

Digital workflow using the Esthetic Healing Abutment with ScanPeg

Dr Robert G Ritter, USA
David Haley, USA

Patient: 61-year old woman.

Clinical situation: A vertical root fracture of first left maxillary molar.

Treatment plan: Extraction of tooth and staged grafting procedure. Placement of a Neoss ProActive® 6.0×9mm implant with Esthetic Healing Abutment Molar shape with ScanPeg. Fully digital workflow with intra oral scanning, and CAD design of a titanium custom abutment with a full monolithic crown following the shape of the Esthetic Healing Abutment.



Figure 1. Root was sectioned for easier removal by periodontist.



Figure 2. Extraction of the sectioned root.



Figure 3. Bone grafting with corticocancellous allograft material.

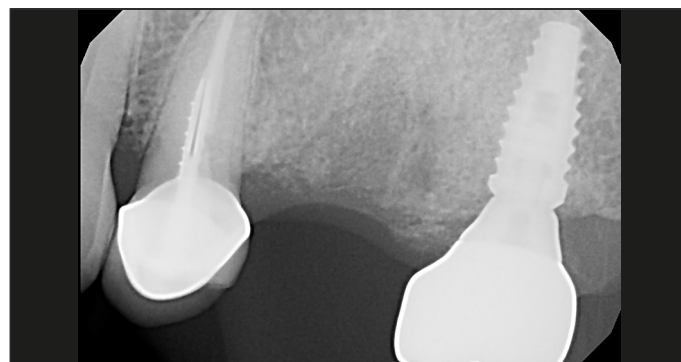


Figure 4. X-ray image after 1 month.

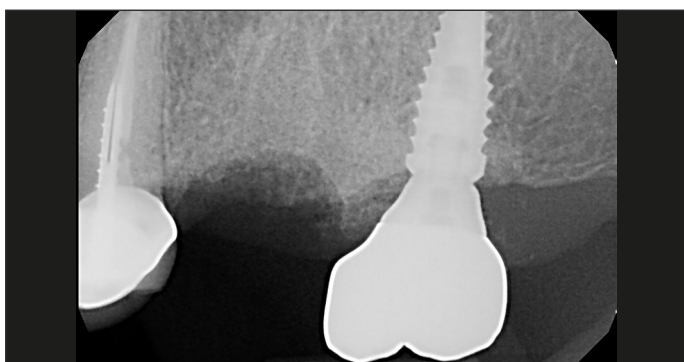


Figure 5. X-ray image after 3 months.



Figure 6. Soft tissue healing situation after 3 months.

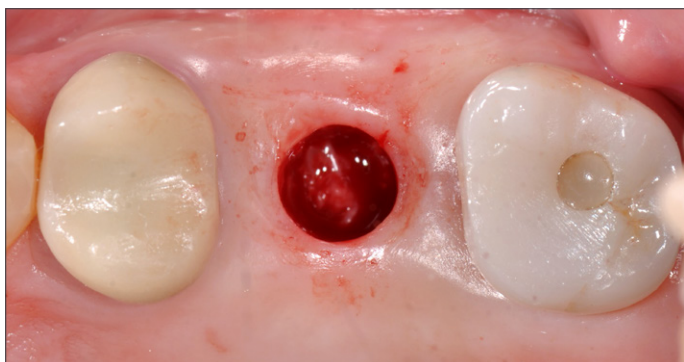


Figure 7. Flapless procedure using a soft tissue punch.

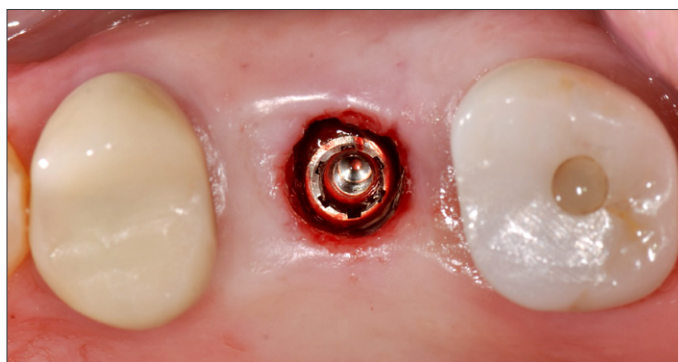


Figure 8. A Neoss ProActive® 6.0×9mm is placed.



Figure 9. Esthetic Healing Abutment Molar mounted on the Neo screwdriver. The correct emergence profile for the tooth position is chosen. The matched emergence can then easily be picked in the CAD software when designing the abutment.



