



# Digital Workflow for Fabrication of Complete Denture in a Young Patient with Ectodermal Dysplasia: Case Presentation.



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## Purpose:

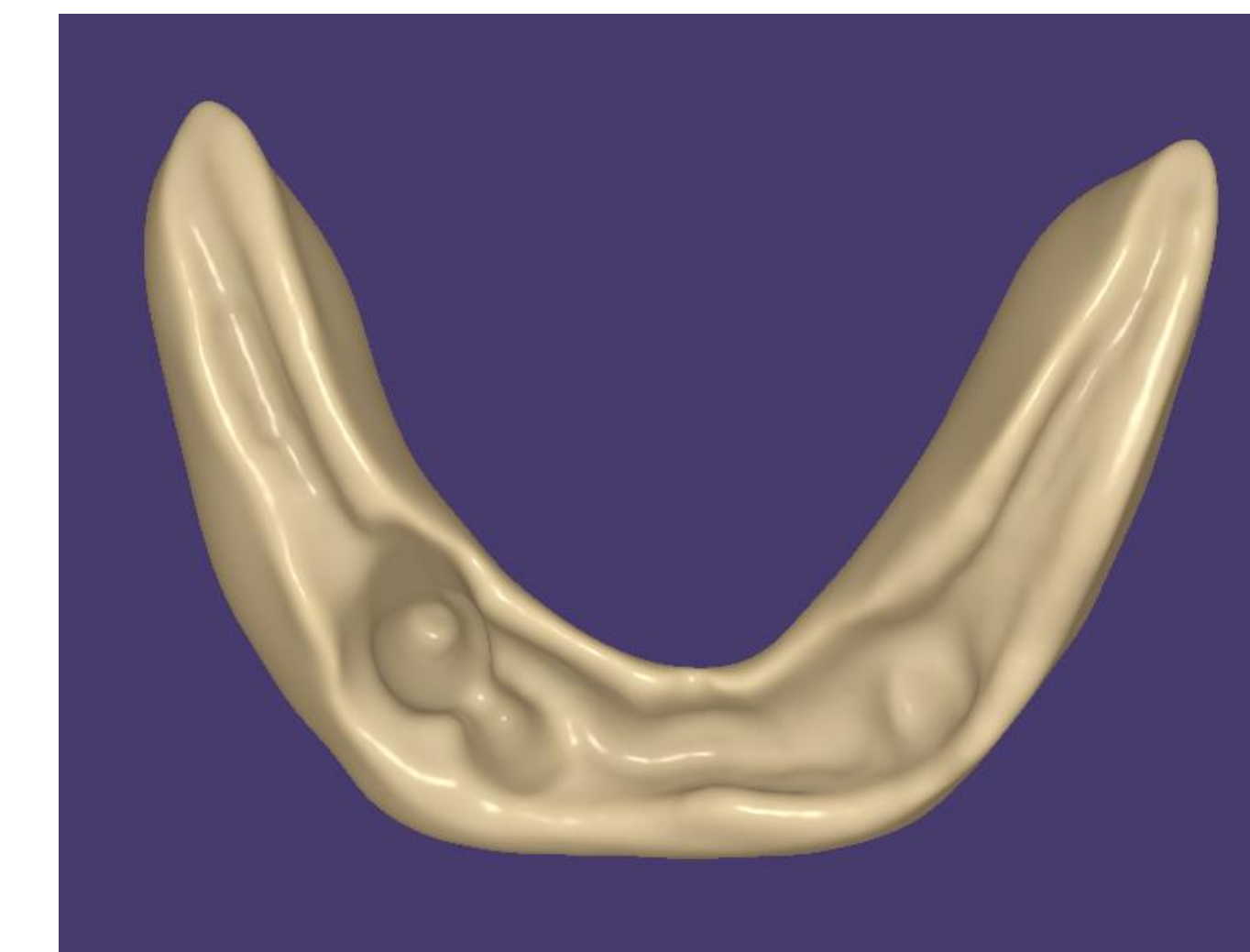
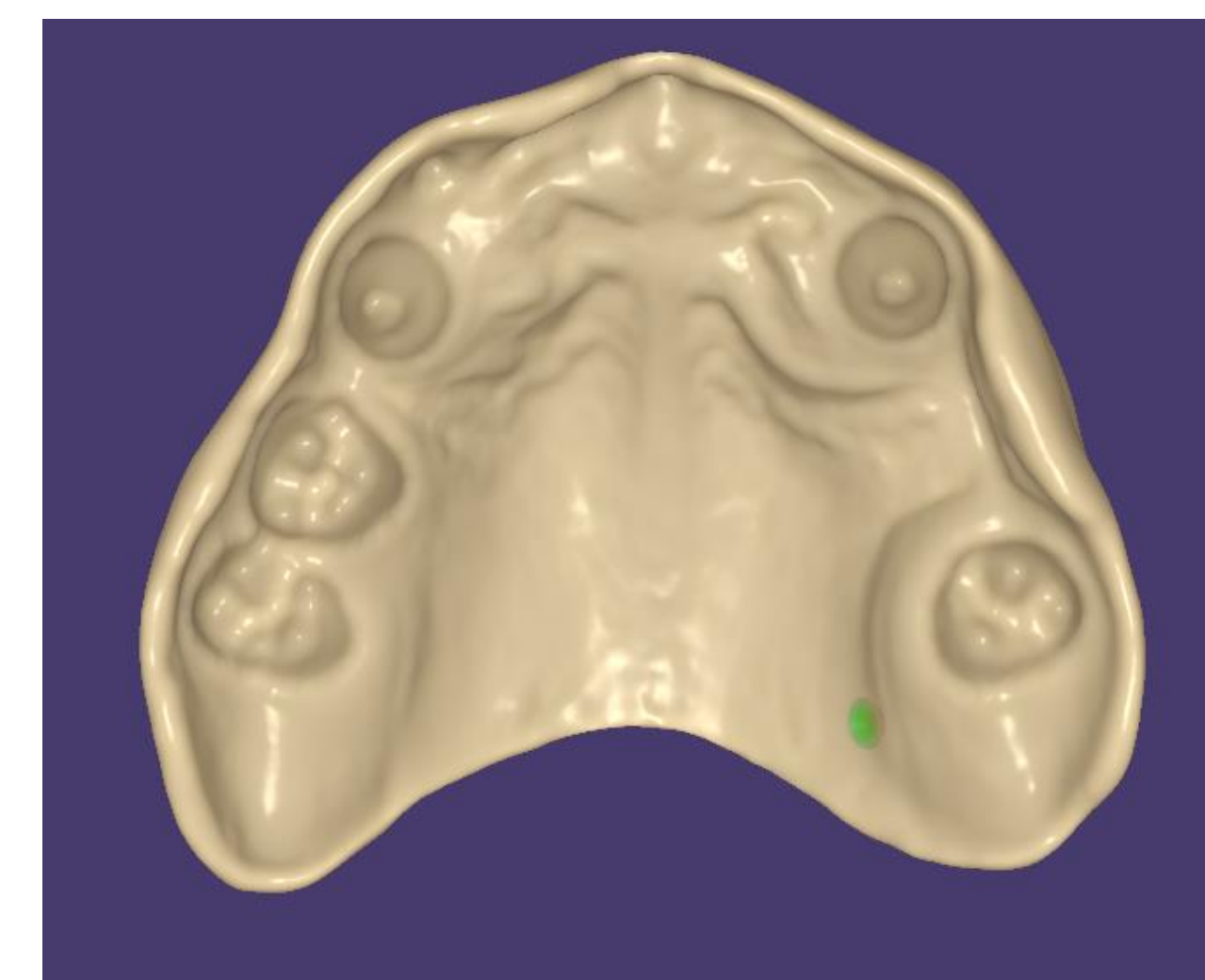
