

# IMMEDIATE COMPLETE DENTURES AND IMPLANT DENTISTRY USING THE DECORONATION TECHNIQUE

ALEXANDAR SAŠA DRAGOVIĆ, UNDERGRADUATE STUDENT, SCHOOL OF DENTISTRY, EUROPEAN UNIVERSITY OF CYPRUS  
DR. CHARALAMBOS GEORGIU, SCIENTIFIC COLLABORATOR IN PROSTHODONTICS, EUROPEAN UNIVERSITY OF CYPRUS

## ABSTRACT

Dentists often need to find a solution when extracting all the teeth of a patient due to poor prognosis or for other prosthetic reasons. An Immediate Complete Denture (ICD) is a possible interim solution which can be used to replace the missing teeth and reform the lost function and aesthetics. By using the decoronation technique, the ICD used to replace the missing teeth is used as a surgical stent which is later on used as a guide for future implant placement. This saves crucial healing time for the patient for the final delivery of the fixed or removable prosthesis. This poster will present the clinical steps, revealing the advantages and disadvantages and presenting the benefits of combining it with Implant dentistry.

## INTRODUCTION

The decision to extract the patients' teeth comes with many great challenges: One being aesthetics and the other being function. The dental practitioner must find an interim solution after the extraction of the teeth until the final implant prostheses is delivered. One way by doing so is by fabricating an immediate complete denture (ICD) and using the decoronation technique to allow direct application of a dental implant upon extraction.

An Immediate Complete Denture (ICD) is a denture that is delivered immediately after the extraction of the teeth. By using the decoronation technique, the extraction of the teeth is done after the delivery of the ICD by cutting the crown of the teeth to the gingival height. The ICD combined with the decoronation technique, acts as a temporary solution for the patient, which provides the function and aesthetics the patient needs in this critical phase during their dental transition. By using the decoronation technique, the crowns of the remaining teeth are cut to the gingival height and left for a certain period to allow time for future implant placement. The ICD acts as a "surgical stent" which is later scanned by CAD/CAM technology and processed through CBCT imaging to detect the original size of the root to approximate the depth of the implant. This provides clinical benefits such as maintenance of soft tissue, bone volume in both vertical and horizontal levels, and no blood loss upon extraction. This creates an ideal position for the future implant as it adapts to the patient's natural pocket position, abolishing further bone and tissue loss. However, by implementing the decoronation technique, disadvantages such as the need for a surgical template and poor oral hygiene are evident.

# CLINICAL STEPS

## FABRICATING THE ICD AND INSERTING THE ICD

1. Preliminary impression
2. Custom Tray
3. Border Moulding & Interocclusal records (Jaw Relationship Registration)
4. Tooth set-up (artificial tooth arrangement)

### 5. Decoronation

- Cutting the crowns of the teeth to the gingival height and immediately with markers (e.g. flowable composite)

