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CASE REPORT

Utilization of Sticky Bone™ to Achieve One-Stage Surgery in Thin Bony Maxillary Arch



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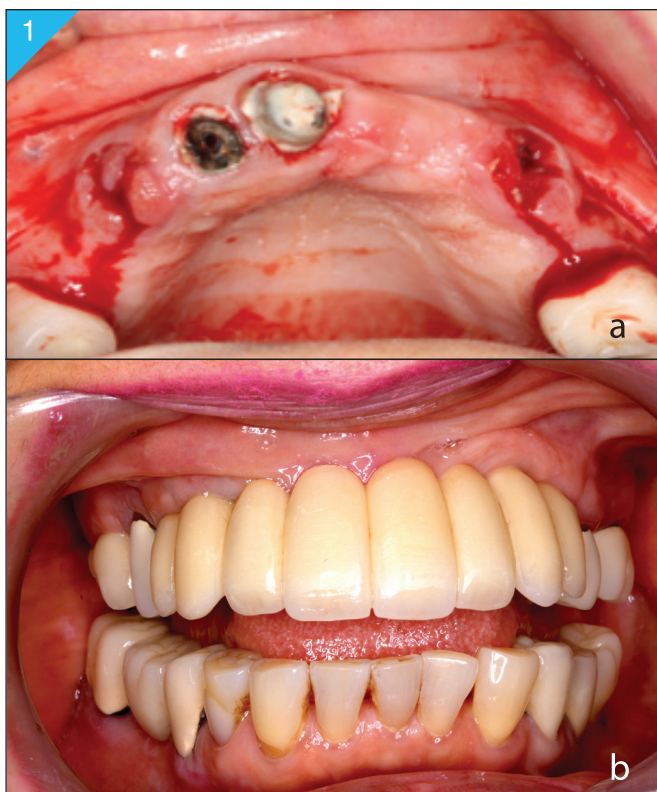


Figure 1a-b. a) Occlusal view of upper anterior area after removing failed fixed restoration. b) Post-operative clinical image with final implant fixed restoration.

Introduction

Staging phases of surgery is recommended when severe pre-maxillae labial concavity is observed in the anterior maxilla, especially when the gingiva is thin biotype and the thin alveolar bone is missing. In this clinical case, such barriers were overcome by innovative utilization of biological enhancers – Concentrated Growth Factors (CGF) and Biologically Solidified Graft Materials (BSGM) a.k.a., Sticky Bone™ – which not only accelerated healing potential, but also reduced the incidence of spread of destructive inflammation. DENTIS™ S-Clean implants were utilized with Louis Button and enhanced soft tissue augmentation in this clinical case with multiple challenges.

Case History

Pre-Operative Assessment

A 55-year old healthy, non-smoker, female patient, presented for reconstruction with failing long span anterior maxillary fixed tooth prosthesis. 3-dimensional radiographic assessment revealed severe pre-maxillae concavity and loss of labial bone plates. (Figures 2 - 8)



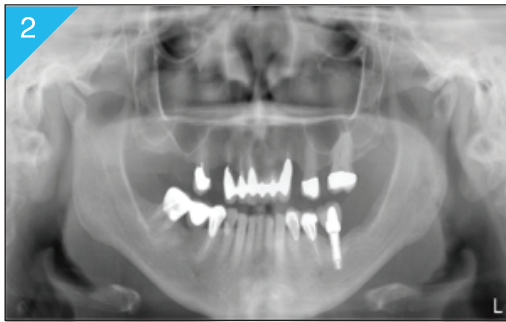


Figure 2. Pre-operative panoramic radiograph.



Figure 3. Pre-operative clinical image.



Figure 4. Failed fixed restoration removed.

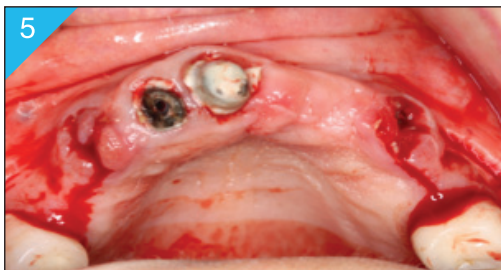


Figure 5. Pre-operative occlusal view of upper anterior area.

In order to satisfy patient's desire to complete the reconstruction in the most concise way possible, treatment was planned as follows: immediate implant placement at the time of surgical extractions, sinus graft, and guided bone regeneration. This will enhance ridge width.