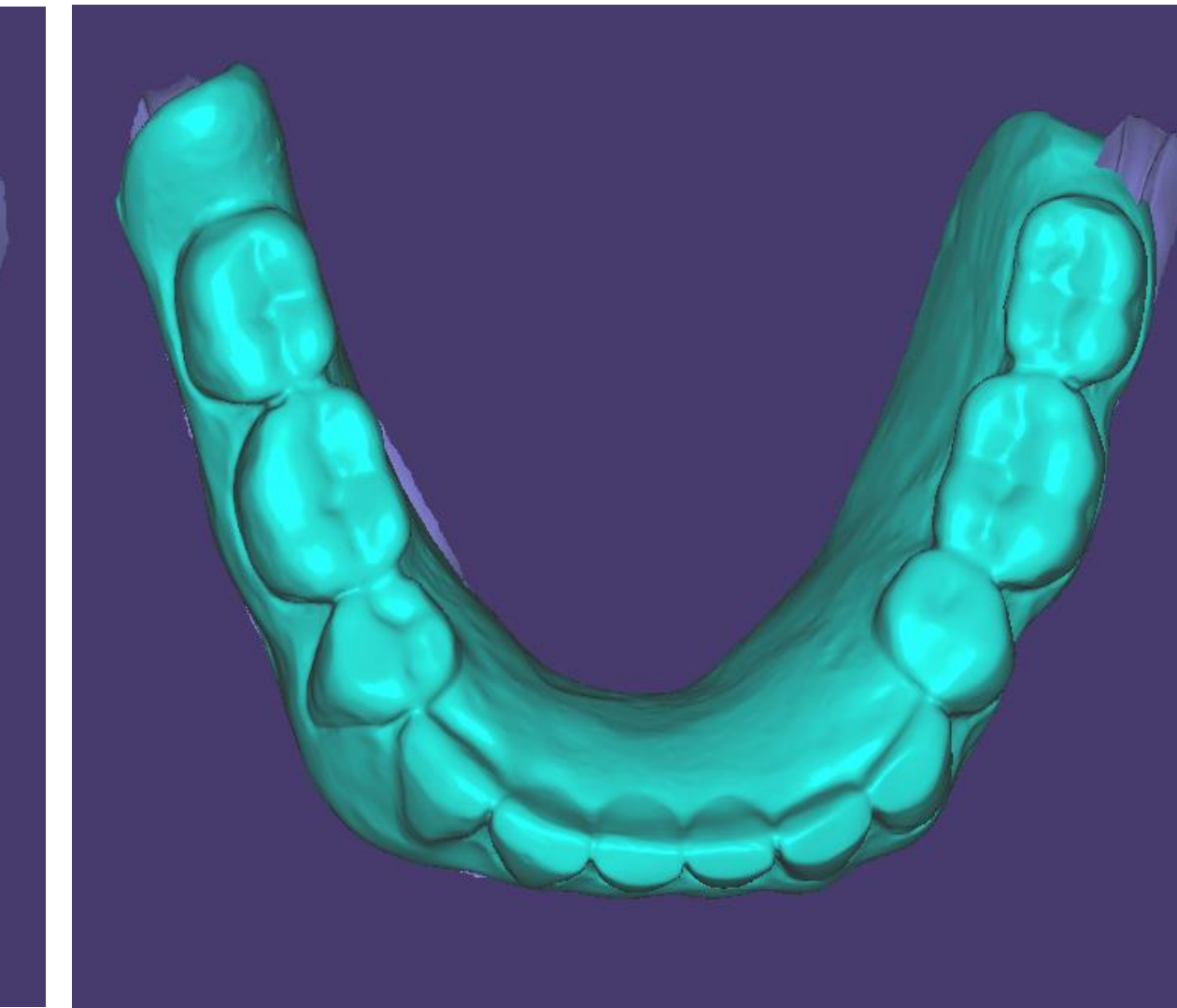
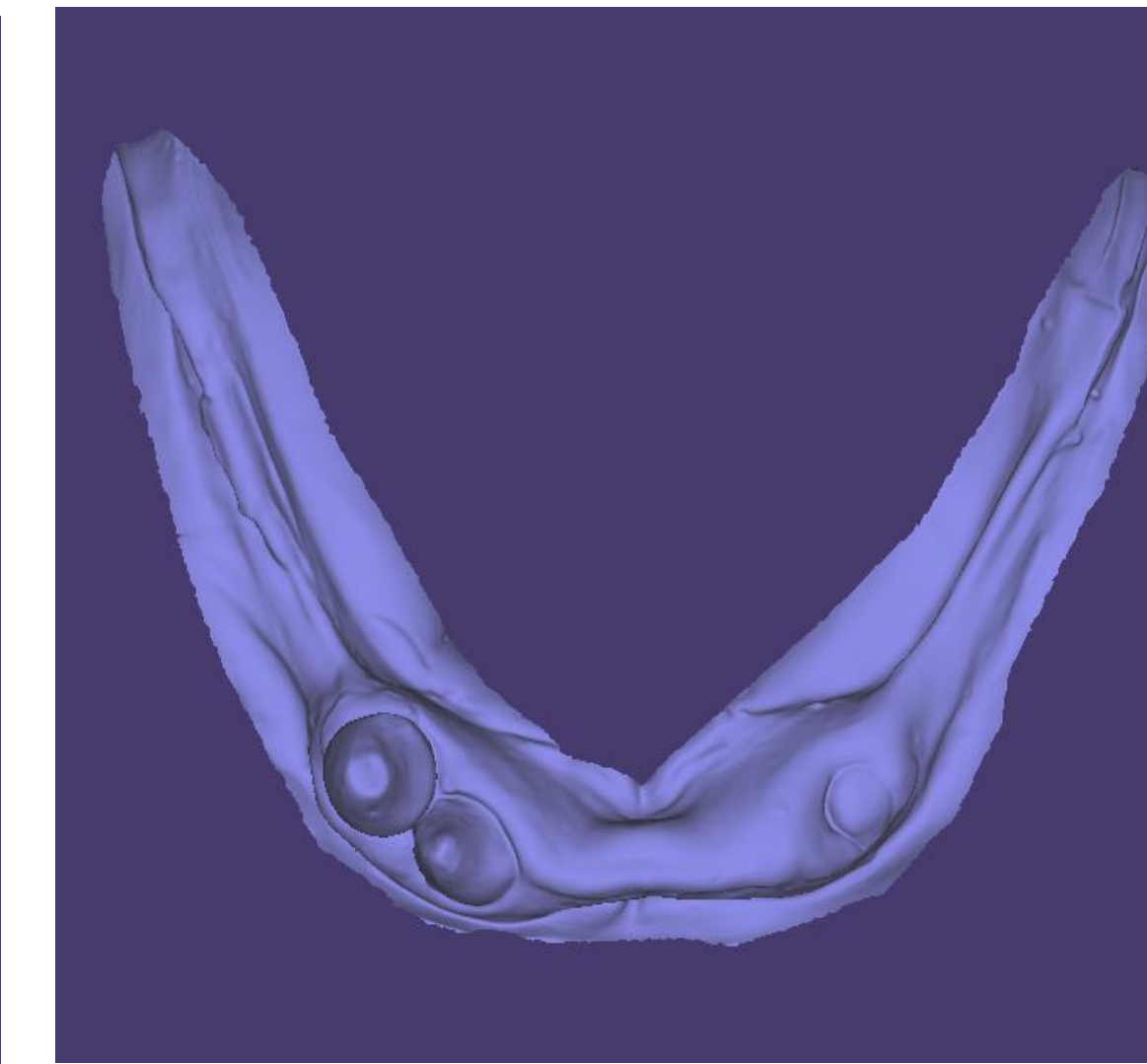
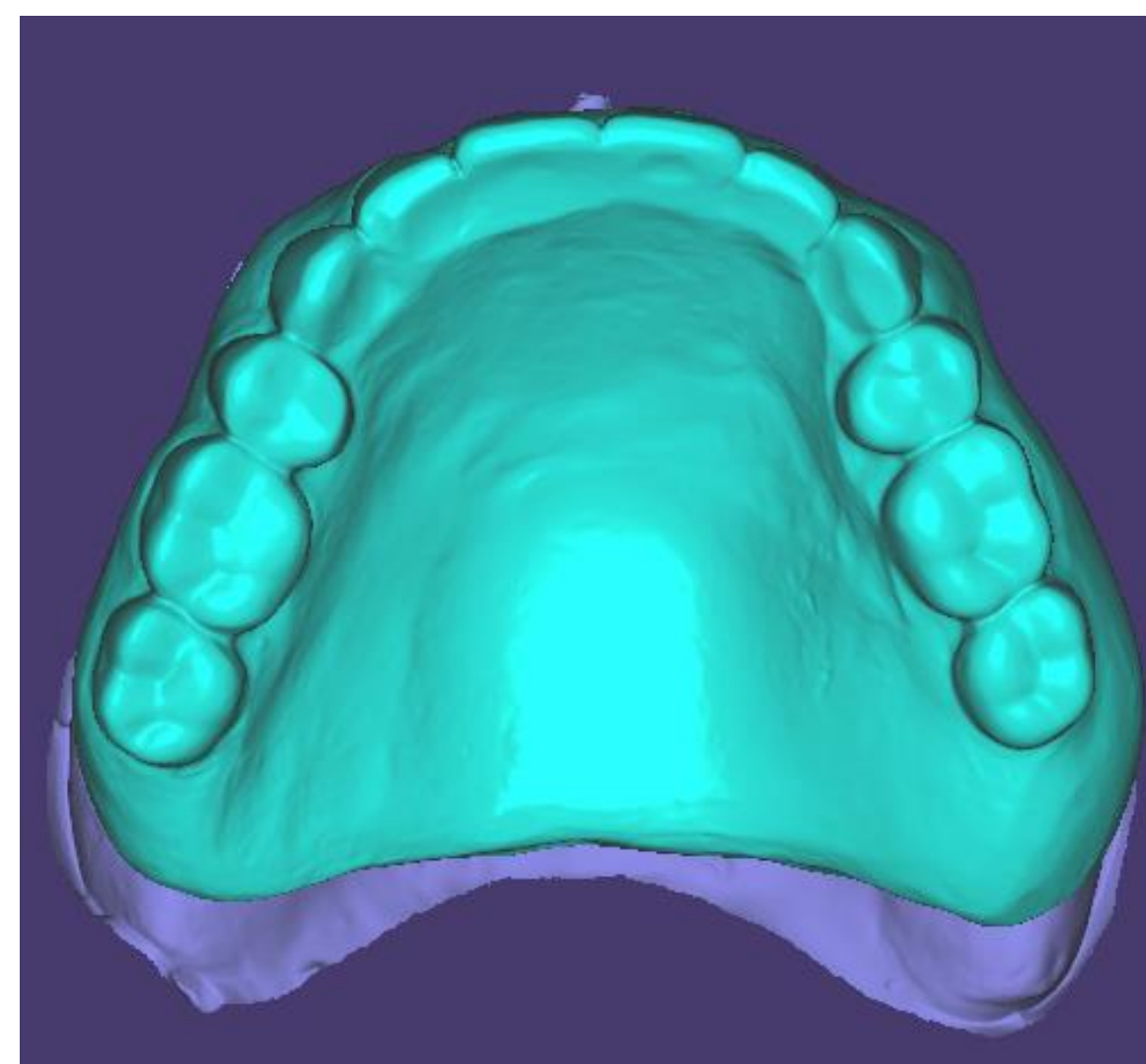
