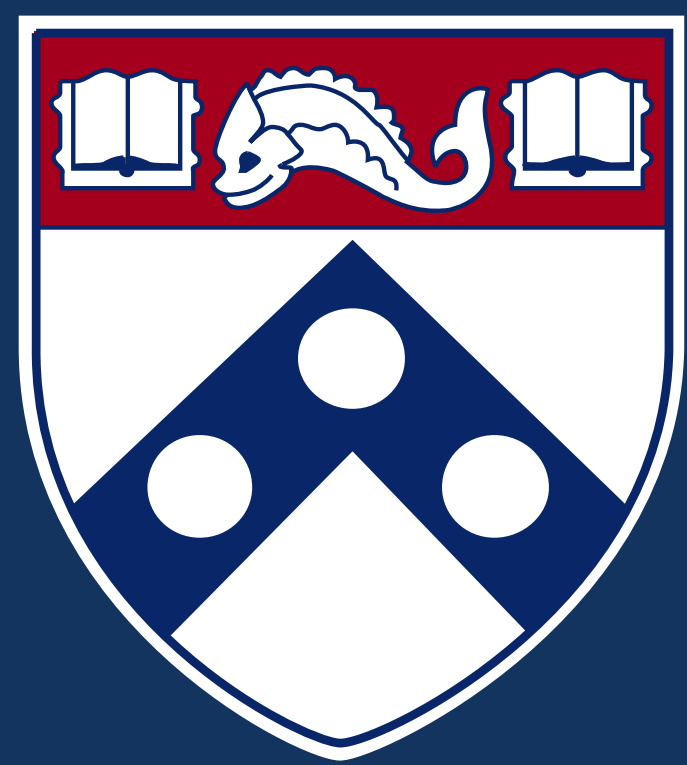




Preserving Identity in the Transition to Edentulism: A Personalized Digital Workflow for Immediate and Definitive Single Arch Implant Overdentures

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Introduction

This case report describes a digital workflow for transitioning a patient with terminal maxillary dentition to an implant-retained overdenture while preserving his natural smile.

A 62-year-old male presented with Grade III mobility of maxillary anterior teeth and loss of posterior support. An open-window impression was made, the cast digitized, and a custom tooth library created from his dentition. He elected extraction of the remaining teeth and rehabilitation with an implant-retained overdenture, with the goal of preserving esthetics while ensuring predictable and efficient treatment.

An immediate denture was fabricated using reference from existing dentition to guide alveoplasty and implant planning. After healing, the definitive overdenture was delivered in two visits, ensuring efficiency, esthetic continuity, and patient satisfaction.

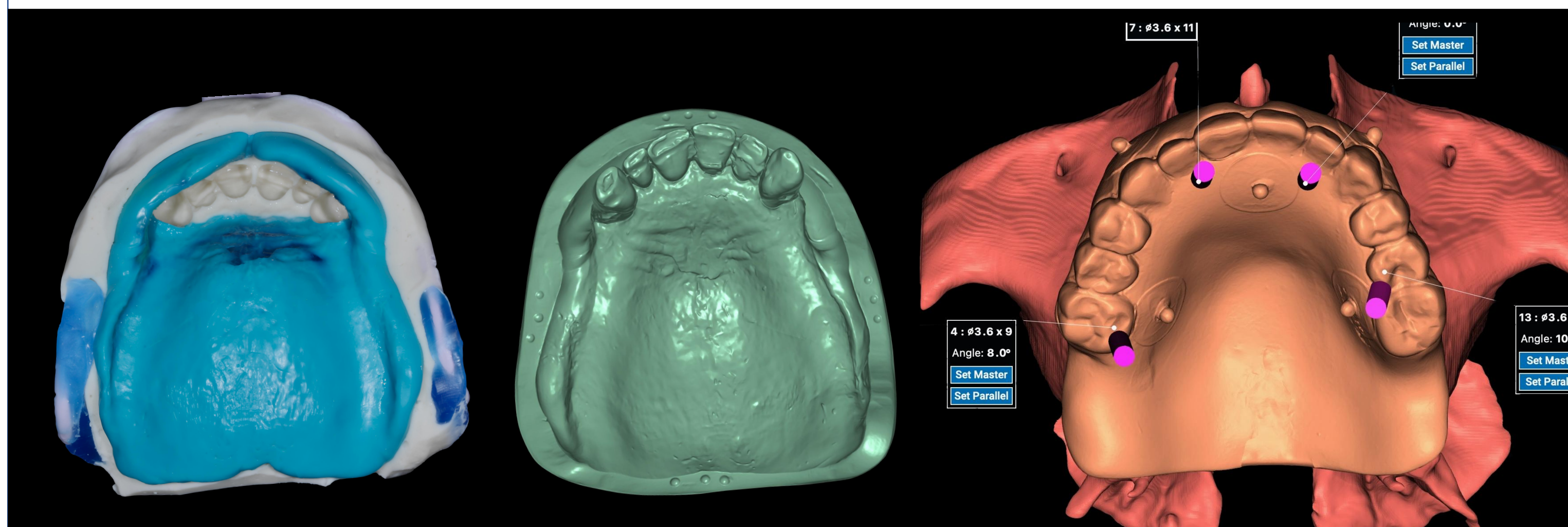


Figure 1. Open-Window Impression (Left) Digitized Master Cast (Middle) Implant Planning (Right)

