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GINGIVAL TISSUE AUGMENTATION OF ATTACHED GINGIVA USING FREE GINGIVAL GRAFT - A CASE REPORT.

Dental Science

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ABSTRACT

The free gingival grafts have been used in periodontics to primarily augment the width of attached gingiva and to a lesser extent cover denuded root surfaces. An adequate width of attached gingiva is essential to maintain oral hygiene, to keep gingiva healthy and free of inflammation. In this case report graft material was obtained from the palatal donor site. And results of this case report indicate that free gingival grafting is an excellent technique to increase the width of the attached gingiva and to maintain stable periodontal health.

KEYWORDS

Free Gingival Graft, Attached Gingiva, Gingival Recession

INTRODUCTION : For many years, the presence of an"adequate"amount of gingiva was considered a keystone for the maintenance of periodontal health.1 The keratinized gingiva extends from the marginal gingiva to the mucogingival junction and includes both free and attached gingiva. Keratinized gingival width can normally vary from 1–9 mm. Histologically, the keratinized gingiva, in particular attached gingiva is more adapted to withstand mechanical irritations than non-keratinized mucosa.2 An adequate width of keratinized gingiva is considered important for maintaining gingival health. This concept paved way to the introduction of numerous surgical procedures for increasing the dimension of keratinized tissue.3 Free gingival graft technique is considered to be the technique of choice in adding dimensions to the existing gingiva.

When the patient's plaque control and oral hygiene are compromised and when there is a difficulty in proper brushing of teeth, appropriate plastic surgical techniques can be considered. In patients requiring prosthetic restorations, orthodontic treatment or having an abnormal frenal attachment procedures may be directed at increasing the attached gingiva if there is a deficiency. Pockets extending beyond mucogingival junction may need augmentation of attached gingiva after pocket elimination procedures. A free gingival graft procedure is one of the most common approaches for gingival augmentation.

CASE REPORT:

A 42 year old female patient reported to Department of Periodontia, HKE's SN Dental College, Kalaburagi, with a chief complaint of sensitivity with respect to the lower anterior teeth region. Patient's medical and dental histories were non-contributory. Intraorally periodontal examination revealed no probing depth of more than 3mm in any location. There was minimal bleeding on probing. The patient's oral hygiene status was judged to be good. There was no other periodontal concern other than Miller's class I recession of tooth 41 (Fig 01 (I)) and shallow vestibule with vestibular height of 5mm (Fig.01(II)).Radiographic examination showed no bone loss.

Presurgical therapy included scaling, root planing and plaque control instruction after 3 weeks of re-evaluation the lower incisor showed apico-coronary 3mm of recession, mesio-distally 2mm of recession. Accordingly after the patient's consent, it was decided to treat the site by free autogenous gingival grafting technique to increase the width of attached gingiva.

Fig. 01(I,II)

SURGICAL PROCEDURE :

Preparation of Recipient Bed : After adequate local anesthetic application, the exposed root was planed thoroughly with a Gracey 1-2 curette. The horizontal incision was made at the level of mucogingival junction. At the distal terminal of the horizontal incision, vertical incision was given extending well into the alveolar mucosa, so that it is 3mm beyond the apical extent of the recession. A partial thickness flap was elevated and excised apically. Deepening of vestibular sulcus is done (Fig.02(I))

Preparation of Donor Tissue : A foil template was used to determine the amount of donor tissue needed (Fig 02(II)).The template was made by adapting it to the recipient site. The left side of palate was chosen. The left side of palate was chosen by measuring the thickness of the tissue using a file with a stopper. The area between second premolar and first molar which had greater thickness was selected for the donor tissue.

The initial incision was outlined by the placement of tinfoil template with a no 15 scalpel blade (Fig.02(III)). All palatal incisions were made in such a fashion as to create the butt joint margin in the donor tissue. This butt joint margin of the graft will be butted against the butt joint margin against the periosteum at the mucogingival junction. A bevel access incision was made to get an even thickness of the graft. The incision was made along the occlusal aspect of the palate with no 15 scalpel blade held parallel to the tissue, continued apically, lifting and separating the graft. Tissue pliers was used to retract the graft distally as it is being separated apically and dissected, until the graft is totally freed.

