inserts near gingival margins, and poor tooth alignment may occur .These limit the choice of surgical treatment in multiple recession defects[5]. Extensive studies have been done regarding the predictability of treatments in localized recession defects but the scientific literature available is less regarding the treatment of multiple recession type defects and randomized controlled trials are needed to determine the indication for each surgical technique. All the contiguous recessions should be treated simultaneously and procuring of soft tissue from distant areas of mouth should be avoided if possible to improve the clinical outcomes, minimize patient discomfort and the number of surgeries[6]. In the present case series, a method of coverage of multiple recessions is described with the advantage of increased width of attached gingiva, enhanced vestibular depth and avoidance of the second surgical site.

CONTRAINDICATIONS:

- ❖ Miller's class IV recession
- ❖ Habits
- ❖ Poor oral hygiene

ADVANTAGES:

- ➢ Increases the width of attached gingiva
- ➢ Enhances the depth of the vestibule
- ➢ Avoidance of the second surgical site
- ➢ Predictable results
- ➢ Complete recovery of the original soft tissue marginal morphology

Case 1

A 50-year-old male patient reported to the department of Periodontia,GDC, Ahmedabad with the complaint of sensitivity in upper right and left anterior teeth region. On examination, Miller's Class I gingival recession was present in relation to21-24. The recession was measuring, 3 mm in maxillary left central incisor, 2 mm in lateral incisor,2 mm in canine.[Figure 1].

Case 2

A 50-year-old female patient reported to the department of Periodontia,GDCH, Ahmedabad with the complaint of sensitivity in upper left anterior teeth region. On examination, Miller's Class I gingival recession was present in relation to 21- 25. The recession was measuring 2 mm in maxillary left central incisor, 3 mm in lateral incisor, 2 mm in maxillary left canine, 4 mm in first premolar, and 5 mm in second premolar [Figure 6].

Case 3

A 24-year-old male patient reported to the department of Periodontia,GDCH, Ahmedabad with the complaint of long teeth in upper right anterior teeth region. On examination, Miller's Class I gingival recession was present in relation to 12-14. The recession was measuring, 1 mm in maxillary right lateral incisor, 2 mm in canine,3 mm in first premolar.[Figure 8].

PRESURGICAL PROTOCOL

The treatment protocol was explained to all three patients, oral hygiene instructions were given and an informed consent was obtained. After taking a thorough case history, recession coverage procedure was performed after 1 month of scaling and root planing. The case was evaluated periodically for a period of 6 months.

SURGICAL TECHNIQUE

Patient was anesthetized by injecting local anaesthetic containing 2% lignocaine with 1:80,000 adrenaline. The flap design consisted of the following incisions:

• A semilunar incision was made in the vestibule extending from mesial aspect of central incisor (21) to canine(23) [Figure 2]

• An intracrevicular incision was made following the curvature of the receded gingival margin and ending about 2–3 mm short of the tip of the papillae. De- epithelization of the papillae was done [Figure 3]

• A full thickness dissection was performed apically from the intrasulcular incision up to 3–4 mm and then partial thickness flap was raised, and dissection was joined to the vestibular incision. Coronal mobilization of the flap was considered adequate when the marginal portion of the flap passively approaches a level coronal to the CEJ of the tooth. The root surfaces

were mechanically treated with the use of curettes. The facial soft tissue of the anatomic interdental papillae was de- epithelized to create connective tissue beds to which surgical papillae of the coronally advanced flap was secured with the 4-0 Mersilk suture [Figure 4]. The treated site was covered with Coe Pack.

Post-operative instructions:

Patient was prescribed a nonsteroidal anti-inflammatory agent [ibuprofen] thrice a day for 5 days to prevent postoperative discomfort and amoxicillin 500 mg thrice a day for 5 days to prevent infection. Patient was advised not to brush the teeth in the treated area and to rinse with

chlorhexidine solution 2 times daily. A total of 10 days after the surgical procedure, the sutures were removed. The patient was evaluated at 3 and 6 months for supportive periodontal therapy[Figure 5].

Results

Case 1: Evaluation of recession coverage after 6 months showed complete root coverage in both incisors and 1 mm recession remaining in canine. Patient also reported reduction in sensitivity of teeth.

