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Dental Implant CASE REPORT

Rehabilitation of Failing Maxillary Molars via Sinus Augmentation with Crestal Approach and Immediate Implant Placement



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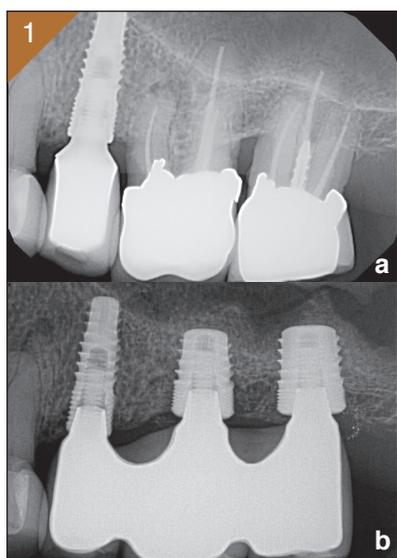


Figure 1a,b. a) Pre-clinical periapical radiograph. b) Post-surgical periapical radiograph with final prosthesis.

Case History

A 76 year old healthy patient was presented with failing upper left maxillary molars. Both teeth had been endodontically treated with evidence of significant bone loss. A CBCT evaluation revealed periapical lesions on both teeth. The floor of the sinus was measured to be 3mm from the crestal bone in the maxillary second left molar and 5.5mm in maxillary first left molar.

Treatment Plan Summary

Extractions were performed with minimal trauma to the peripheral hard and soft tissues, followed by vertical sinus lift through the implant osteotomies using Summers concave osteotomes¹ and Puros® allograft infused with biological activators. Implants were placed with sufficient initial stability and the sockets were grafted. Case was restored to full function with an implant screw-retained prosthesis in six months. (Figure 1b)



Figure 2a,b. a) Pre-operative clinical image of the failing maxillary left molars, b) Decoronation of teeth followed by low-trauma extractions.

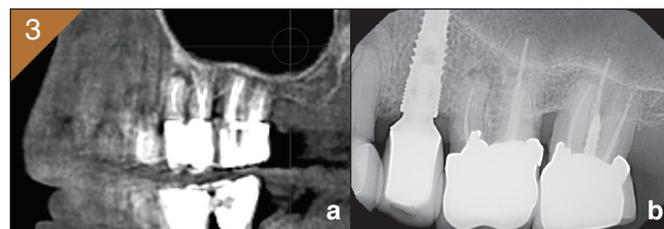


Figure 3a,b. a) CBCT of the failing maxillary left molars, b) Pre-op periapical.



Surgical Phase

Under conscious Intravenous (IV) sedation, a 3 wall mucoperiosteal flap was manipulated and the teeth were sectioned and atraumatically removed. Osteotomies were prepared to 0.5mm short of the sinus floor using the DENTIS S-Clean twist drills. Summers concave osteotomes were utilized to expand the osteotomies and “up-fracture” the sinus floor cortex with a surgical mallet. The concavity at the tip of the osteotomes gathers autogenous bone from the walls of the osteotomy while expanding it. This autogenous bone enhances the osteoinductivity of the sinus graft. Subsequent to lifting the Schneiderian membrane with a flat ended instrument (Figure 4f), multiple layers of Concentrated Growth Factors (CGF)³ were placed (Figure 4d & 4e) followed by Puros® allograft infused with autologous fibrin glue AKA “sticky bone” (Figure 4f). Two endosteal internally hexed SAVE™ implants were immediately inserted² and additional allograft was placed in the sockets. The first molar implant (5.5mm x 7mm) had initial stability of 50 Ncm and the second molar implant (6.0mm x 7mm) had initial stability of 25 Ncm. Triple gram negative antibiotic ointment was applied to healing abutments prior to installation, chromic gut sutures and Louis Buttons™ from DENTIS were subsequently placed. (Figure 5b)