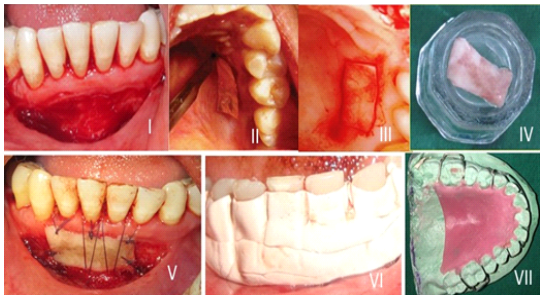

Fig. 02 (I-VII)

The graft obtained was inspected for any glandular or fatty tissue remnants. The thickness of the graft was also checked to ensure the smooth and uniform thickness of 1mm (Fig.02(IV)). The graft was placed on the recipient bed and suture(5-0 polyvicryl) by means of interrupted sutures at the coronal and apical borders. (Fig.02(V)) A

vertical stretching suture was given for close adaption of the graft to the tooth surface. After suturing a periodontal pack was placed to protect the surgical site (Fig.02(VI)). The palatal wound was protected by a pack and pack stabilized by Hawley's retainer(Fig.02(VII)).

Post Operative Instructions : The patient was asked not to brush at the surgical site for two weeks. 0.12% Chlorhexidine mouth rinsing twice daily for 2 weeks and a course of antibiotics including amoxicillin and ibuprofen thrice daily for 5 days. The pack was removed 2 weeks post operatively, healing was uneventful(Fig.03(I)). Graft was taken up by the recipient site. Surgical site was irrigated with normal saline and gain of width of 10mm was observed at the end of 2 weeks. The healing of palatal wound was satisfactory and patient did not complain of any discomfort(Fig.03(II)). The patient was instructed to use a soft tooth brush with a roll-technique followed by a 60-second rinse with mouthwash for the next 6 weeks. An 8mm gain of width of attached gingiva was obtained finally at 3months follow up after the initial retraction and shrinkage of gingiva, then patient was placed on maintenance phase(Fig.03(III,IV)).

Fig.03(I-IV)

DISCUSSION :

This case report presented miller's class-I recession of tooth no 41,and a decreased vestibular height which was successful in gingival augumentation by free autogenous soft tissue graft with the increase in attached gingiva and gain of 8mm of vestibular height after 3 months of follow up. Freegingival graft was considered as a classic technique for increasing the width of attached gingiva and the results of this case report confirms the same.

By the mid of the 19th century, an adequate zone of gingiva was considered critical for the maintenance of marginal tissue health and in the prevention of clinical attachment loss.4 The concept gained much acceptance as this band of firm gingiva protects the underlying periodontium from injury caused by frictional forces during mastication. It also resulted in dissipation of the pull on the gingival margin created by the muscles of the adjacent alveolar mucosa. Regions with inadequate zone of attached gingiva resulted in subgingival plaque deposition which culminated in loss of attachment. Ineffective oral hygiene measures and the prevalence of food impaction were found to be significantly increased in regions with inadequate attached gingiva.5 Literature give evidence that when there is less than 1mm of attached gingival tissue, inflammation persists even though dental plaque is not detected clinically.3 This inflammation was unrelated to any muscle pull from frenal attachments. It is considered that 2mm was the minimum requirement form maintaining good gingival health.

Contrasting opinions were reported by different researchers regarding the minimum dimension of attached gingiva necessary. A few suggested that less than 1 mm of gingiva may be sufficient,6 while others claimed that the apicocoronal height of keratinized tissue ought to exceed 3 mm.7 A third school of thought opines that, any dimension of gingiva which is compatible with gingival health and prevents retraction of the gingival margin during movements of the alveolar mucosa may be considered as the minimal requirement.8

Later studies suggested that with maintenance of good oral hygiene and absence of microbial plaque, gingival health is possible in areas with minimal or no attached gingiva.9 Some studies suggested that, if oral hygiene is maintained well, the amount of keratinized gingiva is not significant in relation to the health or function of teeth or implants.10

CONCLUSION :

Even though some histological studies suggests that areas with narrow bands of gingiva possess the same resistance to continuous attachment loss as teeth with wide zones of gingiva, an adequate band of attached gingiva is required to maintain gingival health clinically. The clinical results of this case report indicate that free gingival grafting is an excellent method to increase the width of the attached gingiva and to maintain a stable periodontal health.

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