



Accuracy of Denture Base Adaptation on CAD-CAM Obturator Prosthesis

Amal S. Alfaraj, BDS. John A. Levon, DDS, MS, FACP. Dean Morton, BDS, MS, FACP, Wei-Shao Lin, DDS,FACP
Indiana University, School of Dentistry

ABSTRACT

Purpose: The purpose of this report is to investigate accuracy of intaglio fit of conventional and CAD-CAM obturator prosthesis.

Methods: A master cast with a palatal defect was used for the purpose of this report. 4 stone study casts were duplicated from the master cast and each one was randomly assigned to a denture processing method. CAD-CAM group was fabricated each from a separate scan of the stone study cast and the same master cast digital design was applied. For the conventional group, the same process was repeated but was milled in wax and readapted to the corresponding study casts and processed accordingly to corresponding processing technique. Dimensional variances among virtual study casts and the intaglio surfaces of resulting obturator prostheses was computed, and the mean deviation root mean square (RMS, measured in mm) was used to estimate the consistency of 2 superimposed STL files.

Results & Conclusion: There is an apparent difference between different techniques and although results reflects that CAD-CAM techniques were promising in terms of accuracy and reproducibility however, further investigation especially in terms of sample size is needed to have more definitive results.

METHODS



Master Cast



Waxed up denture



Milled



Printed