### 6. Insertion of the ICD

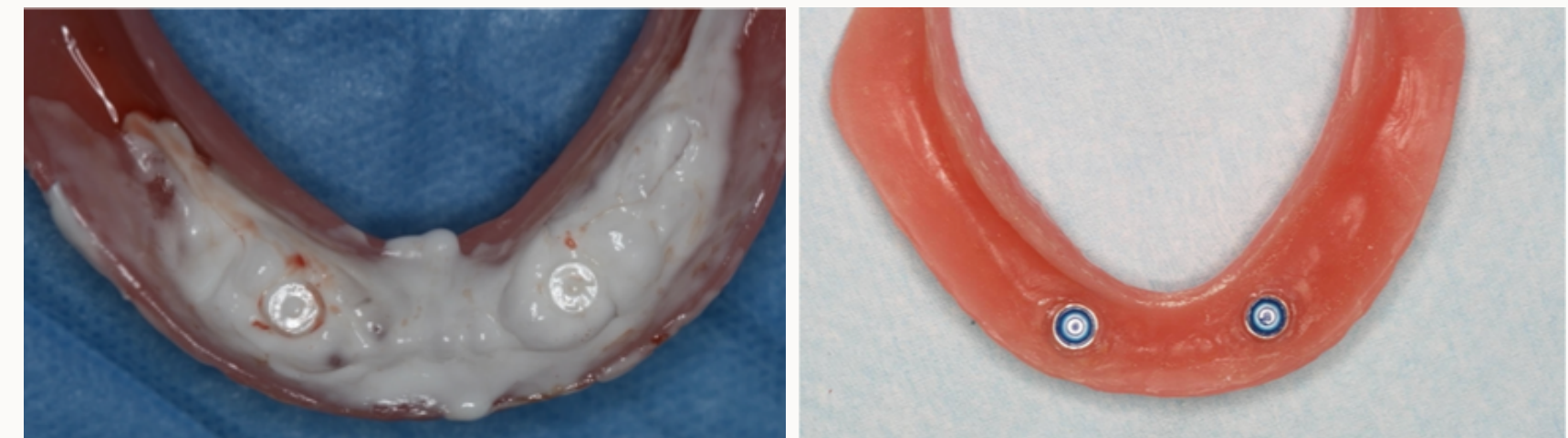
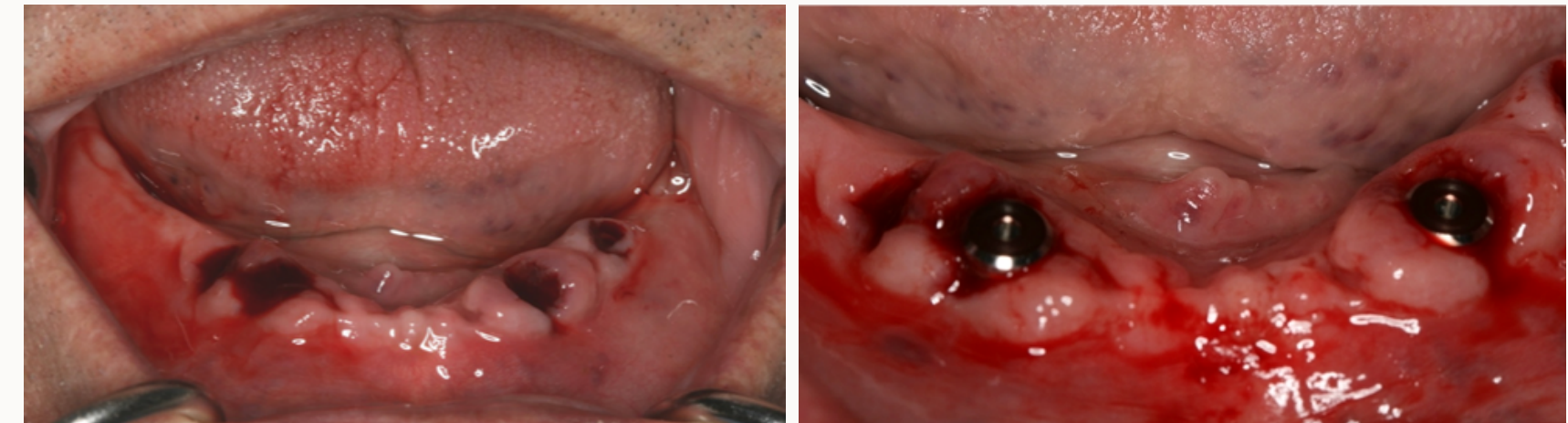
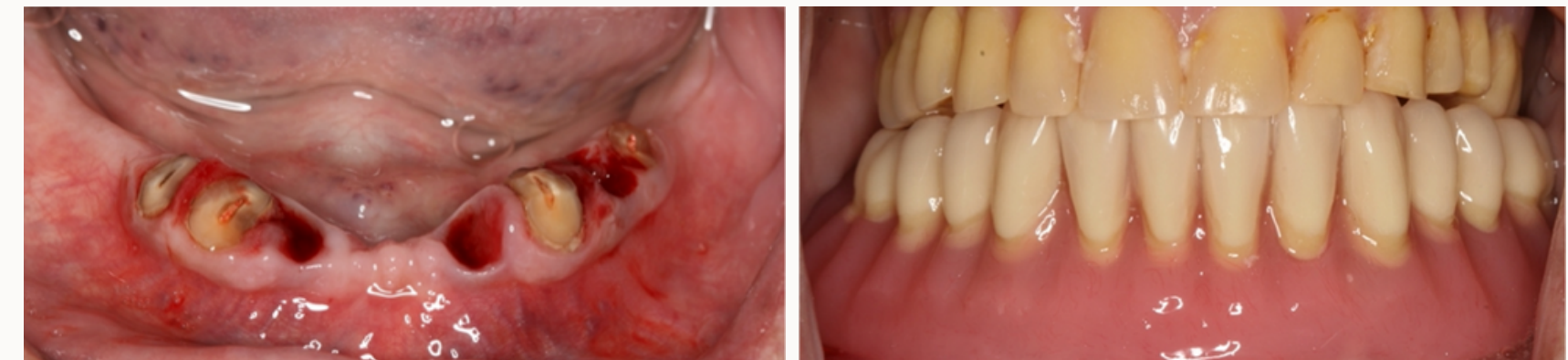
### 7. CAD/CAM and CBCT scan of ICD

