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CASE REPORT

Part I

Combined Augmentation Therapies in the Aesthetic Zone



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Figure 1a,b. a) Pre-treatment clinical view of upper anterior area. b) Post-treatment clinical view after second stage surgery.

Background and Purpose

To the date, there are many different techniques used to increase the volume of alveolar bone. Recently, a new concept of fabricating growth factors enrich bone graft matrix (Sticky Bone™), using autologous fibrin glue (AFG), has been demonstrated since 2010. This protocol provides stabilization of the graft in the defects, therefore, accelerates tissue healing and

minimizes bone loss during healing period.^{1,2,3} This case report illustrates a management of horizontal and vertical deficiency utilizing a novel protocol with concentrated growth factors (CGF), Sticky Bone™ (ASAP Protocol), and guided soft tissue augmentation with submerging healing abutments and creating a dead space.^{1,2,3}



Case History

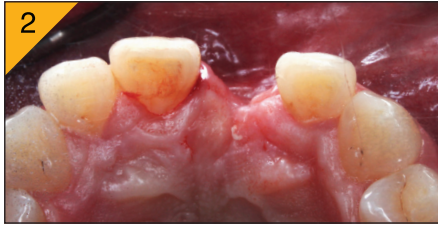


Figure 2. Pre-treatment occlusal view.

A healthy 43-year-old male patient presented with a missing tooth in the upper anterior with a history of implant placement that failed and created bone and soft tissue deficiency in the esthetic zone. (Figure 2)

The patient's goal was to receive an implant supported fixed restoration. Treatment options were discussed with a three-staged surgical approach, 1) guided bone regeneration utilizing the ASAP protocol, 2) implant placement and submerging the healing abutment, and 3) a six month healing process. On the second stage, screw-retained provisional restoration and connective tissue graft was performed and the final impression was made for a cement-retained implant crown after six months from the tissue graft surgery.

Materials & Methods



Figure 3. Flap design.

Surgery was performed under local anesthesia; infiltration technique was utilized by using 2% Mepivacaine with 1 : 100,000 epinephrine. Full thickness mucoperiosteal triangular flap was elevated to expose the edentulous maxilla ridge defect. (Figure 3)



Figure 4. Bone expansion.

Site preparation included removal of the soft tissue and enhanced regional acceleratory phenomenon with the help of piezotome. After point drill was used to start the osteotomy, the bone expansion kit was used to create a better surgical site. (Figure 4)



Figure 5. Implant placement (Ø4.1 x 12mm Cleanlant s-clean, DENTIS™)

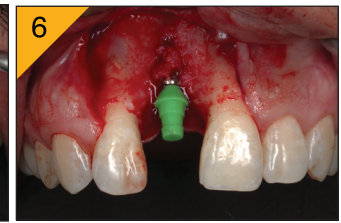


Figure 6. Implant placement confirmed with prosthesis visualization using DENTIS™ Pro Kit.

A single implant (Ø4.1x12mm) was placed then a healing abutment (Ø5.5x2.0mm) was used to create a dead space on soft tissue. (Figures 5 & 6)



Figure 7. Sandwich technique (Allo- and Xeno-graft) using ASAP protocol.
Figure 8. CGF Horizontal Membrane.
Figure 9. CGF Vertical Membrane.

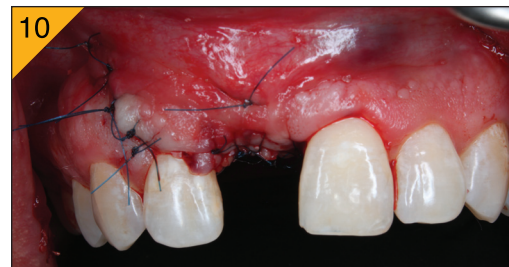


Figure 10. Nylon 4.0 suture submerging the healing abutment in order to create a dead space and increase soft tissue height.



Figure 11. 6 months post-treatment cross sectional image.
Figure 12. 6 months post-treatment 3D Image.

Venous blood (60cc) was drawn to prepare Sticky Bone™ with mix of allograft and xenograft as well as concentrated growth factors (CGF), because of the consistency of the Sticky Bone™ with controllable use. The ASAP protocol is as follows: 1) a layer of allograft, 2) a layer of xenograft, 3) horizontal then vertical layer of pressed CGF. "Releasing incision" where apical release incision to the periosteum with 15C blade was performed to reposition the flap and obtain free tension primary closure, using horizontal matrix and interrupted suture with Nylon 4.0. (Figures 7 – 10)

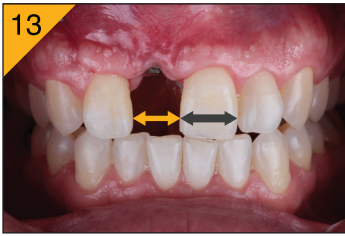


Figure 13. 6 month post-surgery healed site, tipping observed.



Figure 15. Provisional restoration with its mirror image.

