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Free Gingival Graft for Augmentation of Attached Gingiva - Case Report and Critical Analysis

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Abstract **Case Report**

Our objective for the case analysis was to understand the critical factors essential for the success of vestibular augmentation around implant. Though an array of procedures is available for vestibular augmentation, we used keratinized autogenous soft tissue graft for augmentation of mandibular anterior vestibule prior to implant placement. The subject was followed for 6 months prior to the procedure; however, clinically significant results were not obtained. This case report is a critical analysis of the success of vestibular augmentation procedure with free gingival grafting.

Keywords: Vestibular, keratinized, significant results, augmentation, gingival grafting.

INTRODUCTION

Maintenance of peri-implant health is a crucial for the long term success of dental implants. One of the most common causes of implant failure is development of peri-implant inflammation as a result of plaque accumulation, and is termed as Peri-implantitis. Peri-implantitis is a plaque associated condition, occurring due to inflammatory response of the host in response to local irritants and microbial colonization. Thus, post-operative maintenance of implant and the peri-implant tissue has been suggested to be an important component for the long term success of dental implants. Though professional maintenance therapy and home care is an integral part of implant maintenance, certain biological factors has been found to be deciding factor for their success. One such factor is the width of attached gingiva around the dental implant, which has been extensively studied for its role is initiation and progression of peri-implant diseases [1,2].

The width of the attached gingival plays an important role in aiding the patients to practice efficient oral hygiene manoeuvres. Oral hygiene maintenance becomes even more important when patient dentition is partially or completely consists of prosthetic dentition. Earlier studies performed on evaluation of the effect of the presence of attached gingiva and the effect on the periodontal tissue has shown that an inadequate attached gingiva prevents the complete closure of pockets, mainly due to constant movability of the marginal tissue. A width of 2mm of keratinized tissue with 1mm of attached gingiva has been suggested to be adequate for efficient plaque control. However, these findings has been contradicted by a number of clinical trials demonstrating efficient plaque control is possible even in conditions with width of attached gingiva less than 1mm[3-9].

The free autogenous gingival graft is a widely accepted and reliable and predictable procedure for augmentation of keratinized gingiva around implant, despite certain limitations such a donor site morbidity and being a technique sensitive procedure, In this case report, augmentation of lower anterior mandible was done with free gingiva graft prior to implant placement. Observation of the subject was done 6 months post-surgery followed by a retrospective analysis of shortcomings of the procedure and reason for not obtaining desired results.

CASE REPORT

A 32 years old patient was referred to the department of periodontics, Vokkaligara Sangha Dental College and Hospital, Bangalore, from the department of prosthodontics, for periodontal evaluation prior to prosthetic rehabilitation. On evaluation, patient reported loss of mandibular anterior teeth following trauma 1 year back. Intra oral evaluation revealed edentulous site with missing bilateral central and lateral incisor and canine (Fig 1). Underlying tissue was fibrous with

minimal attached gingiva. Decision was made to perform gingival augmentation procedure in order to increase the attached gingiva dimension and aid the patient in efficient plaque control. Patient was informed about the procedure and consent was taken.

On the day of the surgery, local anaesthetic was administered at the site of surgery. A horizontal incision was made 1mm buccal to the mid-crestal region. Sharpe dissection was made without reflecting the periosteum and the underlying muscle attachments were relieved (Fig 2). The palatal tissue was anesthetized and two units of free gingival grafts were obtained from either sides of the palate. Two separate sides were chosen to full fill the dimensional requirements of the graft needed at the recipient site (Fig 3). The grafts were then positioned at the recipient site and sutured with multiple interrupted sutures (Fig 4). A palatal Hawley's splint was placed to secure the palatal wounds and aid in healing.

Clinical Outcome

Patient was re-evaluated after 6 month after implant placement. Three implants were placed in the lower anterior region; however, no clinically significant improvement in the width of the attached gingiva was seen at the time of followup (Fig 5).