- ICD is scanned and is used to create a surgical stent for future implant placement

**Clinical case presenting the standard steps of combining decoronation with implant dentistry**

### Post Decoronation

8. Extraction of the roots
9. Implant Placement (immediate or not)
10. Fit check and tissue conditioner
11. Immediate Complete Denture Converted to either Fixed or Removable implant retained prosthesis after osseointegration



## ADVANTAGES

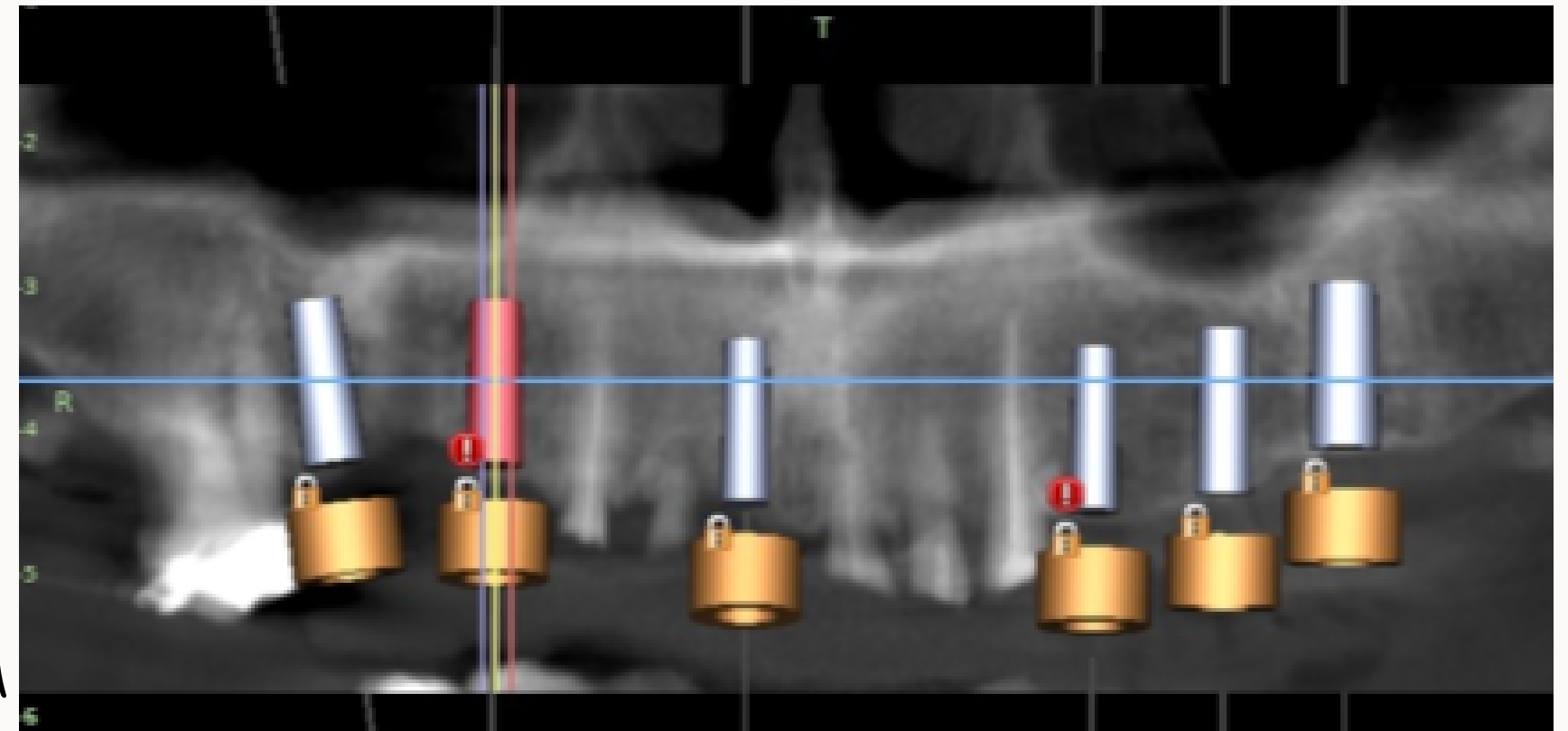
- No Blood
- Almost Regular insertion of denture
- Possible Immediate implant placement used with surgical stent created from ICD for guided surgery
- Precise guided implant placement due to the surgical stent
- Time (3-5 month process for the final prosthesis)
- Suitable for both Fixed and Removable prosthesis
- Implant surgery:
  - > 1 stage surgery: direct implant placement
  - Anesthesia (none or small amounts)
  - Preserving the Vertical & Horizontal Bone
  - Maintenance of Soft Tissues