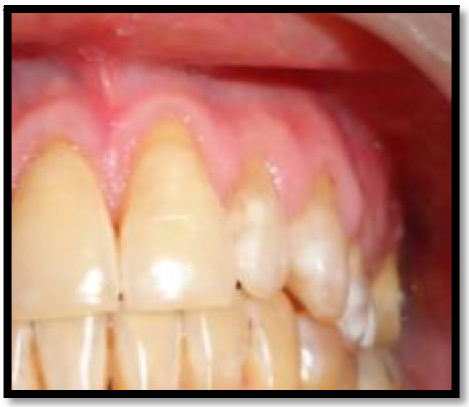

FIG 1:PREOPERATIVE VIEW

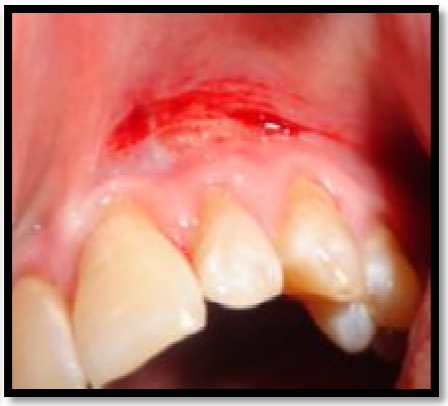

FIG 2:SEMILUNAR VESTIBULAR INCISION

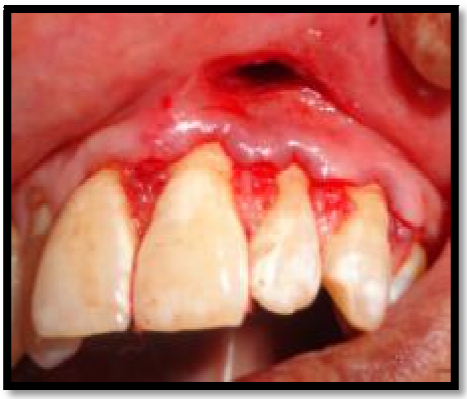

FIG 3:INTRACREVICULAR INCISION & FIG 4: SUTURES IN PLACE DEEPITHELIZATION OF PAPILLAE DONE

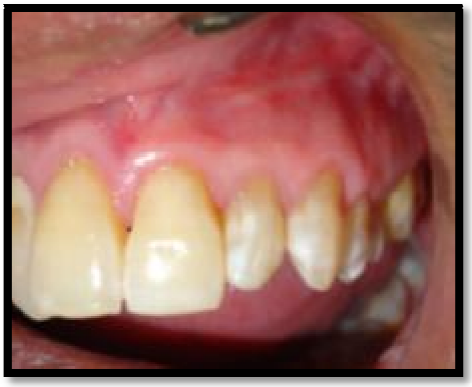

FIG 5:POSTOPERATIVE 6 MONTHS

Case 2: The final evaluation at 6 months after surgery showed successful root coverage with gain in the height of keratinized tissue in relation to the teeth**.** Good color blending of the treated area with the adjacent soft tissue and the reduction of sensitivity was obtained with this procedure. The recession measurement at the end of 6 months was 0 mm, 1 mm, 1 mm, 2 mm, and 3 mm for central incisor, lateral incisor, canine, first premolar, and second premolar, respectively for case**.**

