



# A Novel In-Office Workflow for Fabrication of a Same-Day 3D-Printed Conversion Prosthesis with Pre-Troughed Pick-Up Channels and a Breakaway Flange



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## INTRODUCTION

- Conventional workflows for fabrication of conversion prostheses require either time-consuming and labor-intensive laboratory procedures or outsourcing to external laboratories. Additionally, there are health hazards associated with inhalation of resin particles during trimming.
- The workflow presented here leverages digital implant planning and digital designing to streamline both the chairside pick-up and same-day in-office conversion process.
- There are resins on the market that have received FDA clearance for use in fabricating fixed hybrid denture prostheses

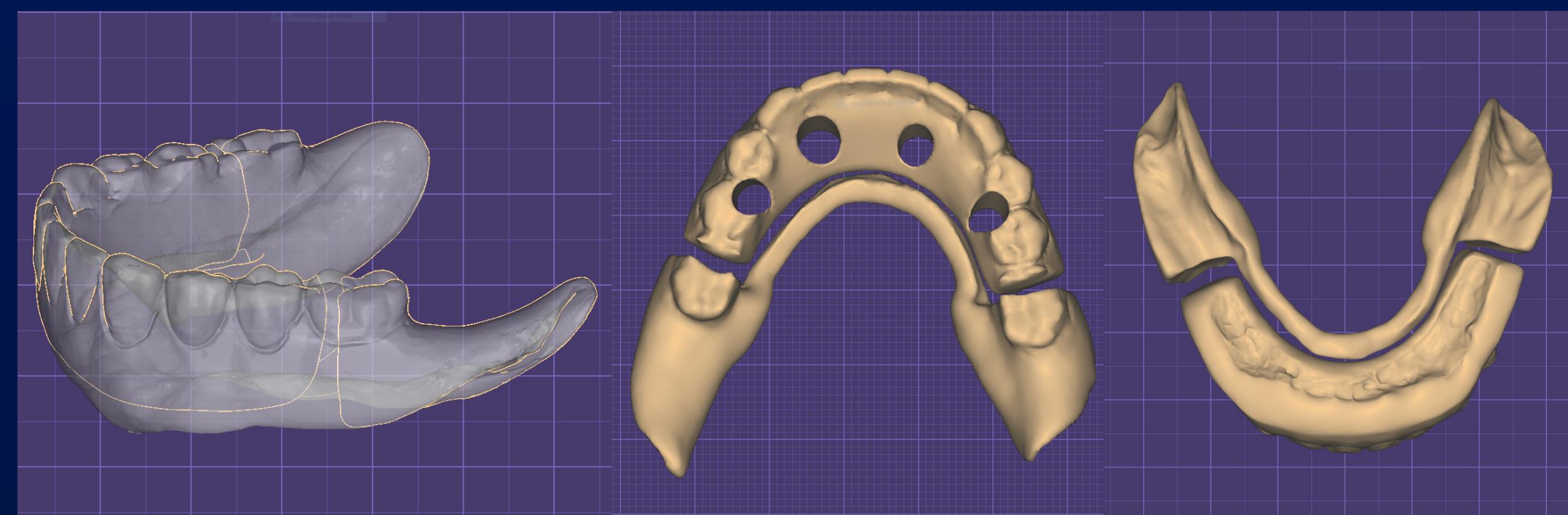
## OVERVIEW OF WORKFLOW

- Implant planning was done in a digital planning software, and the planned implant positions were exported and superimposed onto the digital denture design.
- Pre-troughed pick-up channels were incorporated based on the superimposition of the planned implant positions. The design was then split into two segments: a rough-cut of the fixed complete denture contours, and the flanges to be broken off.
- Chairside pick-up was performed with the retromolar pad areas still intact to ensure proper seating of the denture. After pick-up, the flanges were broken off and the conversion was backfilled with a PMMA reline material. Minimal trimming was required to obtain the ideal contours of the final conversion prosthesis. The conversion was polished and inserted the same day.

