Peri-Implant Keratinized Tissue Augmentation and Vestibuloplasty by Free Gingival Graft Procedure at Second-Stage Surgery – A Case Report

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Introduction

Adequate width and thickness of keratinized mucosa around implants facilitate plaque control and maintenance of soft tissue health as well as enhance the esthetic appearance of restorations in the esthetic zone. Following bone grafting and/or implant placement, it is common to find deficiencies in the volume of keratinized mucosa.

This case report demonstrates the use of a free gingival graft (FGG) done at the time of stage II surgery to augment the keratinized mucosa augmentation and deepen the vestibule adjacent to implants supporting a mandibular overdenture.

Materials and Methods

The patient initially had two implants placed in the anterior mandible to support an overdenture. Prior to stage II surgery, it was determined that there was insufficient keratinized tissue and a shallow vestibule. At the time of stage II surgery, a facial partial thickness flap was elevated to generate a recipient bed for the FGG. Vertical mattress sutures were placed to apically anchor the partial thickness flap. The two implants were uncovered and fitted with healing abutments.

Free gingival grafts were harvested bilaterally from the patient's palate, each measuring 20 mm x 7 mm x 1.5 mm. The grafts were trimmed and secured over the recipient bed using absorbable sutures that stabilized the grafts and eliminated any potential dead spaces.

Results

The follow-up examinations at 2 weeks, 6 weeks, 8 weeks, and 6 months showed uneventful healing. During the 2-week follow-up, there was limited edema and mild erythema in the soft tissue. Keratinization over the grafts was observed, and the sutures were intact and well-maintained. The patient reported minor discomfort, and oral hygiene instructions were given. By the 8-week follow-up visit, complete keratinization of the epithelium had been achieved. A deepened vestibule was noted, and the implants were surrounded by well-healed keratinized mucosa. At the 3-month post-operative visit, the healing abutments were replaced with locators. The denture was relined and adjusted to alleviate any pressure. At the 6-month follow-up, thicker keratinized mucosa and adequate vestibular depth were observed around the implant locators.

Conclusion

A free gingival graft can be performed at the time of stage II surgery to predictably augment the volume of keratinized tissue and deepen the vestibule adjacent to mandibular anterior implants that will support an overdenture.

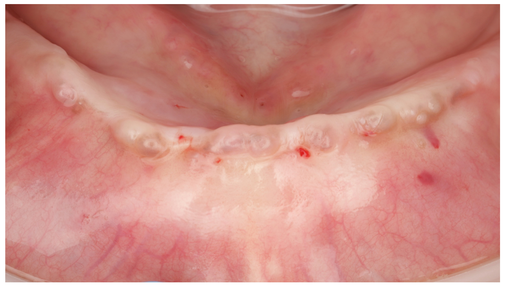

Figure A: Pre-operative view

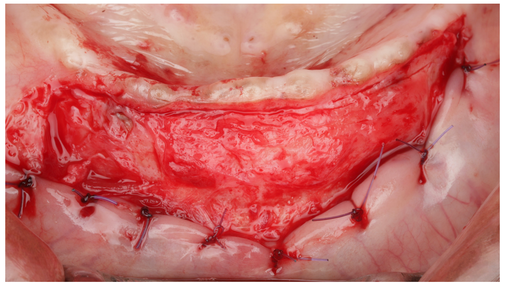

Figure B: Recipient site preparation with apically anchored facial flap

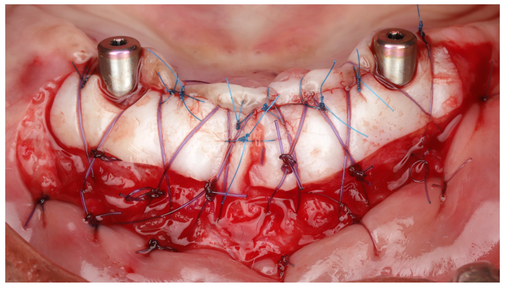

Figure C: Stabilization of graft segments with sutures

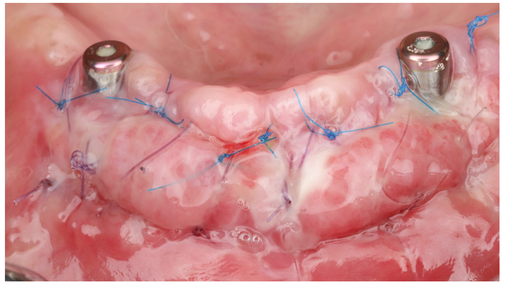

Figure D: 2-week post-operative follow-up showing intact sutures

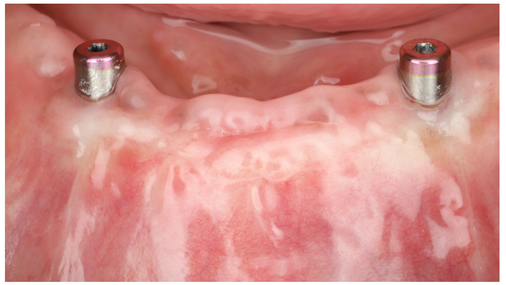

Figure E: 8-week post-operative follow-up

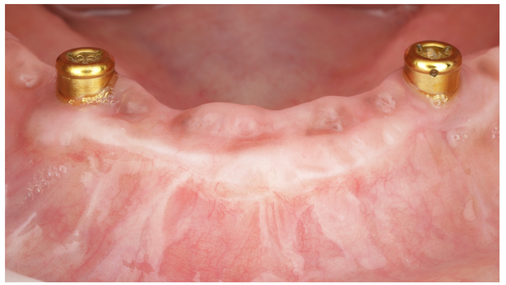

Figure F: 6-month follow-up revealed adequate keratinized mucosa and deepened vestibule

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