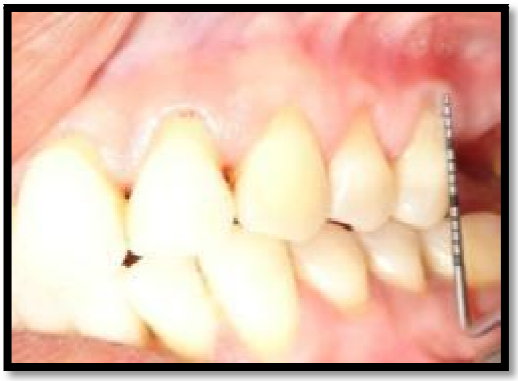

FIG6: PRE- OPERATIVE

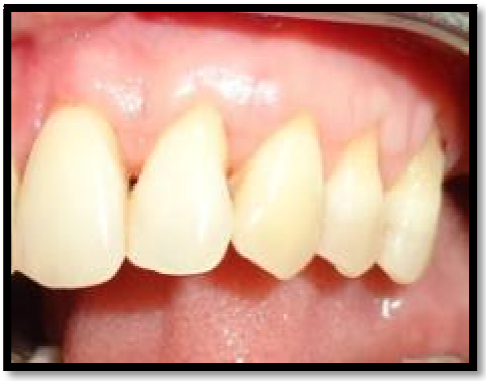

FIG 7: POST OPERATIVE AT 6 MONTHS

Case 3

The measurements evaluated after 6 months were 1 mm in first premolar and complete root coverage was obtained in lateral incisor and canine .Patient was happy with improved esthetics.

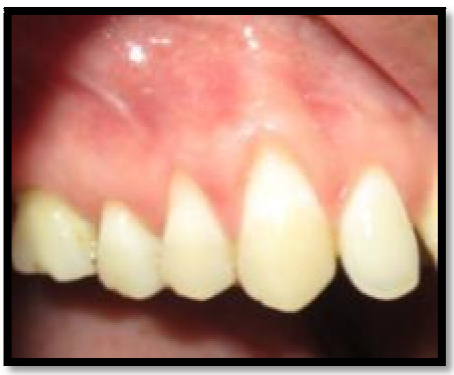

FIG 8:PREOPERATIVE VIEW

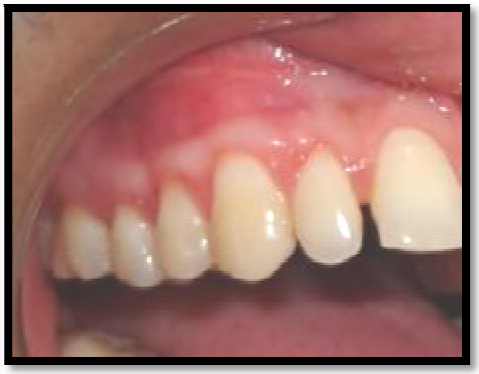

FIG 9:POSTOPERATIVE 6 MONTHS

DISCUSSION

Decision making in gingival recession root coverage procedures is the key to success. In periodontal plastic surgery, the selection of procedure is based on the four important principles of any surgery: success, reproducibility, lack of morbidity and economy. Basically, the easier the technique the more reproducible it is, since the need for technical skill of the surgeon is reduced. A skillfully performed operation is 75% decision-making and 25% dexterity. [7] Despite numerous techniques available for the treatment of multiple gingival recession defects, there remains some inherent problems like limited availability of graft, the requirement of two surgical sites, compromised patient esthetics, postoperative discomfort and complications,[8] and increased costs of treatment. These have limited the success of one single universal technique that can be used with high predictability, effectiveness, and efficiency without compromising patient centered criteria such as pain, postoperative esthetic outcomes, and costs of treatment.[9,10] The predictability of coronally advanced flap ranges from 70% to 99% depending on local and anatomical factors. An apical shift of gingival margin occurs in coronally advanced flap which might be related to gingival biotype and the amount of keratinized tissue obtained.[11] In the case series presented here, an attempt has been made to assess the predictability and reliability of the semilunar vestibular incision technique for the treatment of recession in multiple teeth. Wound healing after periodontal plastic surgery depends on clot formation, revascularization, and maintenance of blood supply in the treated sites.[12] A vascular graft is more likely to survive on an avascular root surface. Semilunar vestibular technique provides blood supply from the lateral sides of flap to ensure the proper vascularity of flap. Coronal positioning is facilitated and flap retraction is prevented, which becomes important in the presence of a shallow vestibule where it is difficult to prevent flap retraction. The width of attached gingival is also increased. Thus, semilunar vestibular incision technique is technically simple causing minimal trauma and patient discomfort , better esthetic appearance, no flap tension and improved control and stabilization of the coronally advanced flap[13].

CONCLUSION:

The semilunar vestibular technique has an advantage of avoiding second surgical site, besides predictable root coverage with good colour blend, enhanced vestibular depth and esthetic marginal morphology. Clinical studies using large sample size and long term recall are needed to determine the success and predictability of the technique.

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