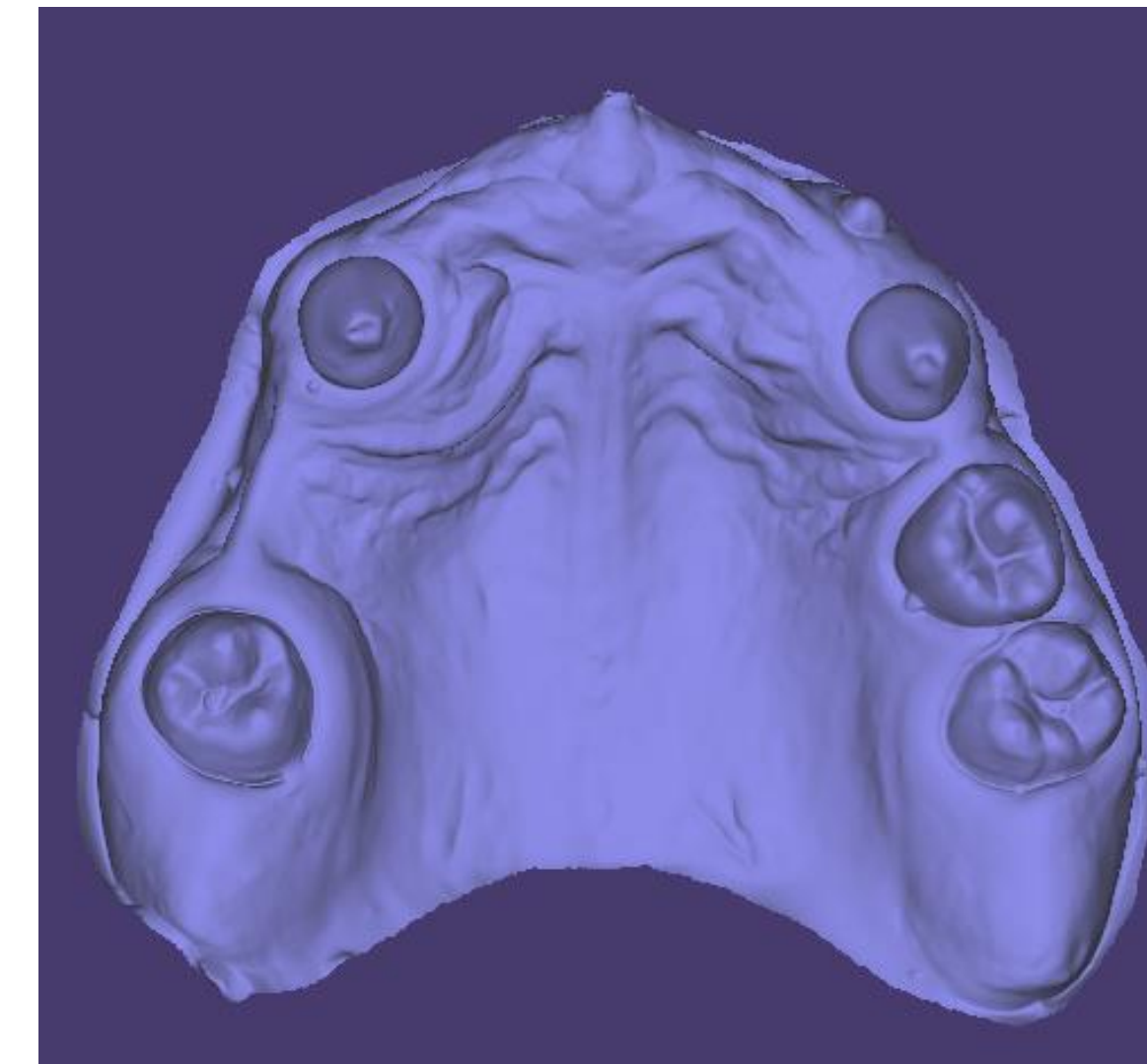
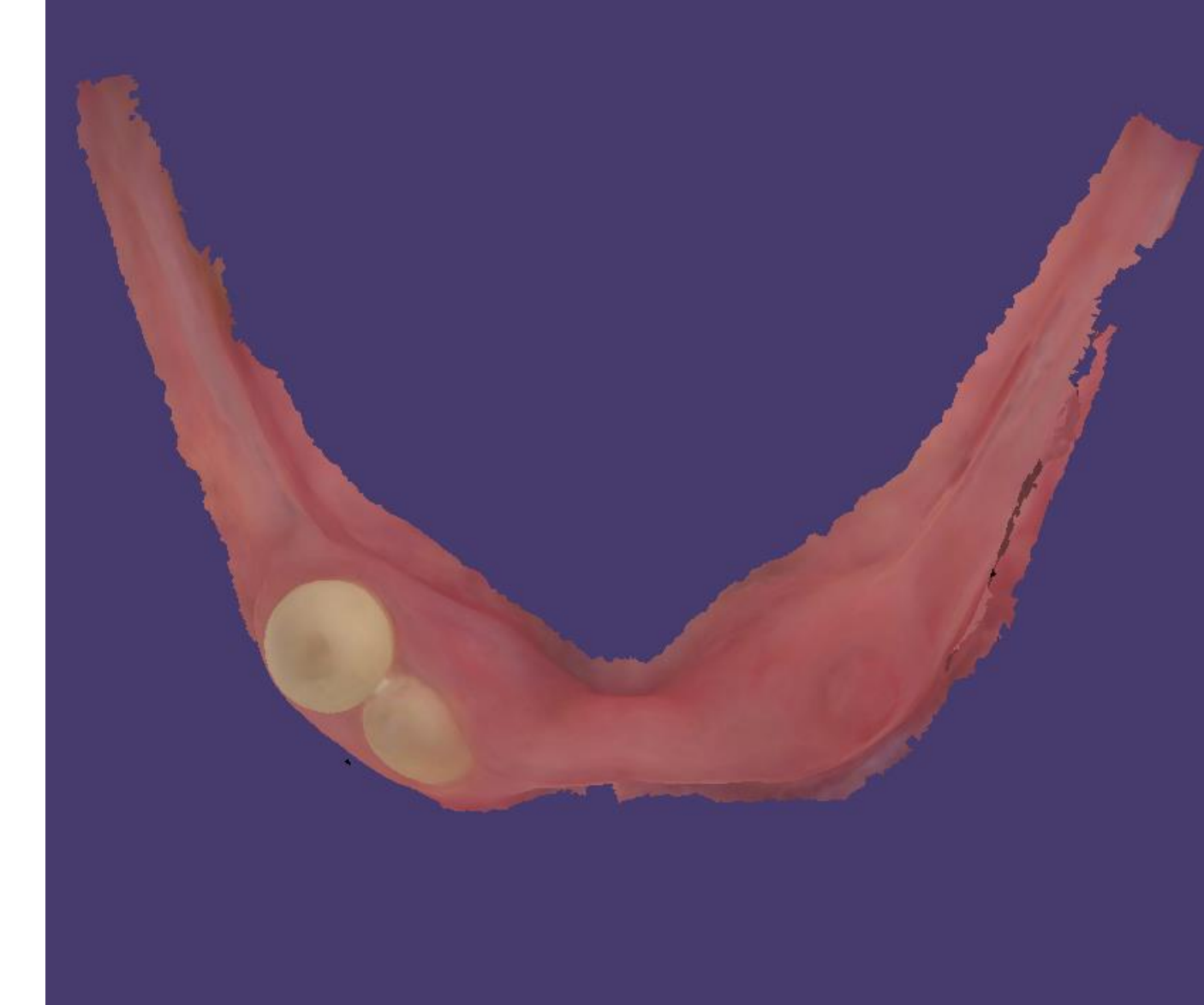
Describe a workflow for the fabrication of an interim complete denture for an Ectodermal Dysplasia patient.