## DIGITAL DESIGN PROCEDURES

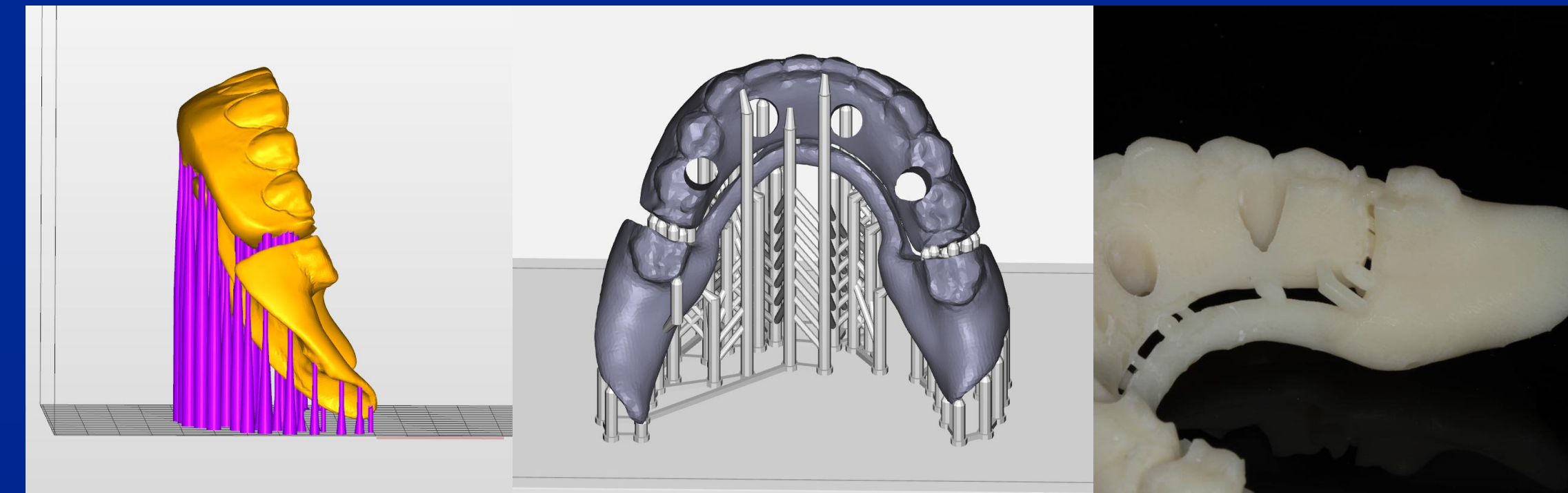
### STEP ONE

Design the pick-up prosthesis in CAD software



### STEP TWO

Nest the .stl such that supports will bridge the two segments; 3D-print the prosthesis