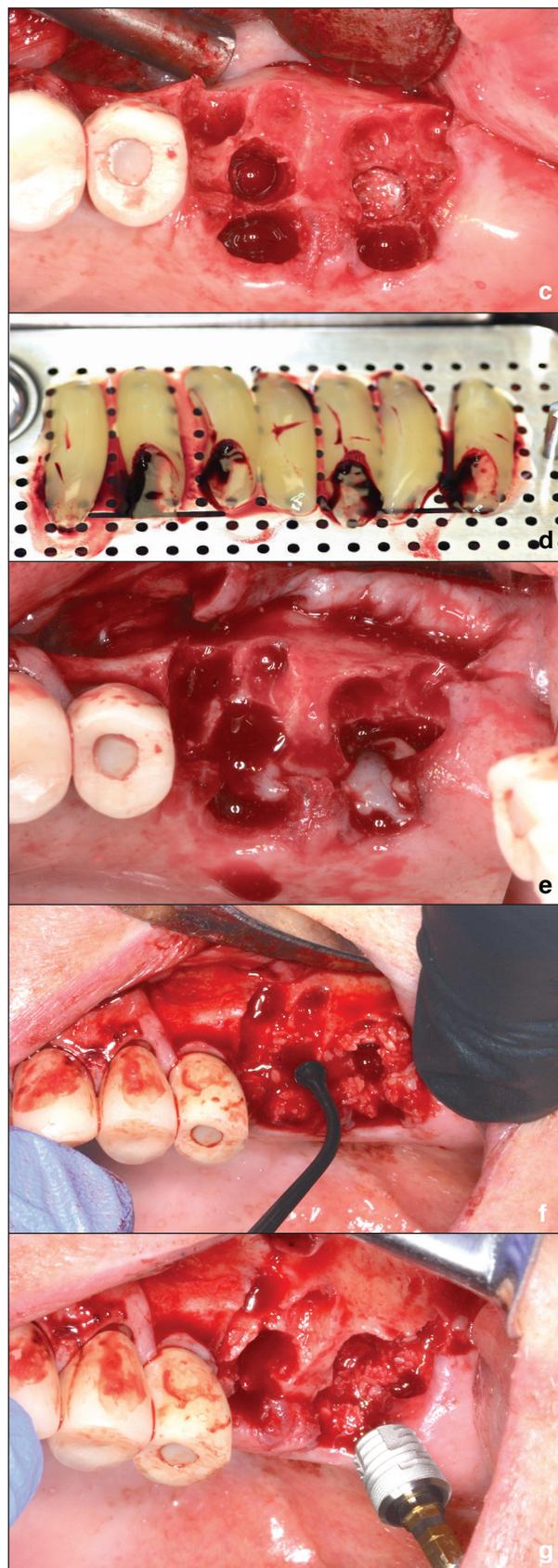
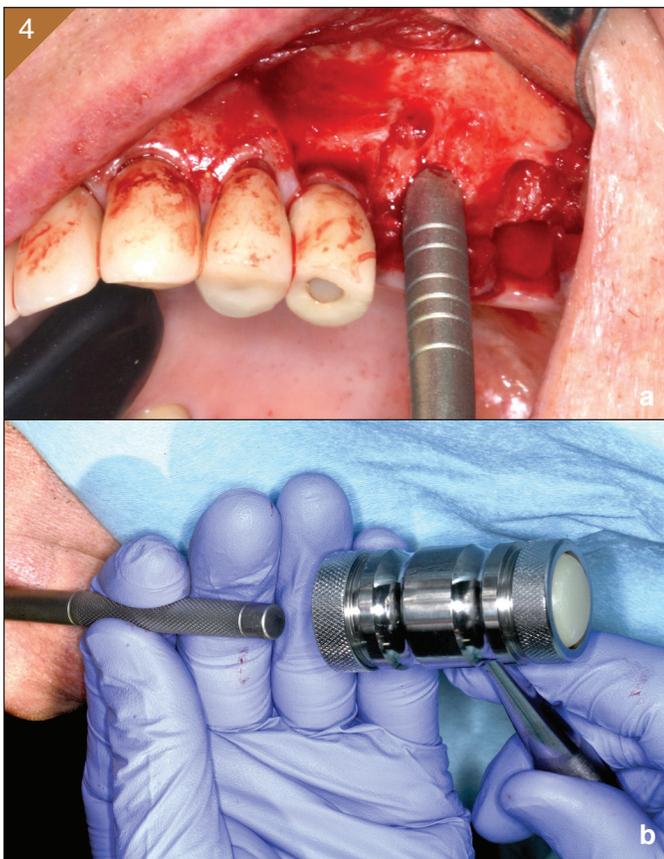


Figure 4a-g. a) Sinus floor elevation with Summers osteotomes, b) Surgical mallet used for greenstick fracture of the sinus floor, c) Sinus floor “Up-fractured”, d) Un-pressed form of Concentrated Growth Factors, e) CGF placed prior to bone graft, f) Puros® allograft mixed with autologous fibrin glue, g) Immediate implant placement.

