

A Fully Digital Workflow for Fixed Complete Denture Rehabilitation Utilizing Virtual Articulation and Photogrammetry

Elizabeth Davis, DDS ; Donghyun Kim, DDS, MS ; Zaid Hikmat, BDS ; Abdulghani Alcharbaji, BDS, MS ; Rand Harlow, DDS, FACP ; Dima Ghunaim, DDS, MS, FACP, FAAMP
Advanced Education Program in Prosthodontics, University of Illinois Chicago COD

Abstract

A fully digital workflow integrating jaw tracking, virtual articulation, and photogrammetry offers an efficient workflow to full-arch implant prosthodontics. Traditional methods can be time-consuming and challenging for the patient. This case demonstrates the application of a digital workflow to improve efficiency and enhance patient outcomes.

Initial Presentation

- A 78-year-old female with a fully edentulous with interim fixed complete prostheses.
- CC: "I had implant surgery and am now ready to move forward with my final teeth".
- Previously underwent grafting and implant placement at site #19.

Diagnostic Tools

Initial diagnostics included:

- Comprehensive examination and medical history.
- Intra-oral scans and photographs of provisionals and edentulous arches with protective caps.
- Digital jaw tracking and virtual facebow recording.
- Photogrammetry scan for precise implant position capture

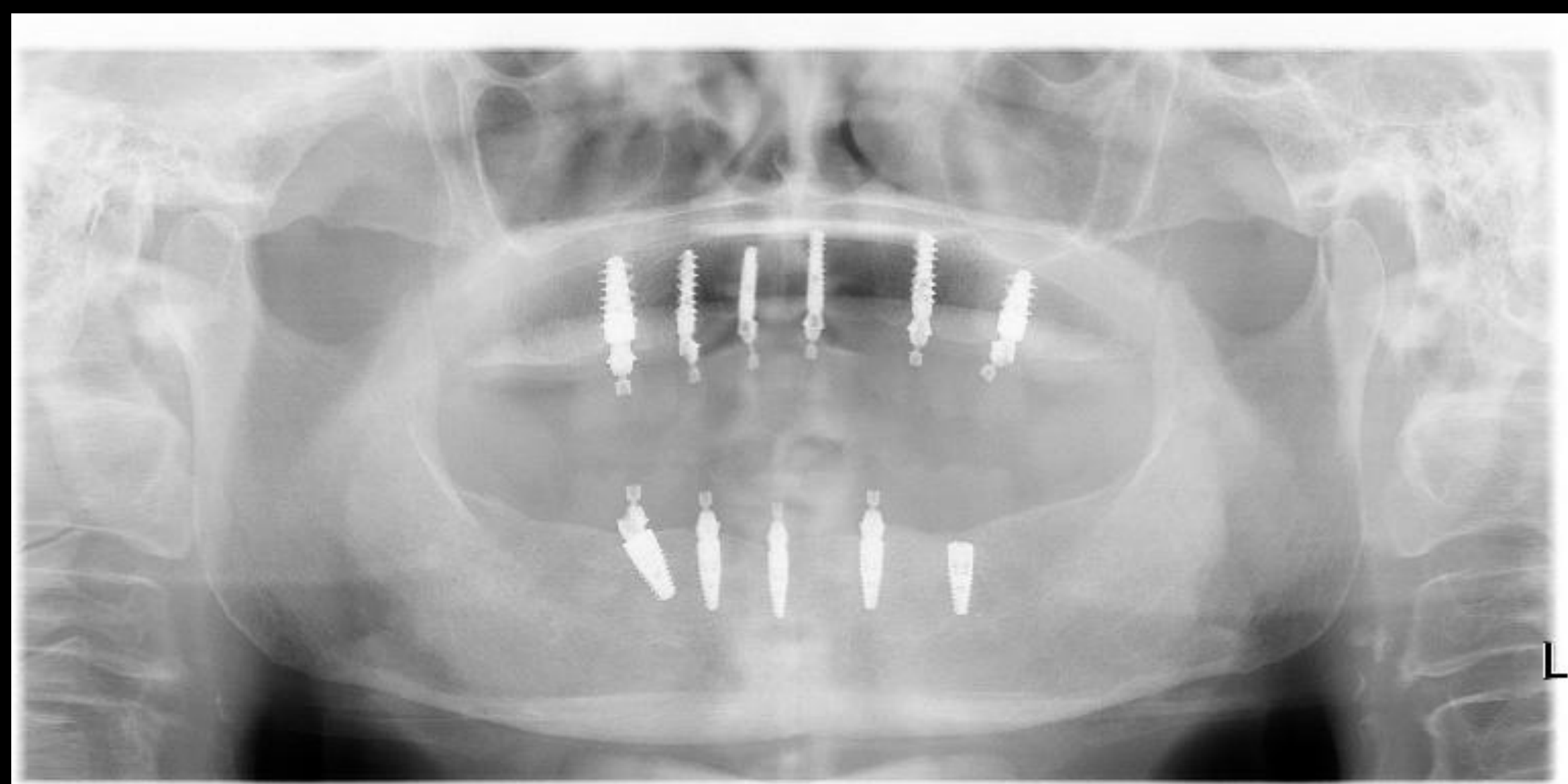
Treatment Plan

Full digital workflow for maxillary and mandibular implant rehabilitation, including virtual articulation, photogrammetry, and delivery of milled PMMA provisional.