### If Anesthesia required the following must be conducted:

- Pulpectomy
- Ca(OH)<sub>2</sub>
- Cavit

## DISADVANTAGES & CONTRAINDICATIONS

- Surgical and Radiographic Template
- Soft or Hard Tissue Undercuts making decoronation more difficult
- Poor Oral Hygiene



Using the 3D Blue Sky Bio Design Software, the Immediate Complete Denture is scanned by CAD/CAM technology and processed through CBCT imaging. It is then uploaded to the design software for planning of the future implant placement. Here, 5 design implants are placed on top of decoronated roots for future implant placement using a 3D printed surgical stent.

# CLINICAL CASE USING THE DECORONATION TECHNIQUE



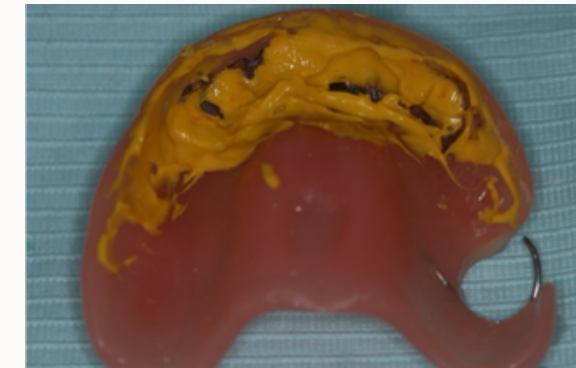
European University Cyprus

School of Dentistry

Female patient with recessing gums and poor prognosis of maxillary dentition presented in the dental office to restore her aesthetics and function



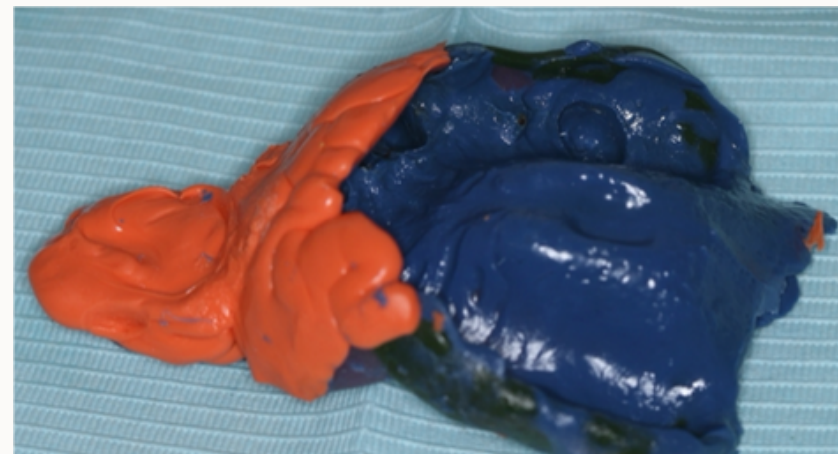
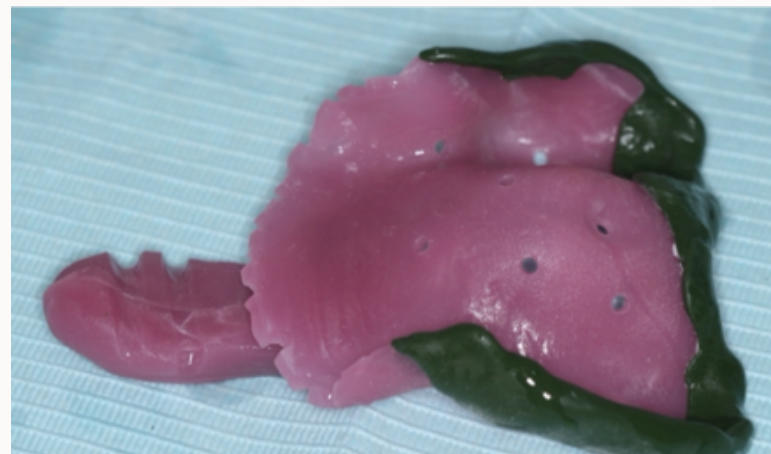
Decoronation and adjustments of soft & hard tissue undercuts followed by delivery of the ICD