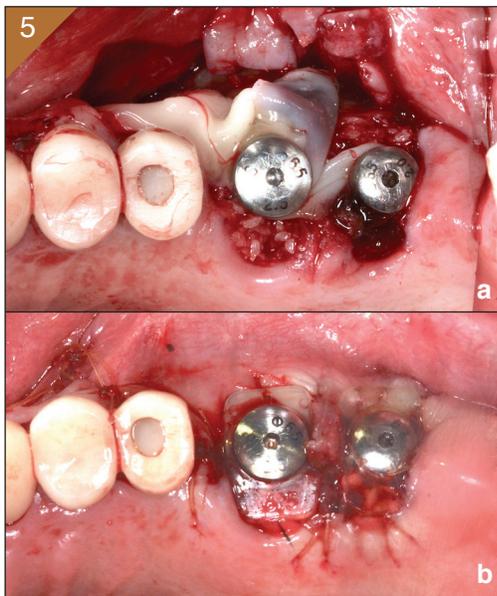


Figure 5a,b. a) Placement of healing abutments with the “Poncho technique”, b) Placement of the Louis Buttons™ to keep the gingiva at the selected level during the healing phase; removed after two weeks.

Restorative Phase

After five months, healing abutments were removed and Osstell⁴ readings were recorded as 70 ISQ for the first molar and 65 ISQ for the second molar. The maxillary second premolar crown was removed and open tray impressions were taken for the three implants. Due to biotype of the posterior maxillary bone, it was decided to incorporate the well-integrated implant in the second premolar site as part of the final prosthesis to improve biomechanics. DENTIS non-engaging UCLA abutments were used and screw-retained metaloceramic restorations were fabricated and delivered.

The connecting screws were torqued to 30Ncm with the DENTIS torque driver and the centric occlusion was adjusted with a double thickness of a Mylar strip. Lateral occlusal contacts were checked to avoid direct contact present. Patient was seen for post op after a week, one month, and 3 months with no significant findings. Implant care information was discussed with the patient with the emphasis on dental care.

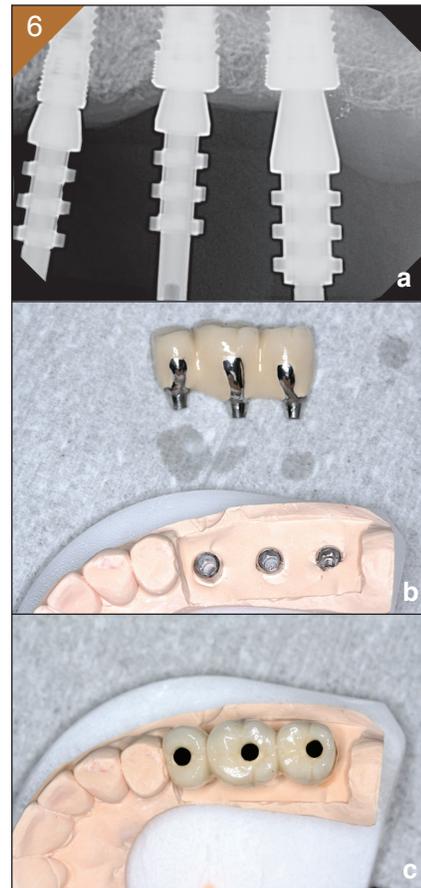


Figure 6a-c. a) Radiographic verification of the seated open tray impression copings over the implants, b) The final prostheses fabricated with three non-engaging UCLA abutments, c) Occlusal view of the three connected screw-retained implant crowns on the verified maxillary cast.



Figure 7. Clinical photo of the final prosthesis.



Figure 8. Post-CBCT sectional views of the three implants showing the surrounding healthy bone.

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Conflict of interest:

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

Products Used

- DENTIS Implant SAVE™ 5.5mm and 6.0mm platform width.
- DENTIS Louis Buttons™
- Summers Concave Osteotomes.
- DENTIS Non-engaging UCLA Abutments
- DENTIS Torque Driver



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- Reduced** operation time
- Increased** tissue volume
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Suture

- Minimum pressure applied on incision site
- Tissue loss
- Difficult access and suturing
- Increased operation time
- Difficult to secure volume of attached gingiva
- Difficult with thin tissue



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