Figure 10. Esthetic Healing Abutment Molar placed on the implant with the groove in the correct buccal direction. It can now be left in place until placement of the final restoration.



Figure 11. Esthetic Healing Abutment Molar tightened to a maximum of 10Ncm on the implant. Patient is sent home for abutment healing time.

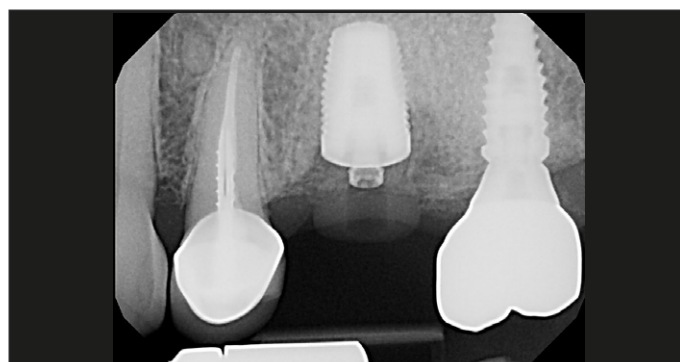


Figure 12. Patient comes back after a healing time of 10 days. Before intra oral scanning an x-ray image is performed of the situation.



Figure 13. No need to remove the Esthetic Healing Abutment Molar during scanning. The ScanPeg is simply pushed inside the healing abutment. The lug of the ScanPeg is aligned with the groove inside the Esthetic Healing Abutment and pushed gently until properly seated.



Figure 14. The ScanPeg is now ready for the intra oral scanning procedures.



Figure 15. Intra oral scanning made with the iTero intra oral scanner from AlignTech. Scan file sent to the laboratory.



Figure 16. Correct shade is chosen for the fabrication of the zirconia monolithic crown.

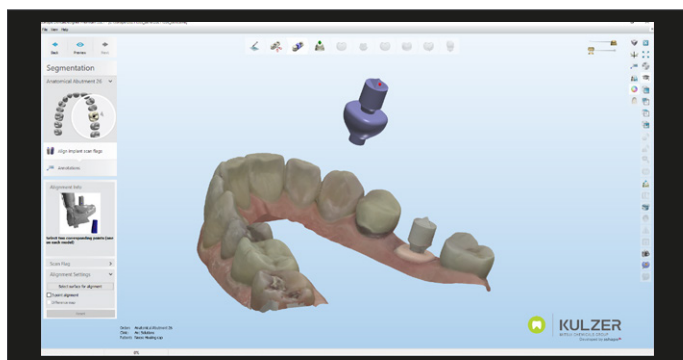


Figure 17. The intra oral scan file is imported into 3Shape Dental System with the Neoss CAD library installed. The material file of the Esthetic Healing Abutment Molar with ScanPeg is chosen in the software

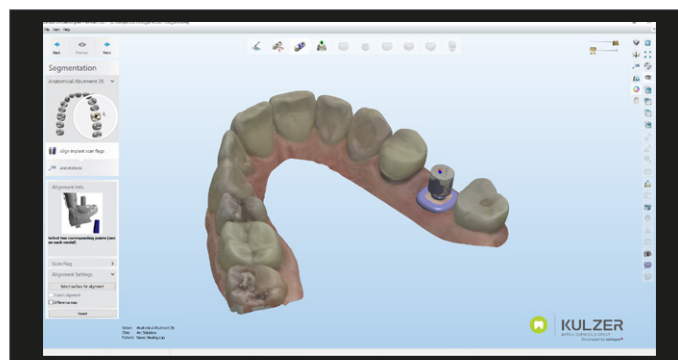


Figure 18. The material file is matched with the surface scan.

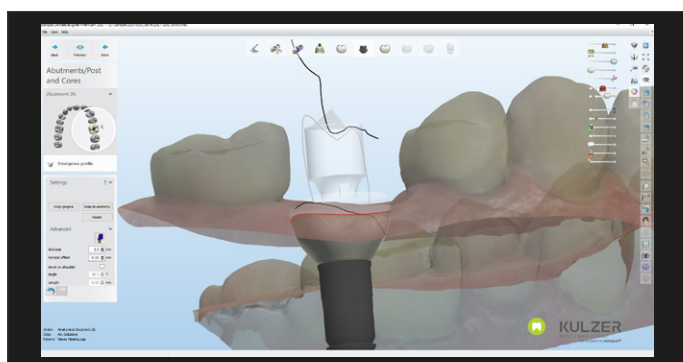


Figure 19. The shape of the Esthetic Healing Abutment Molar is used to create an emergence profile that fully matches the healed soft tissue of the patient.