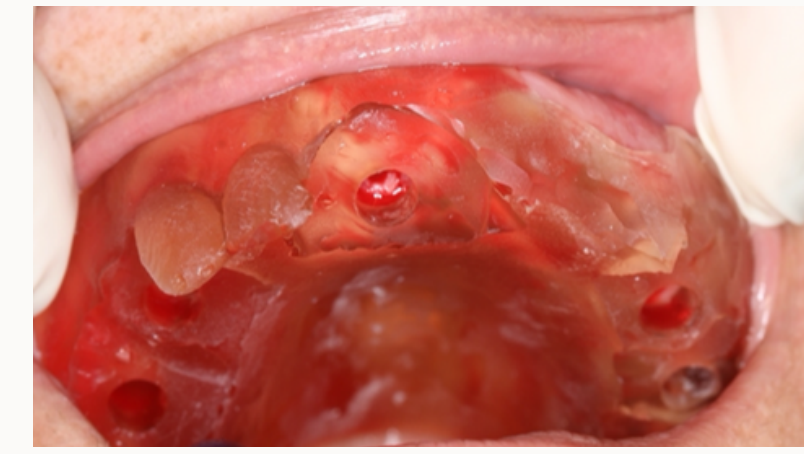
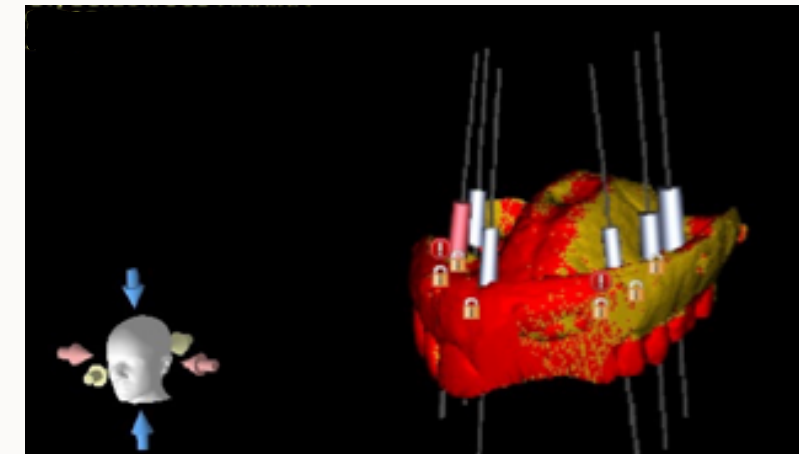
Surgical Stent created by scanning the ICD using CAD/CAM technology and later processed through 3D Blue Sky Bio

Software for future implant placement

Border Moulding and Final Impression



Artificial Tooth Arrangement



2nd Stage Surgery followed by delivery of the final Implant retained prosthesis



# BENEFITS OF COMBINING DECORONATION WITH IMPLANT DENTISTRY

Combining decoronation with CAD/CAM and CBCT technologies has many clinical advantages which benefit the patient and practitioner. As mentioned previously, the ICD created upon decoronation is used as a surgical stent which provides the practitioner direct application of the implant. With immediate application of the implants after decoronation, the bone volume and soft tissue maintenance, vertically and horizontally, is further favoured, benefiting the proper insertion of implants for the final prosthesis (3).



## CONCLUSION

An immediate complete denture is a possible interim solution that provides the patient beneficial results during their dental transition. By using the decoronation technique combined with CAD/CAM and CBCT technology, immediate implant placement is possible by placing the implant in the roots original position, thus, maintaining clinical benefits such as bone volume and soft tissue maintenance.

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