Fig-1

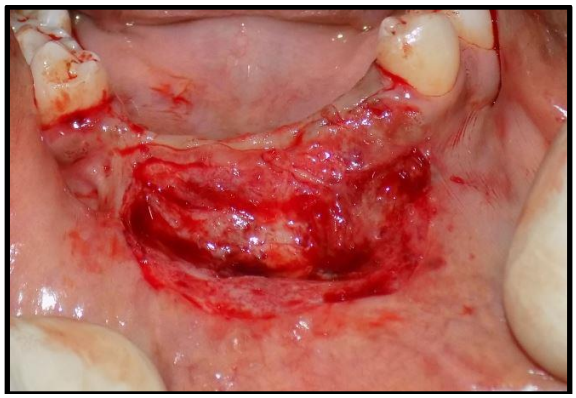
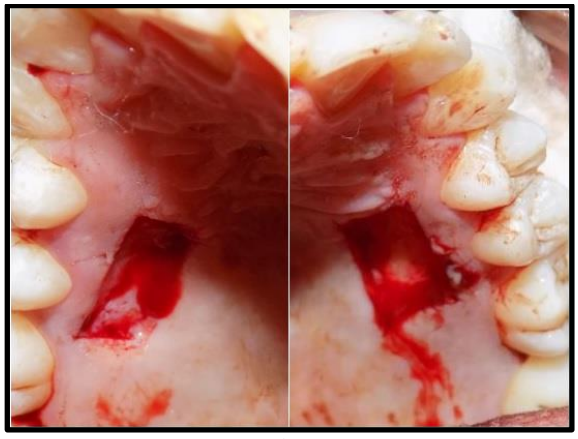


Fig 2



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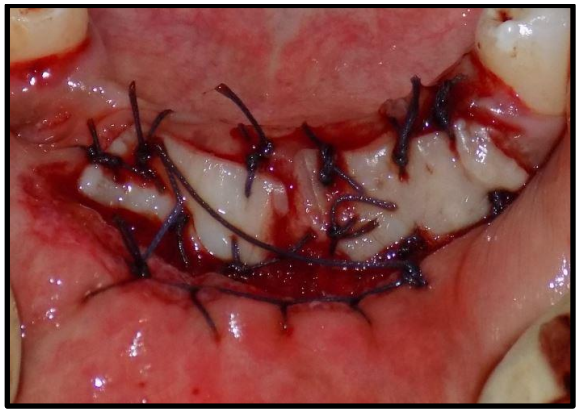

Fig-4

Fig-5

DISCUSSION AND CRITICAL EVALUATION

A number of factors are responsible for the success of autogenous soft tissue graft when placed at the recipient site. One of the important factors includes graft Thickness. An essential factor for the success of autogenous soft tissue graft is the development of capillary network to ensure nutrition. A graft of more than 1.5mm thickness can hamper the growth of capillary network and hence hamper success. Moreover, a graft too thin in dimension may lack the function resistance. A graft thickness of 0.9 to 1/1.5mm can be considered optimal to ensure functional stability as well as aid in the growth of vascular channels [10-12].

In our case, graft thickness was more than what has been considered optimal for the success of free gingival grafts. Moreover, two separate graft units were used to cover the recipient site which may be responsible for unsatisfactory results. Most cases we reviewed have used single unit graft tissue during the procedure. We could not find literature comparing the efficacy of the use of two separate grafts over one single unit graft; hence, further studies need to be conducted to evaluate its effect on the success of the procedure. Moreover, Horizontal and vertical pressing sutures help to press the graft to the underlying periosteum and aid in graft survival by establishing plasmatic circulation. In our case, pressing sutures were not given and the graft was stabalized only with multiple interrupted sutured. A history of trauma to the affected site and presence of scar tissue could also have been attributed to the unsatisfactory results.

CONCLUSION

Use of autogenous graft has been a reliable method for augmentation of hard and soft tissue, but taking under consideration patient and procedural factors is equally important for gaining satisfactory results.

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