

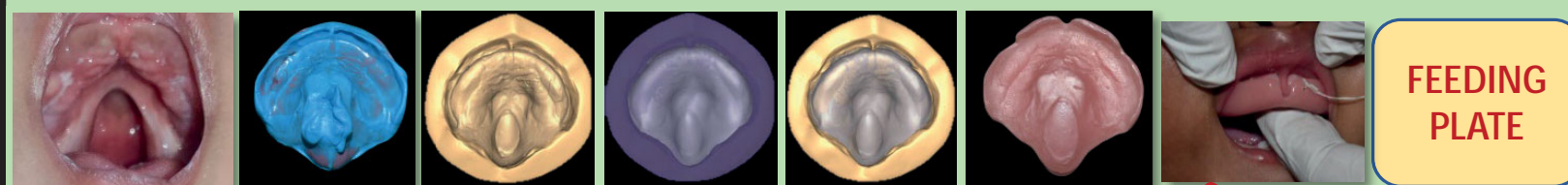
# APPLICATIONS OF 3D PRINTING IN PROSTHODONTICS

Manu Rathee<sup>1</sup>, Prachi Jain<sup>2</sup>, Sujata Chahal<sup>3</sup>, Sandeep Singh<sup>3</sup>, S Divakar<sup>3</sup>, Sarthak Singh Tomar<sup>3</sup>

<sup>1</sup> Senior Professor and Head, <sup>2</sup>Senior Resident, <sup>3</sup> Post Graduate Student,

<sup>1</sup>Department of Prosthodontics, Post Graduate Institute of Dental Sciences, Rohtak, Haryana, India

**Introduction:** Three-dimensional (3D) printing technologies are advanced manufacturing technologies based on computer-aided design digital models to create 3D objects. In 3D printing, objects are fabricated by adding material layer-by-layer, to form a 3D volumetric structure. It comprises data acquisition through various scanning technologies followed by data processing and designing the model with a computer-aided design (CAD) software. The resulting STL file is imported into the printer software and the variables and parameters are specified to generate the information needed to run the 3D printer. Finally, the processed data is used to manufacture structures with the chosen material through the CAM step.



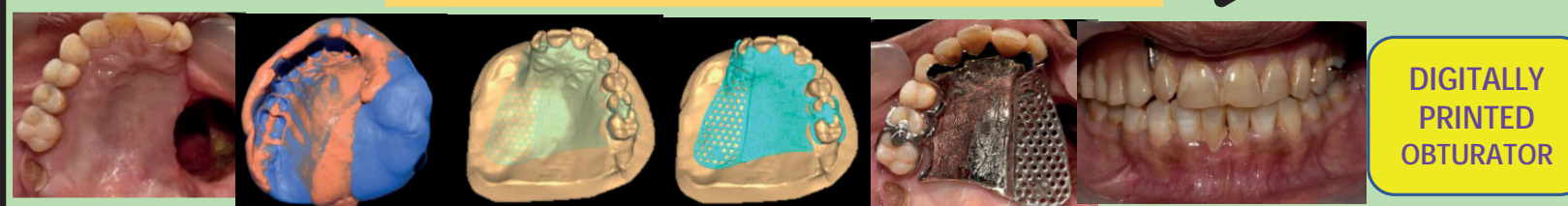
Designing a Feeding Plate for a Cleft Palate Patient

FEEDING  
PLATE



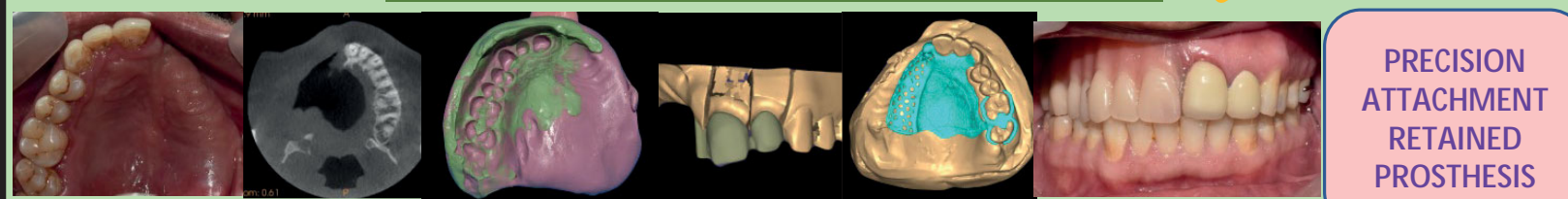
Conformer Fabricated Following Extraoral Scanning of Defect