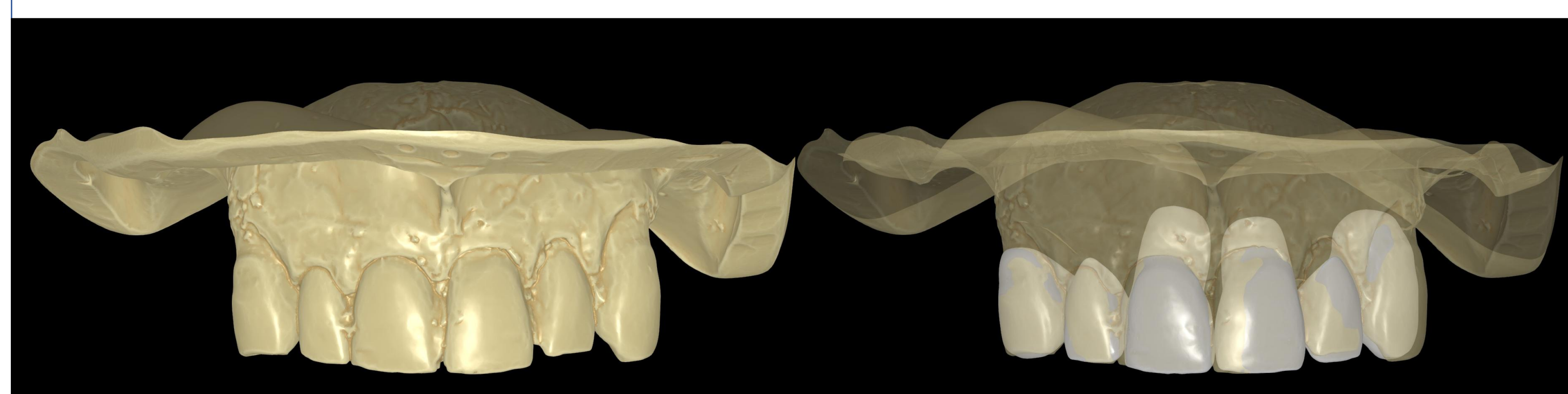


Figure 2. Original Teeth (Left) #6-11 extracted to form custom tooth library (Right)

Case Report

Data Collection and Digital Custom Tooth Library

- An open-window impression technique was used to achieve border molding without dislodging compromised teeth.
- The master cast was digitized, and a custom tooth library was created from the patient's existing dentition.
- A frontal portrait photo served as a reference for facially generated treatment planning. This setup guided immediate denture fabrication, alveoplasty, and implant planning. (Figure 1)

Implant placement and Preprosthetic Surgery and Immediate Denture Delivery

- Extraction of #6-11 and immediate Denture Delivery
- Pilot guided Implant placement, bilateral crestal sinus lift and alveoplasty

Rehabilitation

- Locator selection and insertion
- Close mouth wash impression with Immediate Denture Duplicate
- IROD Delivery and Chairside Pick Up

References



Figure 3. Pre-op Smile Frontal (UL), 2D smile Design (UR), Immediate denture (LL), IROD (LR)

Conclusions

This case demonstrates how a personalized digital workflow can simplify the transition from terminal dentition to an implant-retained overdenture. Using an open-window impression and a custom digital tooth library, the patient's natural esthetics were preserved while ensuring functional predictability as well as predictable surgical planning. A two-appointment protocol reduced chair time and improved efficiency, while digital replication of the dentition maintained the patient's esthetic identity through edentulism.

