

OBJECTIVE

To present the integration of digital workflow for the interim phase of treatment in a patient requiring complete mouth rehabilitation.

CLINICAL REPORT

A 60-year-old patient presented with partially edentulous arches and interim removable prostheses. Existing teeth were not restorable, and the patient opted to have an implant-retained prosthesis for both maxillary and mandibular arches. (Fig. 1) The maxillary arch required an immediate complete denture due to the caries and fracture of the existing fixed prosthesis. Intraoral scans of the models and facial pictures were used to design an immediate maxillary denture with an appropriate occlusal plane following the diagnostic wax-up. (Fig. 2)

The existing mandibular interim removable partial denture (RPD) was retrofitted to improve the occlusal plane established by the maxillary immediate denture. Mandibular posterior teeth were designed following the occlusal plane of the maxillary complete denture. (Fig. 3) Designs were then merged into the digital model of the mandibular arch to manufacture a solid 3D-print model. (Fig. 4) The 3D-printed model was used to fabricate an external surface form (ESF). The interim RPD was then sandblasted, and polymethyl methacrylate and ESF were used to transfer the designed anatomy to the interim RPD following the manufacturer's instructions. (Fig. 5)

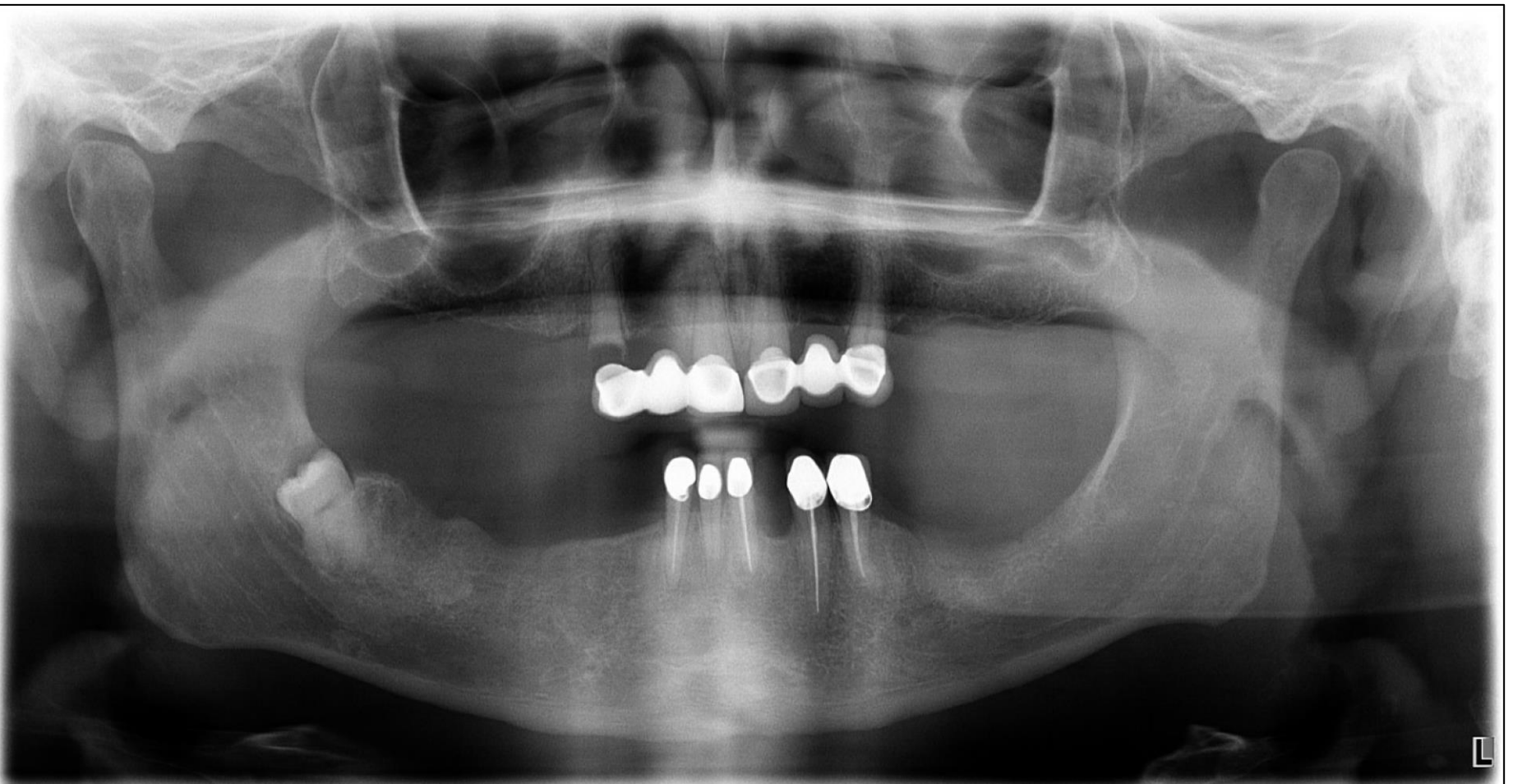


Fig. 1: Initial Panoramic Radiograph



Fig. 2: Conventional Crown and Bridge Wax Up (A); Merged to Digital Tooth Set Up for Immediate Denture (B)



Fig. 3: Designed Digital Denture and Overlay Design on the Interim Mandibular RPD



Fig. 4: 3D-Printed Maxillary Complete Denture and Mandibular Arch with Merged Overlay Designs.



Fig. 5: ESF Was Used to Add PMMA to the Existing Interim RPD (A); Finalized Interim RPD and Complete Denture (B)