## Introduction:

- A 12-year-old male patient presented to the Advanced Prosthodontic Clinic at the Ohio State University needing a new complete denture.
- The patient was diagnosed with Ectodermal Dysplasia, an inherited disorder impacting the development of ectodermal-derived structure.
- An intraoral evaluation revealed teeth #3, 6, 11, 14, 15, 27, R.
- A complete maxillary and mandibular denture. Made when he was 9-years-old.
- After detailed assessment of patient's medical history and dental condition, a comprehensive treatment was planned with maxillary and mandibular complete denture.

## Methodology:

- A diagnostic maxillary and mandibular intraoral scan was taken for the design of new complete denture.
- Complete maxillary and mandibular denture scan was taken with the intaglio and the occlusal surface of existing patient's complete denture.
- CAD software was used to align the intraoral scan to the denture intaglio scan using teeth as reference.
- Denture's intaglio surface was closely aligned to the intraoral scan to create a new denture base was created by keeping the same occlusal surface.
- The denture was then printed with a modified intaglio surface for a new final impression.



## Methodology:

- Final impression was taken for both maxillary and mandibular arch using light and heavy PVS material. Bite record was taken keeping the same vertical dimension but with a new centric relation.
- The denture was scanned with the new final impression and the occlusal surface for both maxillary and mandibular with the new bite record.
- The scans were then imported to the CAD software to design a new interim complete denture.
- A new denture was then designed, 3D printed, relined with a soft reline intraorally and delivered.

## Result :

- The modified printed denture was used to fabricate a new interim complete denture for the patient in two steps.

## Conclusions:

- Predictable results for a growing patient that may need multiple prostheses
- Digital technology like scanning and printing can lead to a much faster and predictable results.
- 3D printed dentures can be made in two or three clinical visits for the patient.

## References:

- Wagner, S. A., & Kreyer, R. (2021). Digitally Fabricated Removable Complete Denture Clinical Workflows using Additive Manufacturing Techniques. *Journal of prosthodontics : official journal of the American College of Prosthodontists*, 30(S2), 133–138. <https://doi.org/10.1111/jopr.13318>
- Hekmatfar, S., Jafari, K., Meshki, R., & Badakhsh, S. (2012). Dental management of ectodermal dysplasia: two clinical case reports. *Journal of dental research, dental clinics, dental prospects*, 6(3), 108–112. <https://doi.org/10.5681/joddd.2012.023>