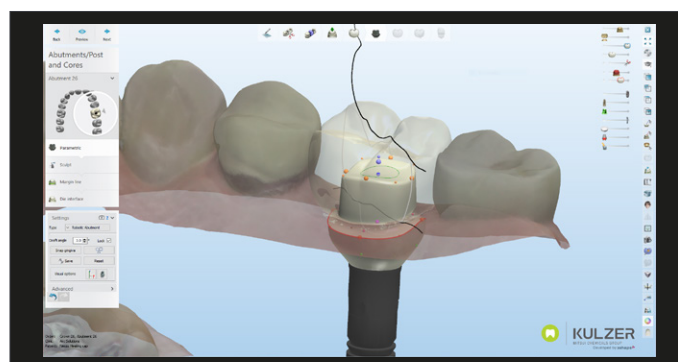


Figure 20. Correct emergence profile is achieved, margin line defined and finalized, crown creation in the same workflow.

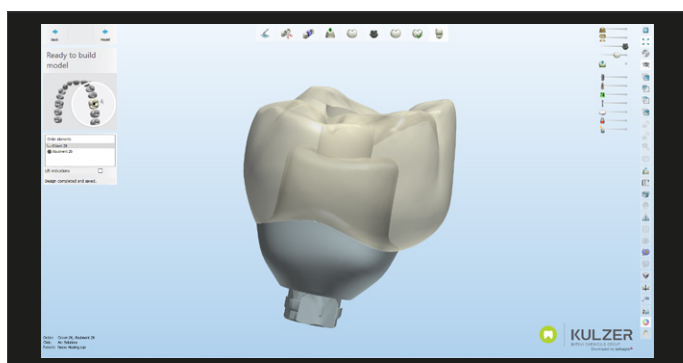


Figure 21. Final customized abutment and crown design with hole for screw retained solution.

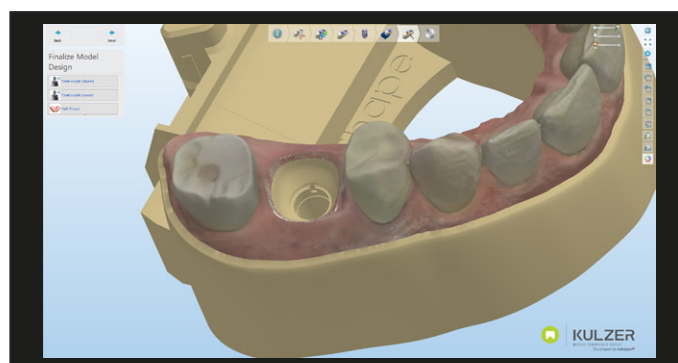


Figure 22. Model design in 3Shape Model Builder with Neoss Model Analog for printed models.



Figure 23. Final abutment milled at Argen and zirconia monolithic crown milled at the laboratory from a 98mm disc with material from Ivoclar Vivadent IPS e.Max Prime.



Figure 24. Abutment and crown mounted on the model for verification of contact points. Case shipped back to the clinic.



Figure 25. Finished healing period. Patient returns 2 weeks after impression taking, healing situation is stable with the same result as past clinic visit.

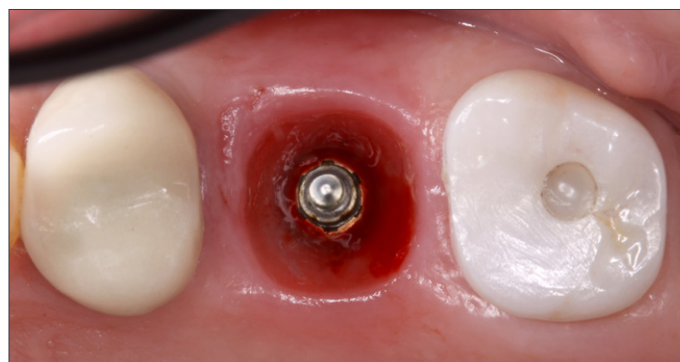


Figure 26. The Esthetic Healing Abutment is removed. Optimal healing and good tissue integration of the tissue friendly PEEK material is shown by superficial bleeding without inflammation upon removal of the Esthetic Healing Abutment.



Figure 27. Final restoration with the customized abutment and crown are torqued with the final torque of 32Ncm.



Figure 28. Restoration in place.



Figure 29. The screw access hole covered with i-Plug and then filled to the cavosurface margin with flowable composite.



Figure 30. Occlusal check with the opposing jaw shows a perfect match without adjustments.