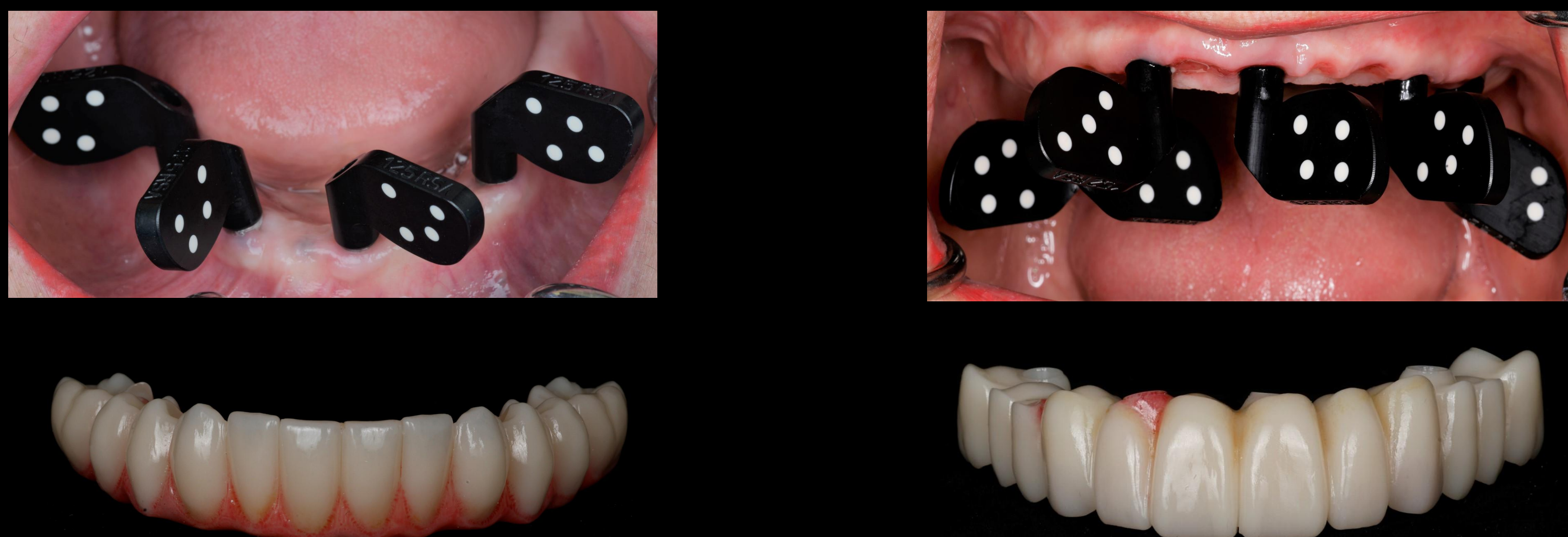
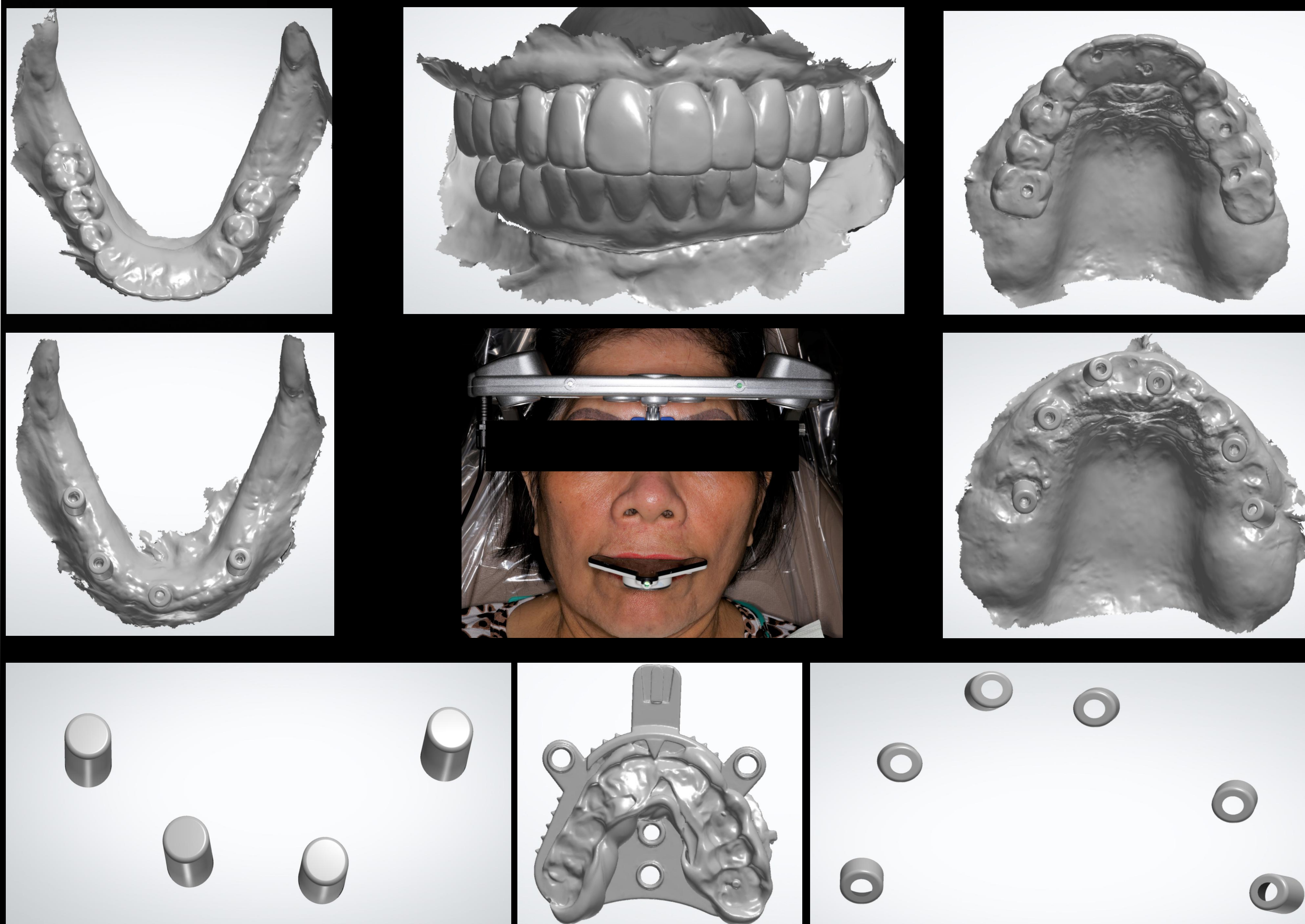
Digital Advantages

- Streamlined data capture: Digital facebow and jaw movement tracing, photogrammetry, and virtual articulation eliminate the need for physical impressions and articulator mounting.
- Improved efficiency: Photogrammetry ensures accurate implant positioning eliminating the need for cast verification.

Diagnosis and Treatment Planning



Digital Workflow



Interim Prostheses