Fig. 6: Dual scan for Implant Planning Using Interim Complete Denture and RPD

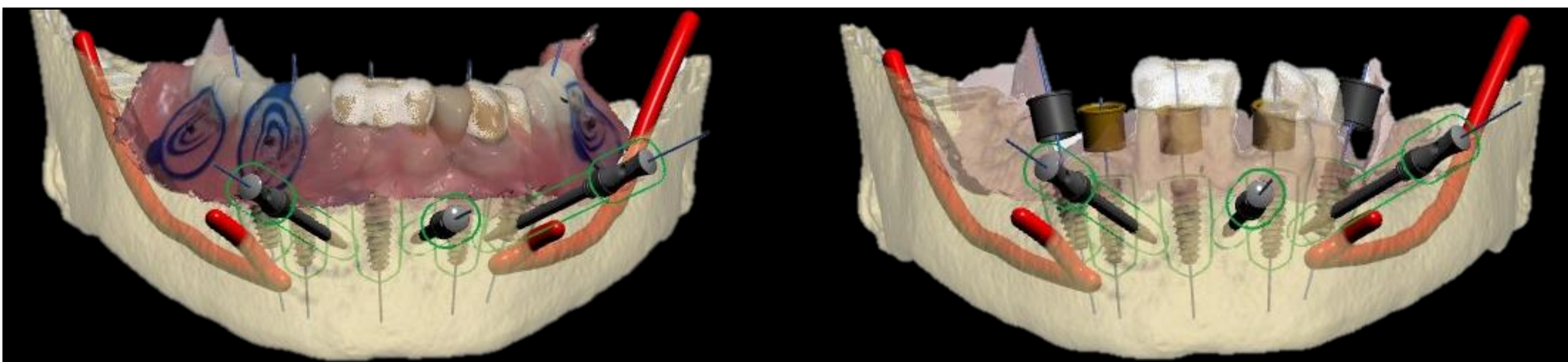


Fig. 7: Digital Planning for Mandibular Implant Placement

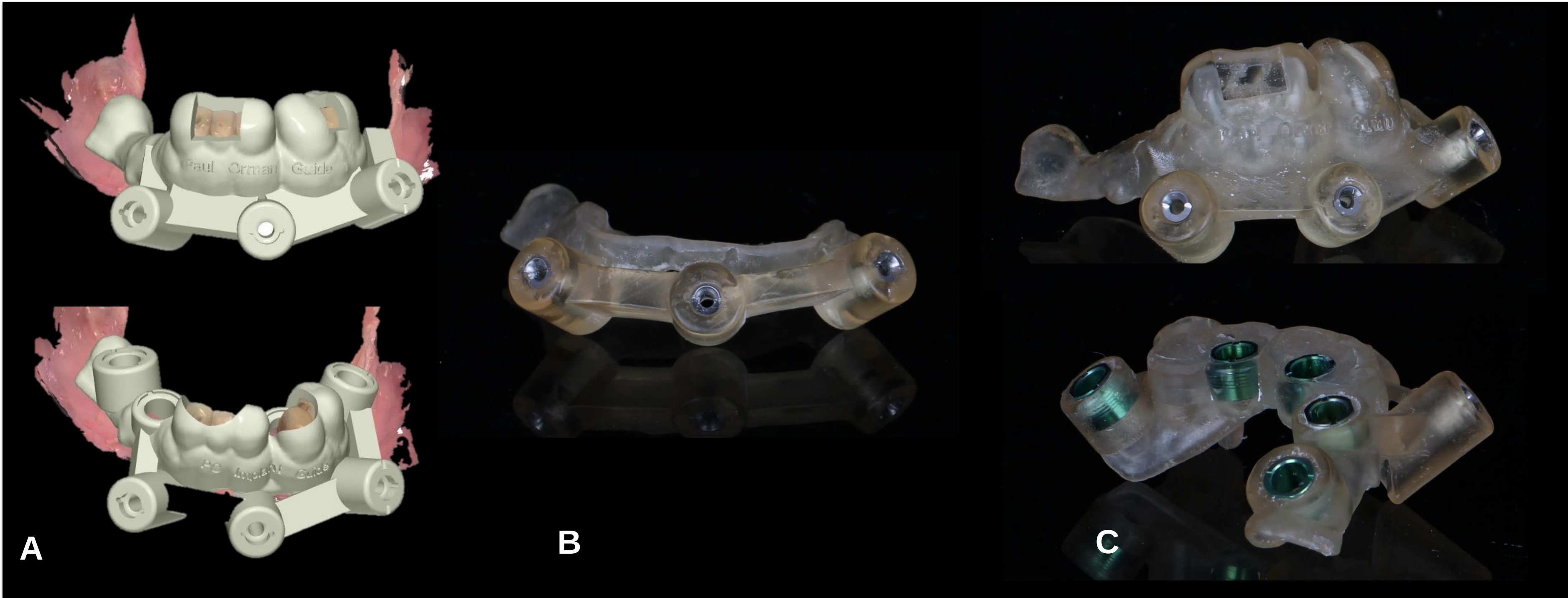
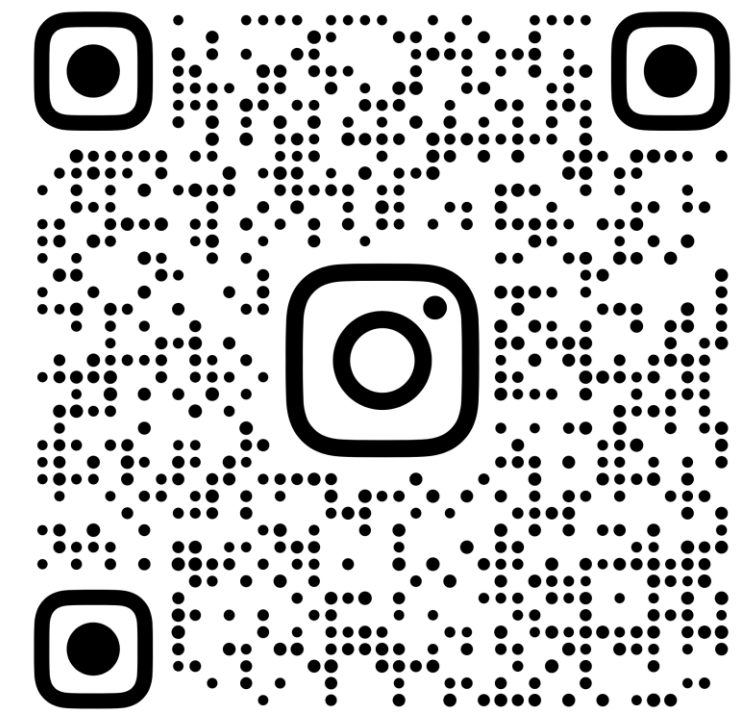


Fig. 9: Surgical Guide Designs (A); 3D-Printed Bone Reduction Guide (B); 3D-Printed Surgical Guides

CONCLUSIONS

Combined digital and conventional workflows provide flexibility in providing treatment in the interim and definitive phases. Understanding both workflows allows the practitioner to use the appropriate workflow when they are applicable.



UABPROSTHODONTICS