ORBITAL  
CONFORMER



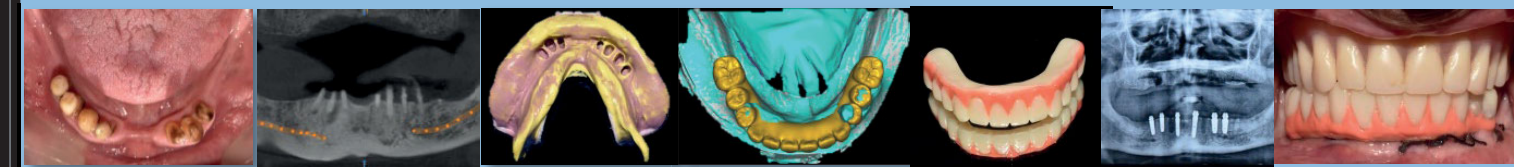
Designing a Metal Framework for Obturator

DIGITALLY  
PRINTED  
OBTURATOR

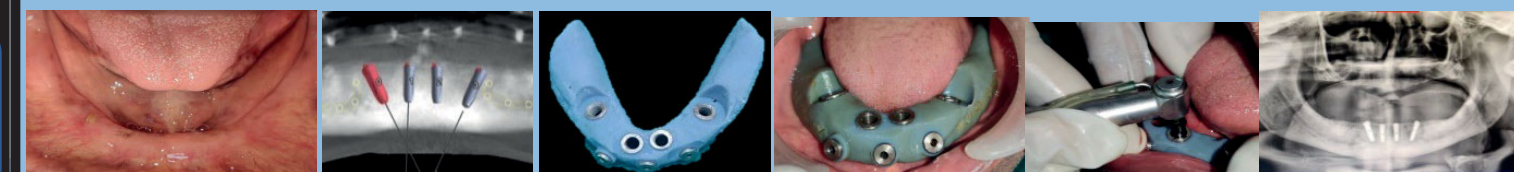


Designing a Precision Attachment Retained Prosthesis

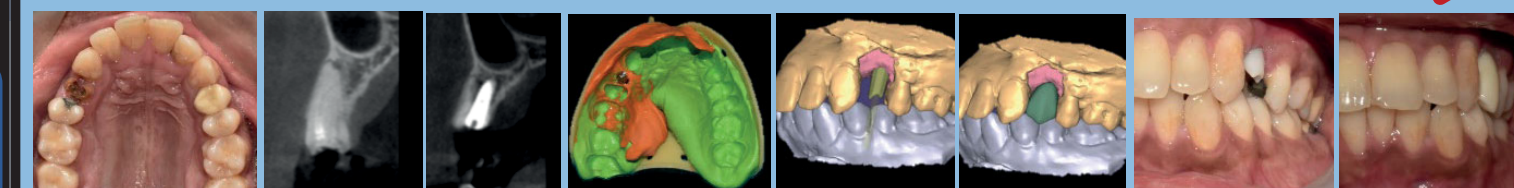
PRECISION  
ATTACHMENT  
RETAINED  
PROSTHESIS



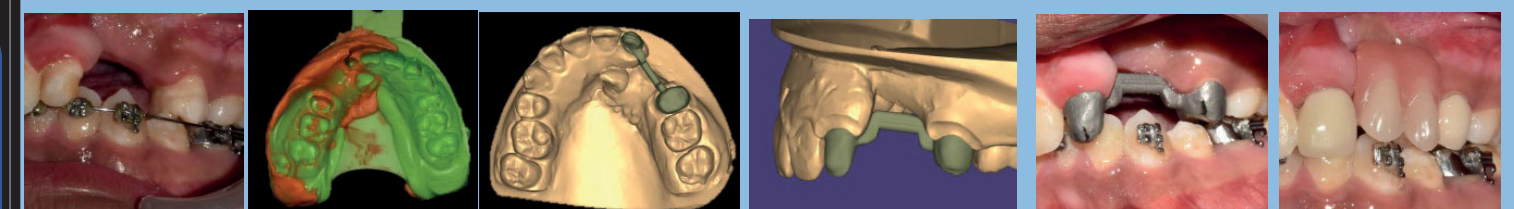
3D PRINTED PMMA DENTURE FOR IMMEDIATE LOADING



DESIGNING A SURGICAL GUIDE FOR IMPLANT RETAINED PROSTHESIS



DESIGNING A CUSTOMISED ZIRCONIA ABUTMENT FOR IMPLANT RETAINED PROSTHESIS



DESIGNING AN ANDREW'S BRIDGE PROSTHESIS

**Conclusion:** This digital approach has various advantages including recording anatomic details with better accuracy and precision, decreased manual errors, convenience, less laborious work and reduced wastage of dental materials.

**References:** Nestic D, Schaefer BM, Sun Y, Saulacic N, Sailer I. 3D Printing Approach in Dentistry: The Future for Personalized Oral Soft Tissue Regeneration. J Clin Med. 2020 Jul 15;9(7):2238.