Milled waxed denture



Compression

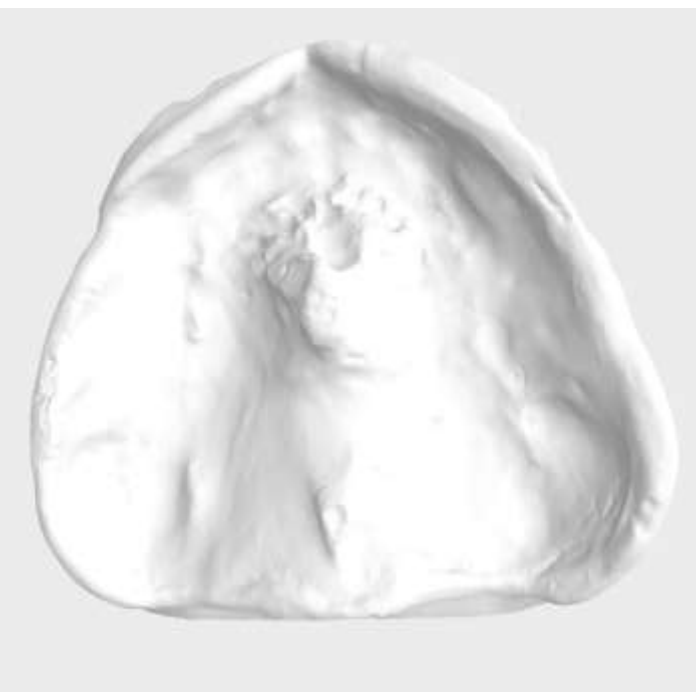


Injection mold

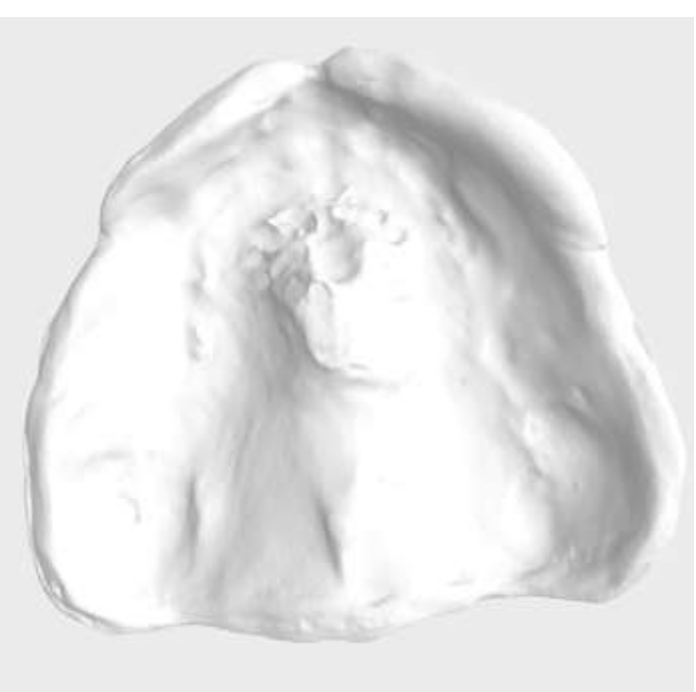
Scanned Master Cast and dentures



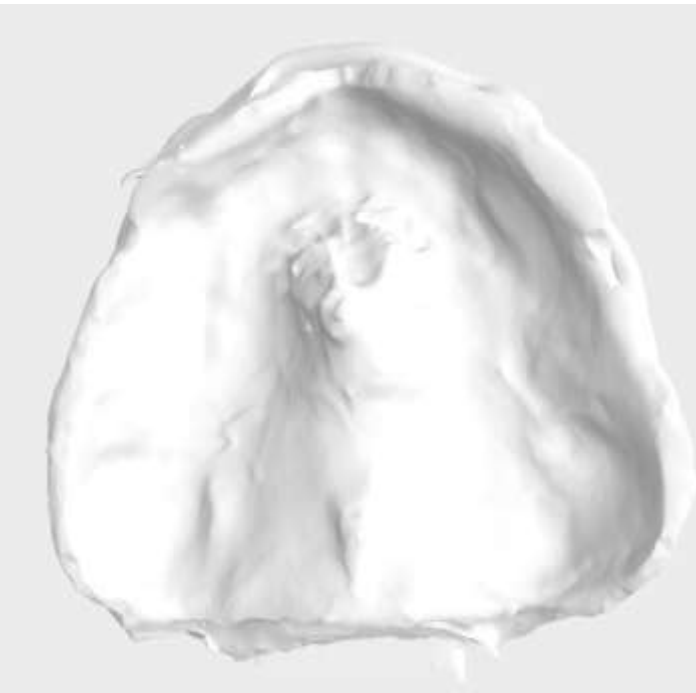
Master Cast



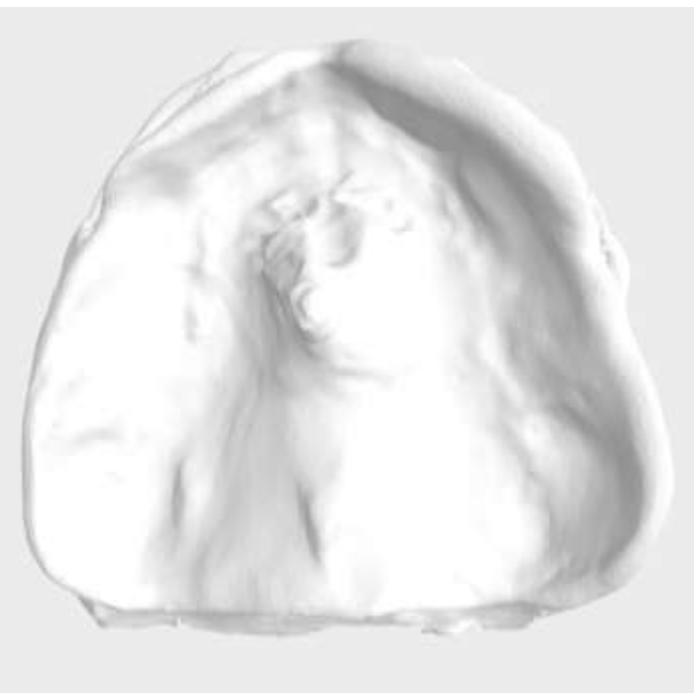
Compression



Injection mold



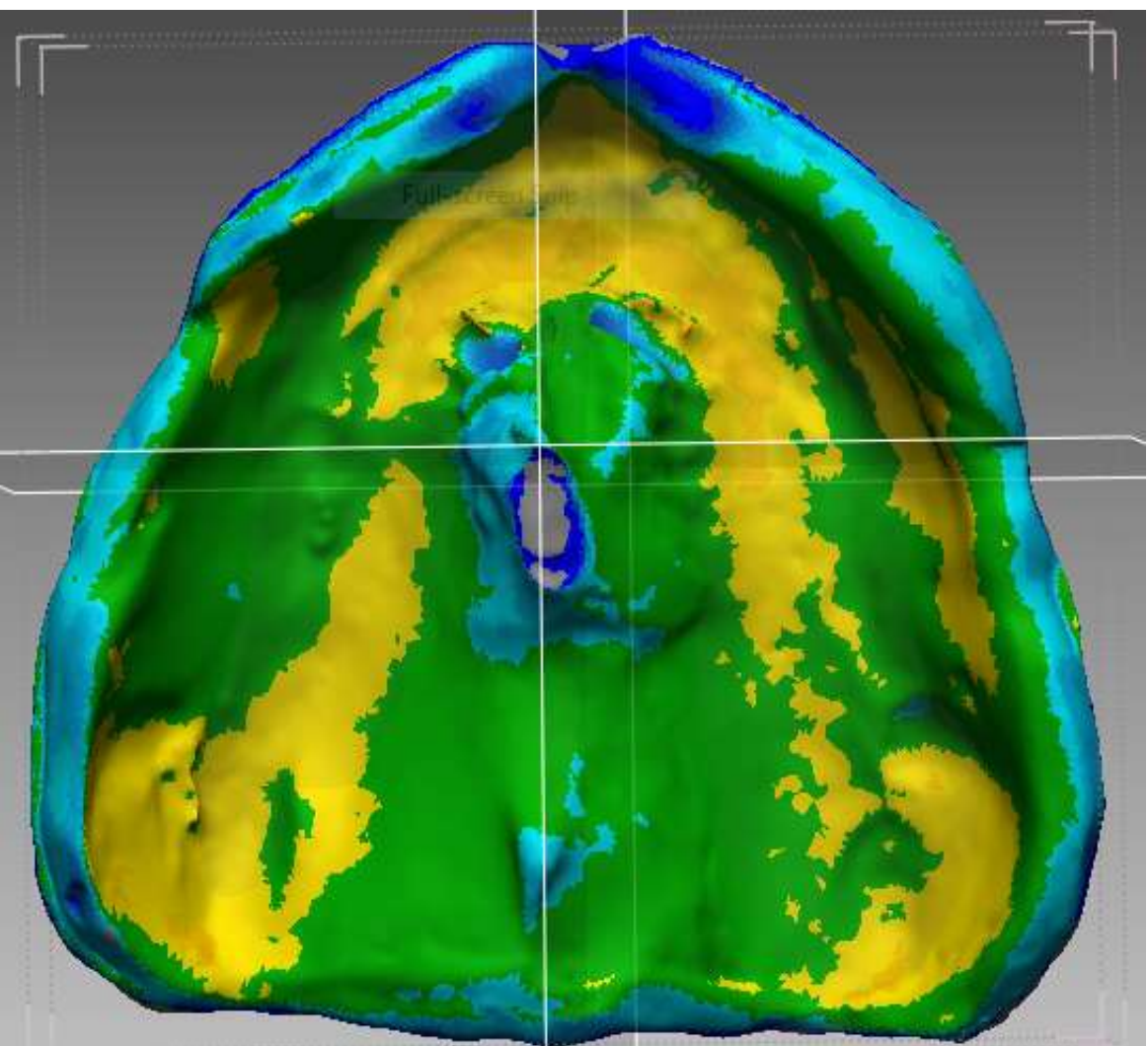
Milled



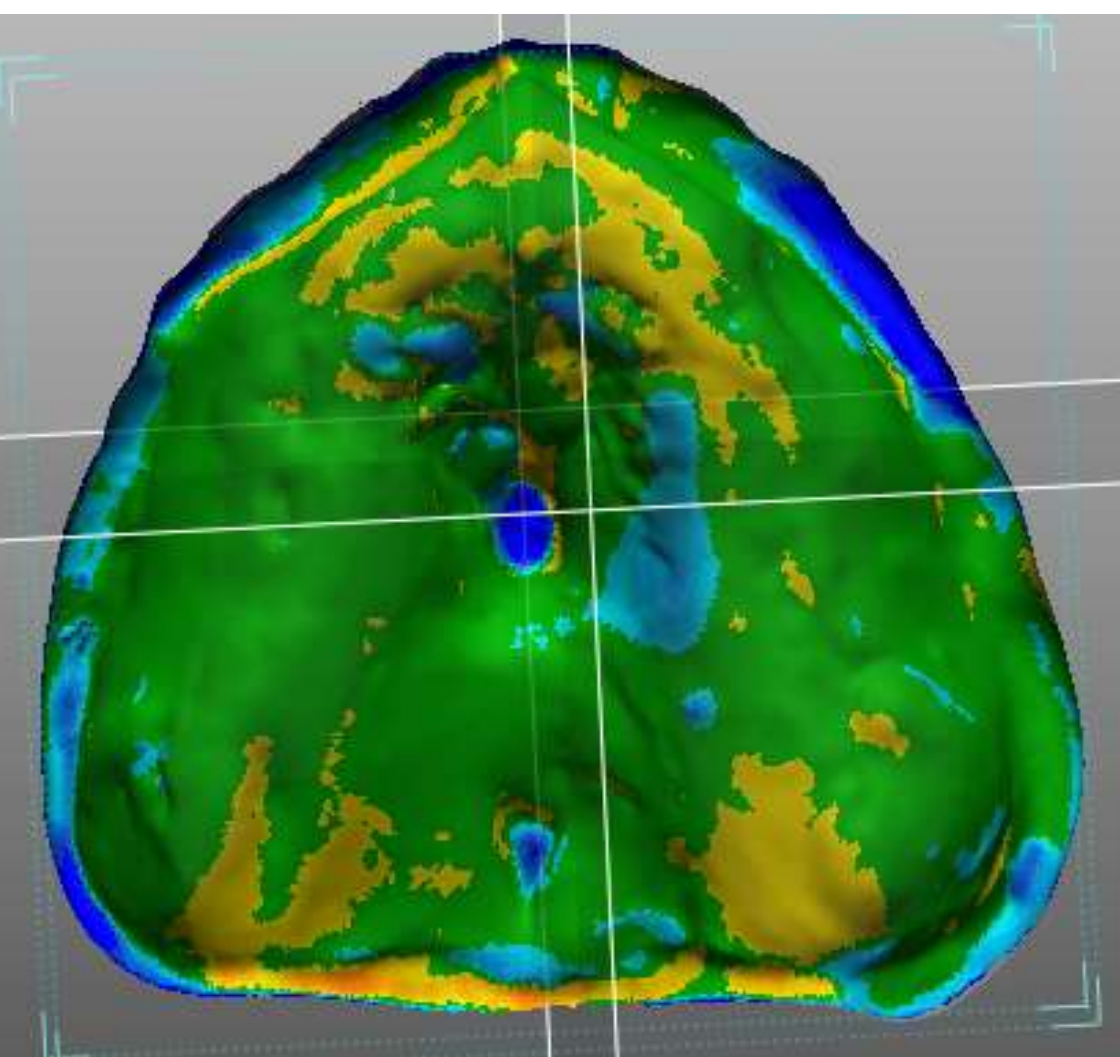
