



Using a hybrid approach in the fabrication of an overlay removable partial denture

Adriana Espinoza, DDS; Radi Masri, DDS, MS, PhD; William Wahle, DDS, MS; Jason Choi, CDT

University of Maryland, School of Dentistry

Introduction

This case report describes the use of a hybrid workflow combining conventional and digital techniques to fabricate an overlay removable partial denture (RPD). The patient presented with significant loss of vertical dimension of occlusion (OVD). The treatment aimed to re-assess and establish the correct OVD effectively.



Fig 1. Patient presentation with existing prosthesis

Case Presentation

A 70-year-old male presented with severe loss of OVD, and desired to preserve his natural dentition. An overlay RPD was the recommended treatment, requiring a full set of teeth to overlay the metal framework. Conventional steps included tooth preparations and impression making.

A printed framework was used to prototype the desired thickness of the framework to confirm OVD and sufficient space for the prosthesis. Jaw relation records were obtained followed by tooth try-in to evaluate the restorative space and occlusion. Teeth were re-positioned on the fabricated metal framework, and the RPD was conventionally processed.

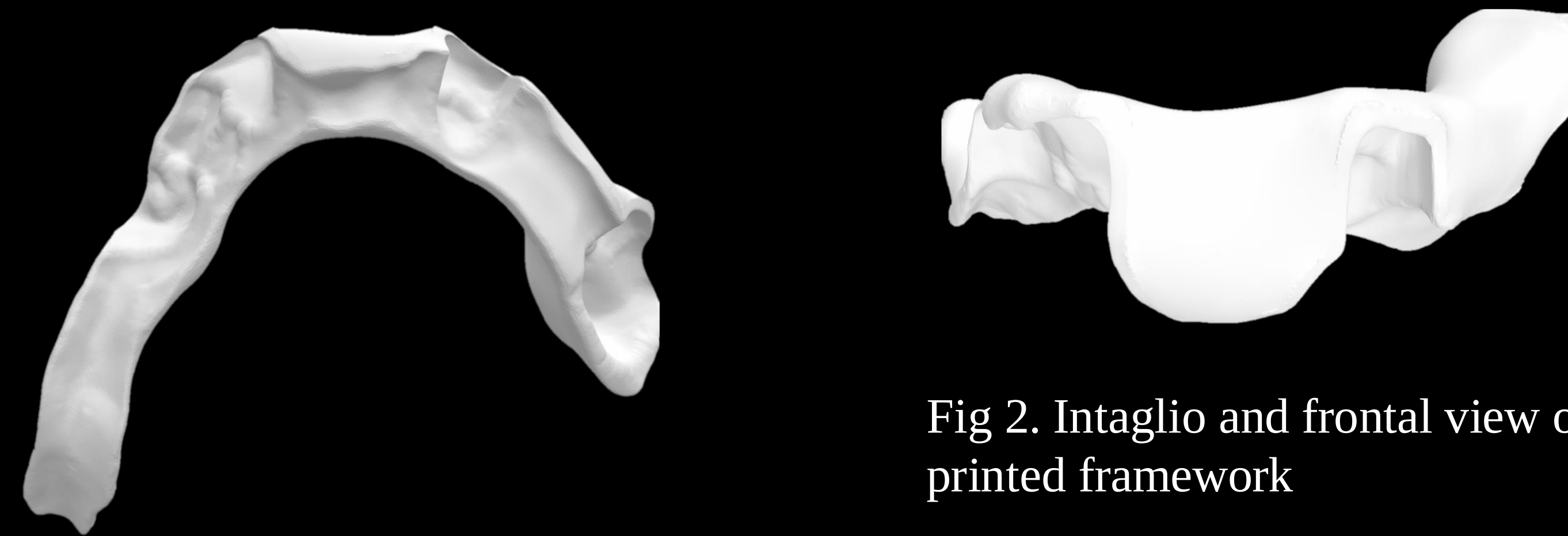


Fig 2. Intaglio and frontal view of printed framework

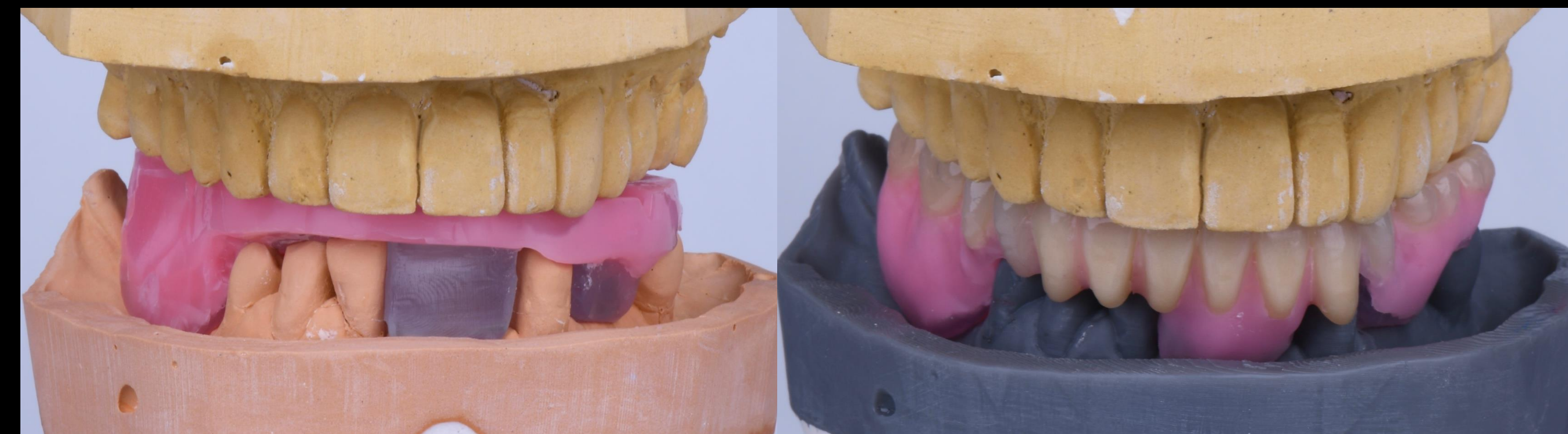


Fig 3. Jaw records and tooth set up with printed tray



Fig 4. Final framework with and without tooth set up

Outcome/Follow-up

The lab-fabricated framework required no further adjustments after fabrication. Esthetics, restorative space, and occlusion were all confirmed with the printed tray before finalizing the prosthesis.



Fig 5. Patient with new prosthesis

Conclusions

The hybrid approach proved effective in the fabrication of the overlay RPD. It enhanced communication between the lab and clinician and improved efficiency in the framework fabrication process. The use of a printed tray allowed for precise adjustment of material thickness and restorative space and enabled the patient to approve the design and esthetics before final production.

References