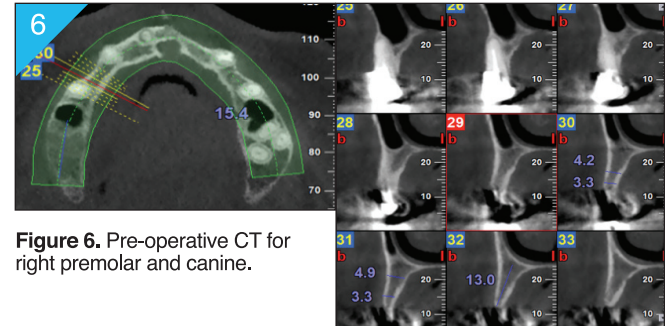


Figure 6. Pre-operative CT for right premolar and canine.

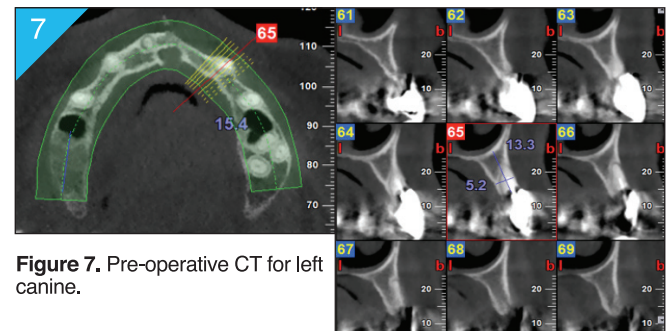


Figure 7. Pre-operative CT for left canine.

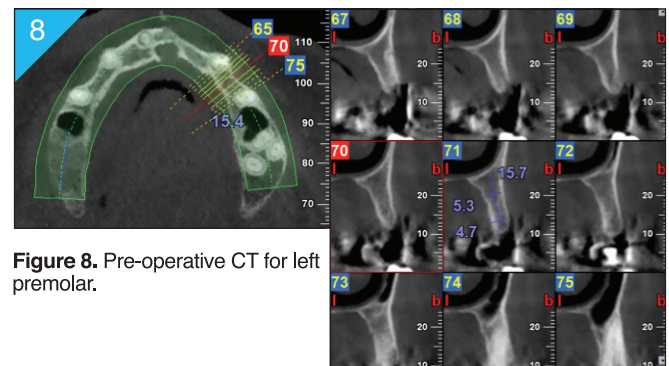


Figure 8. Pre-operative CT for left premolar.

Series of Clinical Views

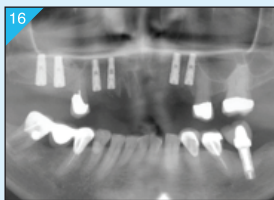


Figure 16. Post-operative panoramic radiograph.

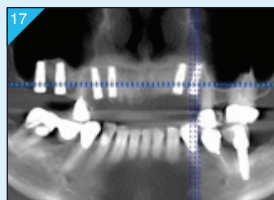


Figure 17. Four month post-operative panoramic Radiograph.

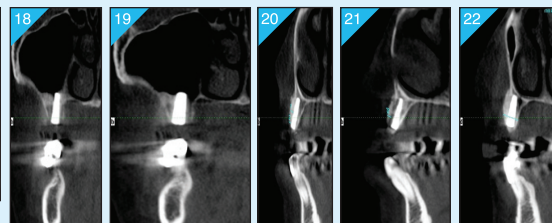


Figure 18-22. Four month post-operative sagittal view of 3D CBCT.

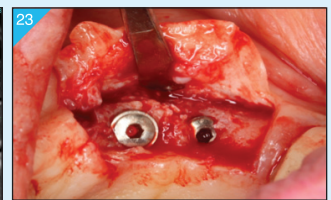


Figure 23. Six months post-operative clinical view of new bone formation around the implants.



Surgical Phase of Treatment

The hopeless bridge abutment teeth were removed and the granulomatous inflammatory tissue in the apical region was debrided with Dr. Jin Kim's socket debrider instrument. The right maxillary sinus was treated with lateral window approach. Two DENTIS S-Clean implants ($\text{\O}4.8 \times 12\text{mm}$) were placed simultaneously and facial and coronal augmentation was carried out with Sticky Bone™ and pressed form of CGF. (Figures 9 - 11)

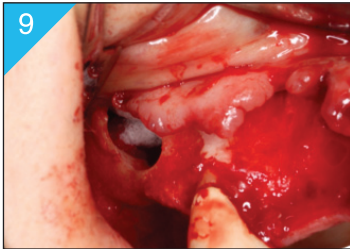


Figure 9. Sinus lift with lateral window technique.



