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Photograph

Digital Workflow using advanced Dental Technology –Complete denture fabrication using 3D

Printing

Poster Presentation by -**Dr Aashritha Shenava**

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Aim:The aim of the poster is to highlight the 3D printing techniques used in fabrication of complete dentures

Methodology : The virtual planning process starts with an accurate capture of a patient's edentulous impressions using 3D intraoral scanners .¹In addition to the reduced chair time for patients, digital dentistry allows for the storage of electronic data, enabling technicians to precisely duplicate a denture in a matter of hours. Furthermore, variability in quality can be minimized .The scanned impressions are stored in STL format and a 3D printed model is prepared using Ackuretta 3D Printer with laser sintering with QuraBASE (methacrylate based photopolymerised resin) and with each layer printing thickness of 100 μ .The Denture base is cleansed with 95% ethyl alcohol ,the teeth are separately designed and light cured to the space in the denture base and finished .² A disadvantage of a fully digital approach is the lack of a wax try-in.

Conclusion : In relation to optical scanning, it is ideal to scan the master casts as the fabrication of the denture would be following the criteria of selective pressure technique . The 3D printed teeth showed adequate fracture resistance than conventional teeth forms.³

References:

- 1.Unkovskiy et al 'Intraoral scanning to fabricate complete dentures with functional borders: a proof-of-concept case report'. BMC Oral Health (2019) 19:46
- 2.Fang Qu, BDS,a Xue Du, BDS,b and Wei-Cai Liu, PhDC .3D-printed custom trays with a Gothic arch for centric relation recording and definitive impression making for complete dentures: A dental technique .Journal of Prosthetic Dentistry. Article in the Press
- 3.Chung YJ, Park JM, Kim TH, Ahn JS, Cha HS, Lee JH. "3D printing of resin material for denture artificial teeth: Chipping and indirect tensile fracture resistance. Materials. 2018 Oct;11(10):1798.