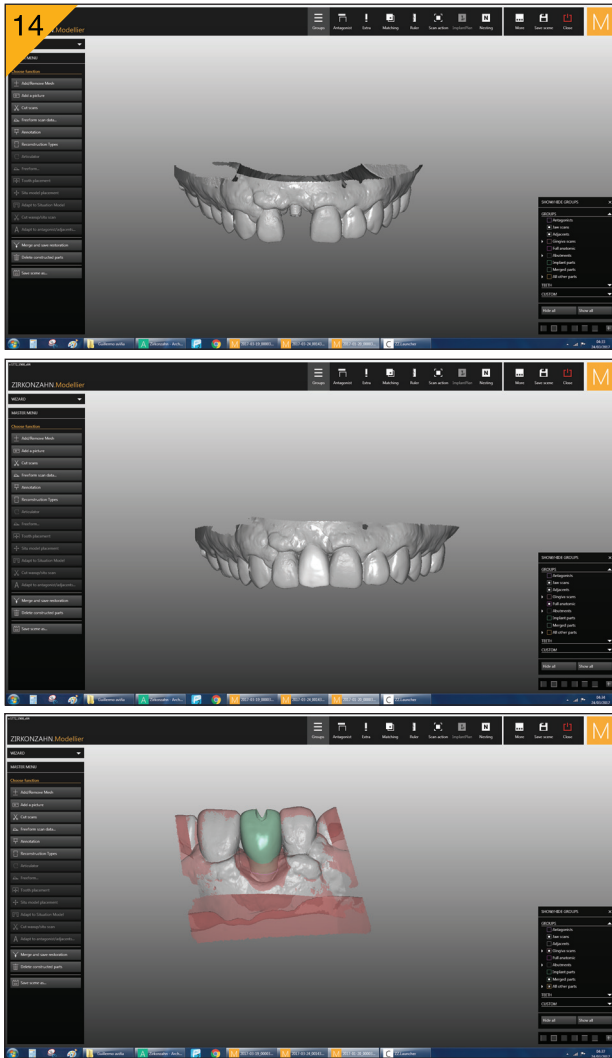


Figure 14. CAD/CAM screw-retained provisional crown.



Figure 16. 6 month post-surgery measurement of the mesio-distal distance of the edentulous space with a caliper.

Figure 17. Measurement of the mesio-distal space of the provisional restoration.



Figure 18. Slight ameloplasty performed to create an equal space for both central incisors.

Series of Clinical Views



Figure 19. Screw-retained implant provisional restoration using DENTIS™ PEEK temporary abutment with the access hole on the labial surface.



Figure 20. Covering the access screw opening with composite after placing a piece of Teflon over the screw head.



Figure 21. Surface polishing of the provisional restoration.



Figure 22. Screw-retained provisional restoration finished.

Discussion and Conclusion



Figure 23. Customized zirconia abutment fabricated for final cement retained restoration.

Figure 24. Final Restoration.

There is a lot of information about the potential capacity of platelets to stop the bleeding. Recently, some researchers have found that the platelets release several growth factors that accelerate tissue regeneration.

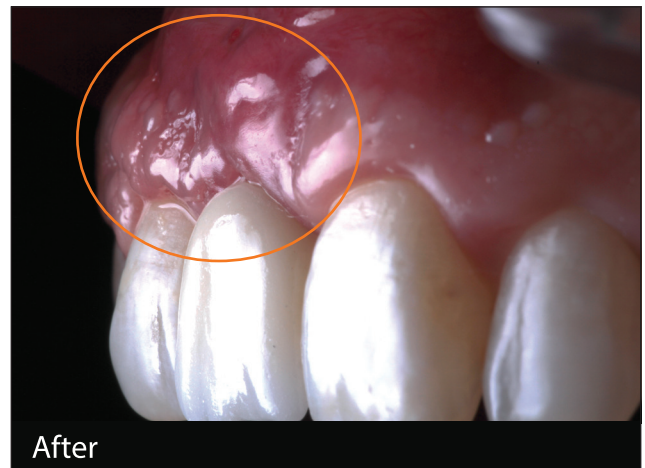
Platelet rich fibrin and concentrated growth factors, in pressed membrane form, can be used as an alternative to traditional membrane over bone graft since these biological modifiers can accelerate both soft and hard tissue differentiation and regeneration. Bone graft, in its sticky form, provides stabilization of the grafted area, therefore this will accelerate tissue healing and minimizes bone loss during healing period.

In addition, an optimum contoured screw-retained provisional and well planned final restoration will maintain the healed gingival architecture.

Part II

Anterior Soft Tissue Regeneration for Esthetics Purpose

Dr. Marco Tulio Alzaga Vega



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3. Kim J.Y. Rehabilitation of a Non-Restorable maxillary central incisor tooth for function and estetic utilizing an immediate placement and provisionalization protocol. *Global Dental Implant Academy*. 2016 Jul; 1(1):1-4

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Products Used

- DENTIS™ S-Clean Implant Ø4.1x12mm
- DENTIS™ Healing Abutment Ø5.5x2.0mm
- DENTIS™ Pro Kit
- DENTIS™ Temporary Abutment
- Bone Expansion Kit

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