Printed

Results

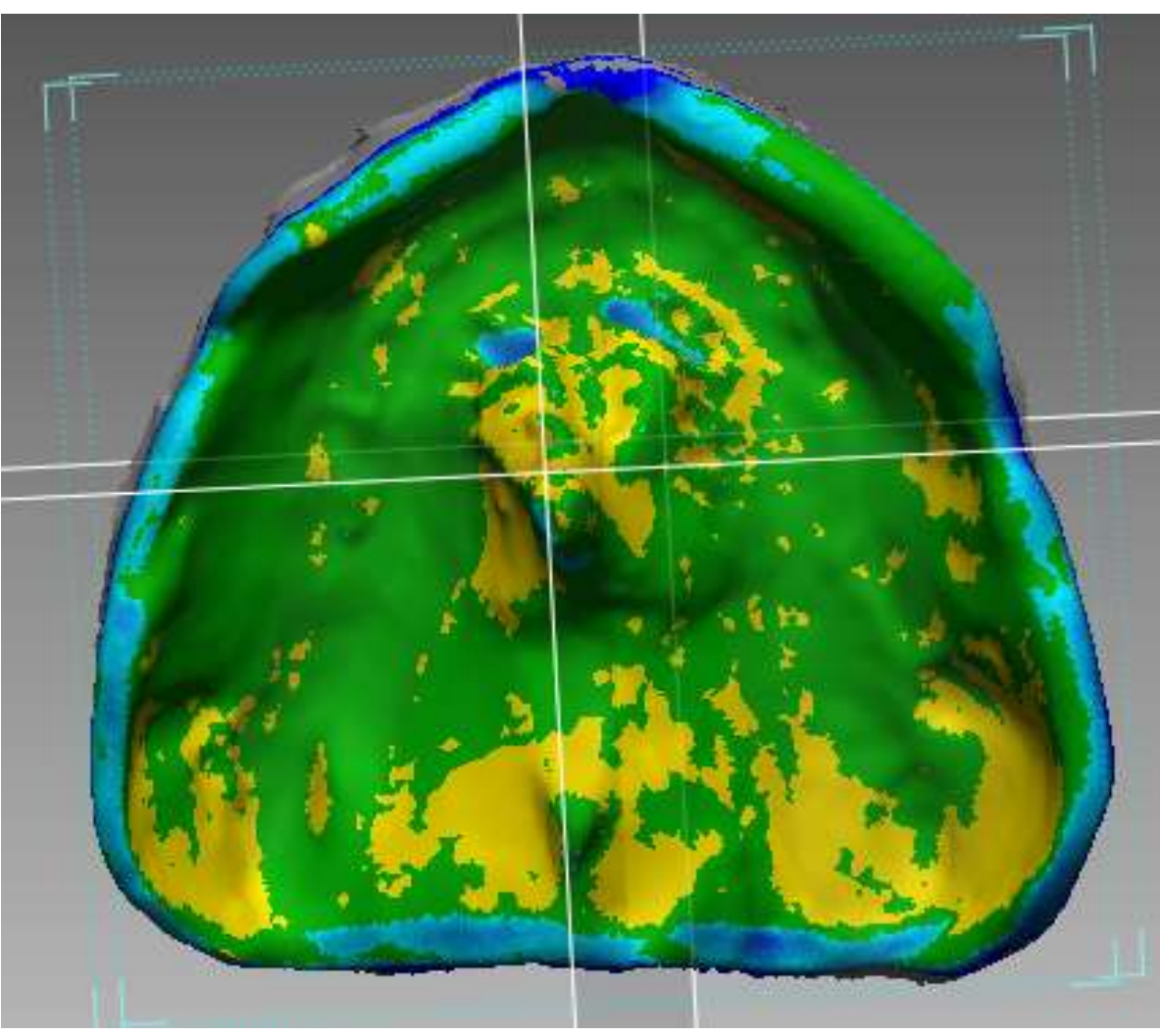
Geomagic design X: Mesh deviation



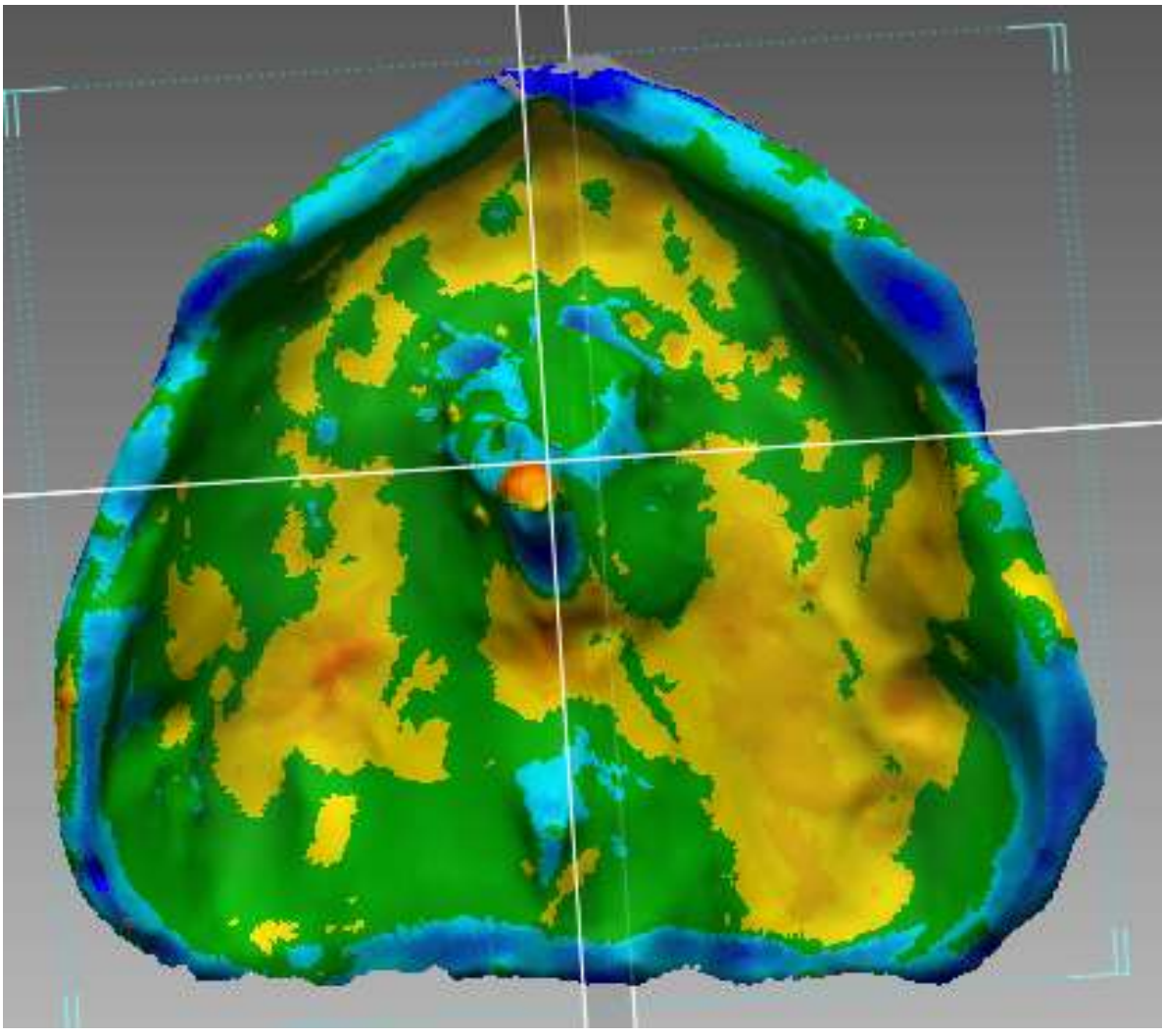
Compression



Injection mold



Milling



Printing

Processing technique	RMS
Compression	1.1003 mm
Injection mold	0.86.6 mm
Milling	1.1263 mm
Printing	0.3491 mm

REFERENCES

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