## CLINICAL AND LABORATORY PROCEDURES

### STEP THREE

Characterize the gingiva and polish the cameo surface



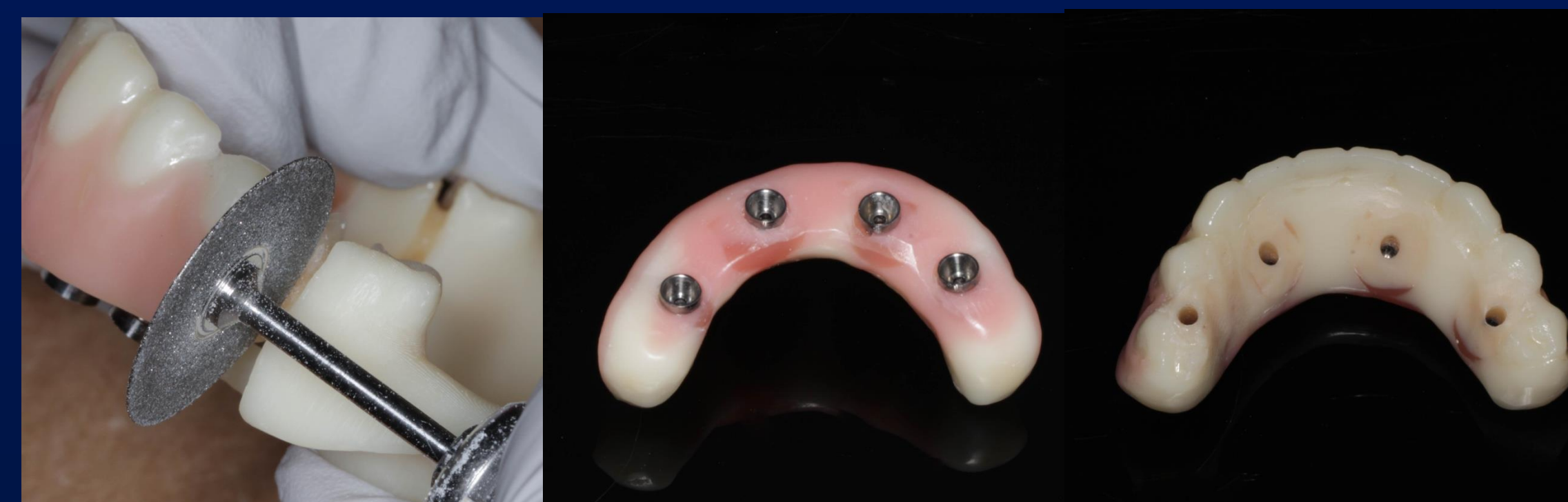
### STEP FOUR

Intra-oral pick-up of implant positions

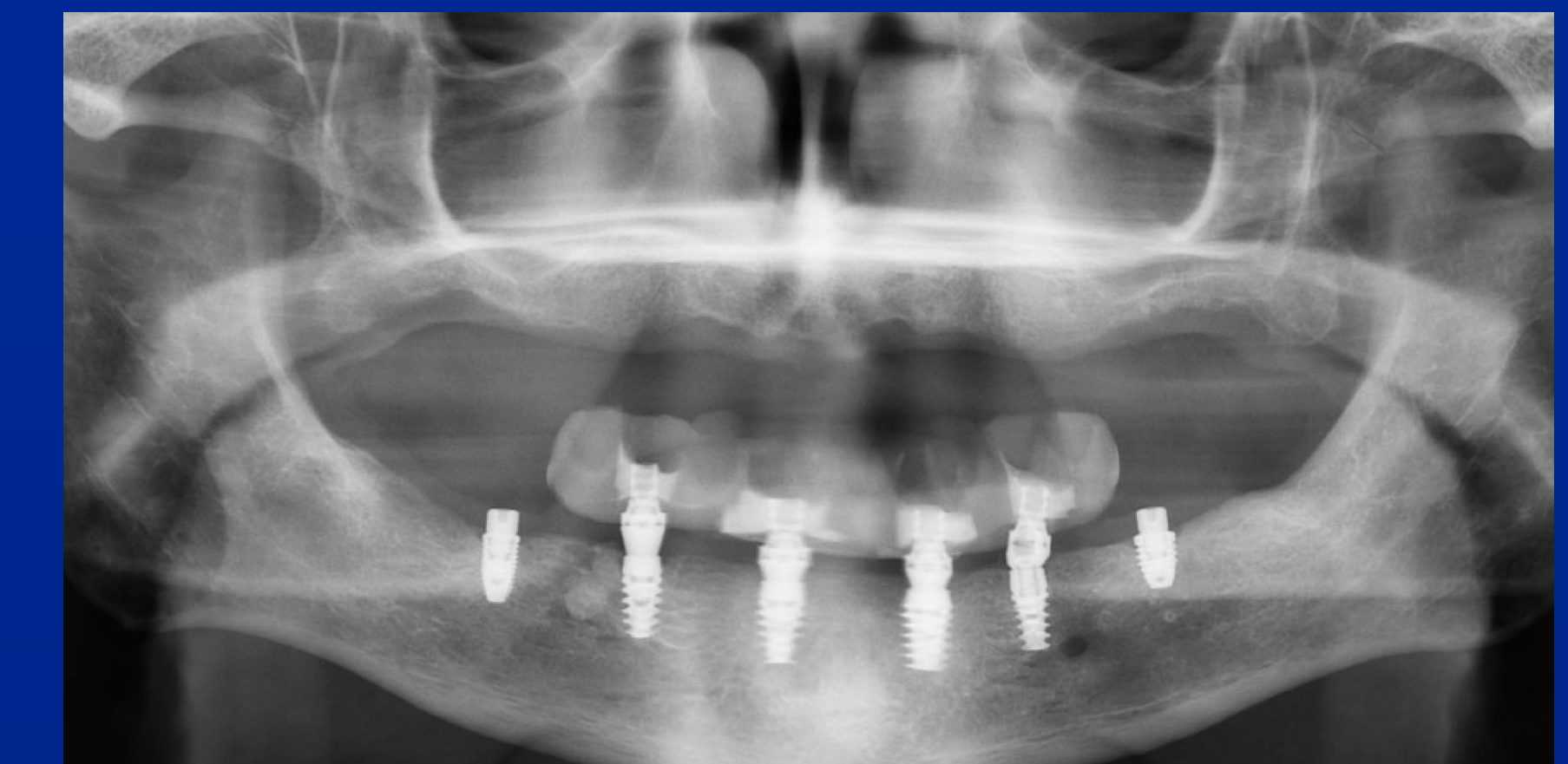


### STEP FIVE

Backfill with PMMA and optimize intaglio contour



## CASE PRESENTATION



## OUTCOME

This workflow significantly reduced patient chair time, enhancing both patient comfort and clinical efficiency. The pre-troughed pick-up channels simplified the chairside pick-up procedure, while the breakaway flanges reduced both laboratory procedural time and the health hazards associated with the inhalation of resin particles during trimming.

## REFERENCES

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2. Balshi TJ. The Biotes conversion prosthesis: a provisional fixed prosthesis supported by osseointegrated titanium fixtures for restoration of the edentulous jaw. *Quintessence Int* 1985;16:667-77.