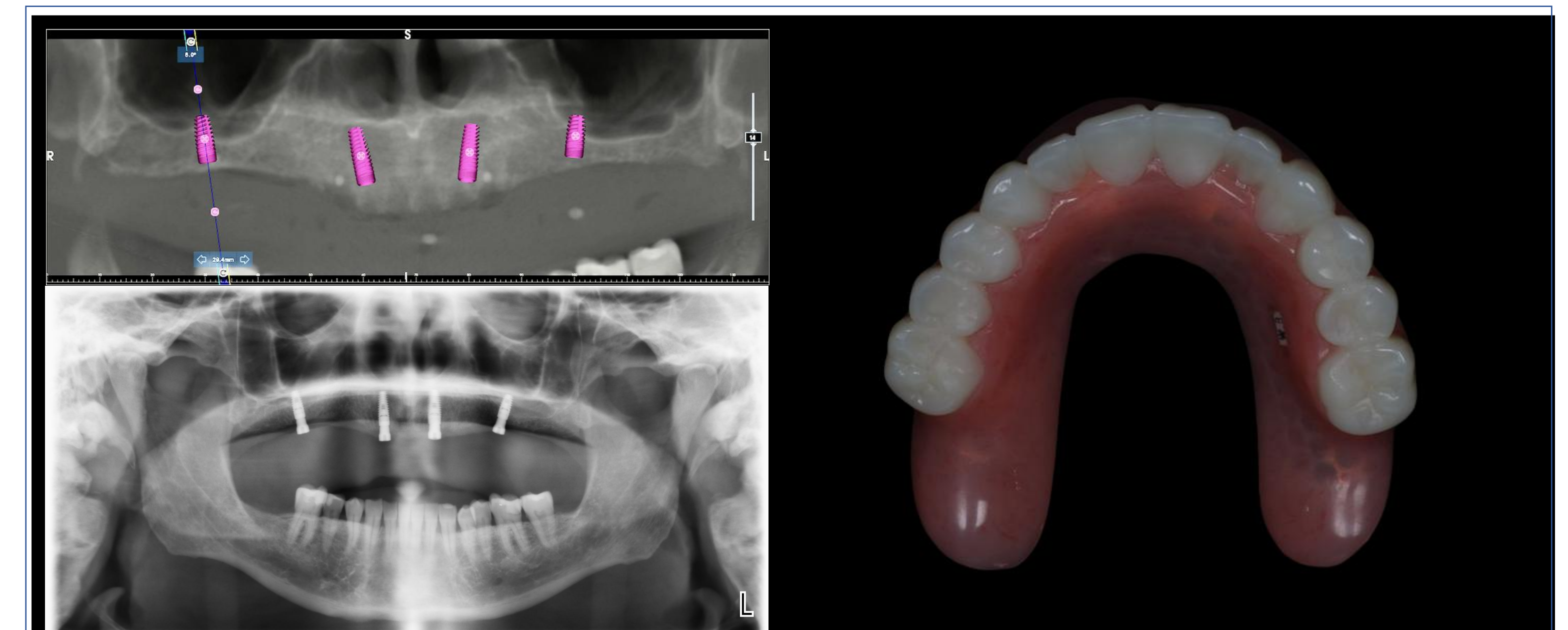


Figure 4. Planned Implant position (UL), Panoramic x-ray at 2nd stage (LL), Overdenture Occlusal View (R)

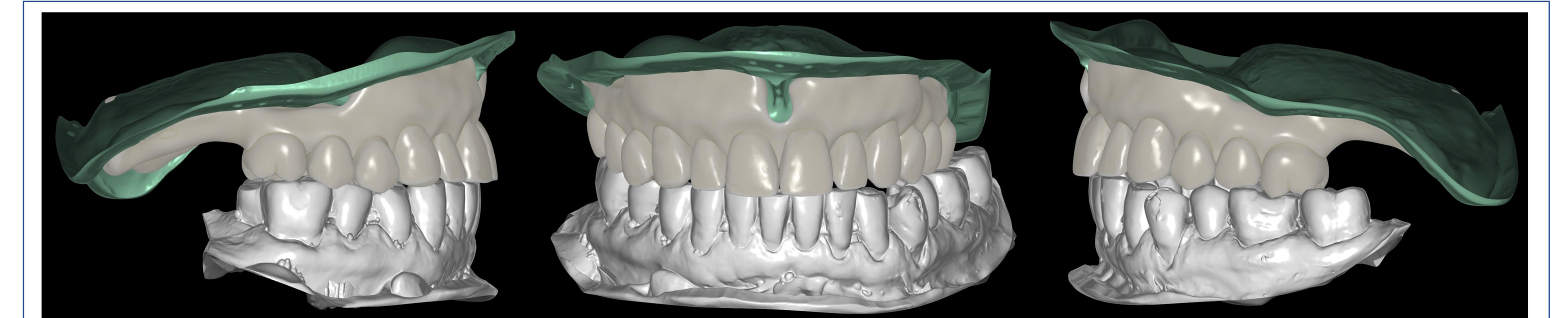


Figure 5. Immediate Denture Design, Right, Front, Left



Figure 6. Pre-op (Left), Immediate Denture (Middle), IROD (Right)