Figure 10. Making Sticky Bone™ and pressed form of CGF.

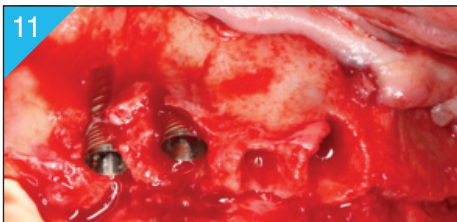


Figure 11. Facial view after immediate implant placement of right premolar and canine area.

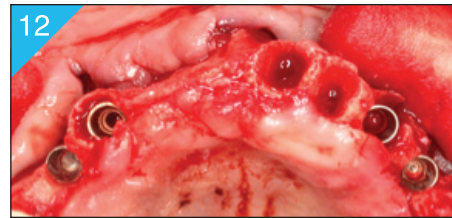


Figure 12. Occlusal view after immediate implant placement on upper maxilla.

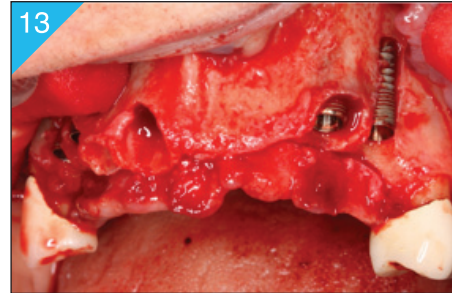


Figure 13. Facial view after immediate implant placement on upper left canine and premolar.



Figure 14. Placing Sticky Bone™ on facial side of implant for GBR.



Figure 15. Placing pressed form of CGF as membrane over grafted site.

In areas of first premolar and cuspids, bilateral immediate implant placement was planned and four DENTIS™ S-Clean implants ($\text{\O}3.7 \times 12\text{mm}$ and $\text{\O}4.1 \times 12\text{mm}$) were placed with Sticky Bone™ and pressed CGF protocol. Wounds were closed with 4.0 chromic gut sutures and post-surgical regime of systemic antibiotics, non-steroidal anti-inflammatory drugs, and steroids were prescribed. (Figures 12 - 22)

Six months following the first surgery, the implants were uncovered. Further grafting was necessary on the upper right premolar (Sticky Bone™ and resorbable collagen membrane). Louis Button (DENTIS™) was used to enhance peri-implant soft tissue margin while maximizing the zone of attached gingiva and the buccal vestibule. Definitive screw-retained fixed restorations were fabricated and delivered in two segments. (Figures 23 - 30)



Figure 24. One week after second surgery on upper left area. Louis Button on one of the healing abutments.



Figure 25. One month after second surgery. Wide zone of keratinized tissue can be observed.



Figure 26. One month occlusal view of second surgery.



Figure 27. Panoramic radiograph with metal frame try-in.

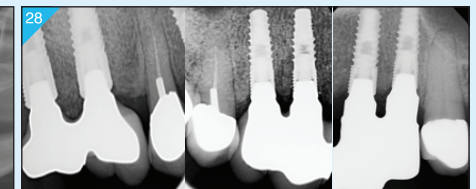


Figure 28. Radiograph after delivery of implant restoration.

Discussion

Preparing Sticky Bone™ with two different graft materials, mineralized allograft and sintered xenograft, with superficial layering of less resorbable and volumizing xenograft on top of mineralized allograft is known to be more realistic and practical protocol in maintaining and enhancing the thickness of facial bone around dental implants.



Figure 29. Occlusal view of final fixed restoration.



Figure 30. Final restoration in the patient mouth.

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Conflict of interest:

The author declares that he has no conflict of interests relating to this article.

Products Used

DENTIS, La Palma, CA

- S-Clean Implants
 - Ø3.7 x 12mm (DSFM3712S)
 - Ø4.1 x 12mm (DSFR4112S)
 - Ø4.8 x 12mm (DSFW4812S)
- Healing Abutments
- Louis Button
- UCLA Abutment, Non-Hexed



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- World Academy of Ultrasonic Piezoelectric Bone Surgery (WAUPS) certified program
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- Complex guided bone regeneration techniques
- Ridge split and bone expansion techniques
- Piezoelectric bone surgery
- Various clinical applications of autologous CGF, PRF, ASAP and Sticky Bone™ protocol
- Individualized approach to ICOI & GDIA & WAUPS fellowship requirements

Date : November 11 - 14, 2017

Tuition : \$16,500

