

Pindex Casts & Die Preparation

Fixed Prosthodontics 1

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Indirect Die Systems

1. Separate or double dies

Solid cast for proximal contacts and occlusion

Single die for wax coping and margins

Die also used for porcelain margins

2. Removable dies

Retained by pins in a base (stone or plastic)

One die used for proximal contacts, occlusion and margins

Die Materials



1. Epoxy resins
2. Electroplated
3. Ceramic
4. Improved stone

Epoxy resins, electroplated, and ceramic dies are all technique sensitive and expensive. Improved stone is simple and efficient if handled properly.

Choosing one cast and die system over another depends on several factors:

- The material must allow fabrication of dimensionally accurate cast that should be strong and resistant abrasion.
- It should be easy to section and trim with routinely available equipment.
- It should be compatible with the separating agent that will be used so that wax pattern do not stick to the die.
- It should produce surface detail accurately.
- It should be available in a color that contrast with wax used so that the preparation margin can be seen and every small amounts of excess material are readily discernible.
- It should be easily wettable by the wax. In addition, it must be compatible with the impression material.

Create Pin Channels



1. Base of the cast is flat and smooth and parallel to the occlusal plane
2. Cast is 15-20 mm thick from gingival crest to the base
3. Each segment must have at least 2 pins for stability and to prevent rotation
4. Parallel pin channels at least 5 mm apart

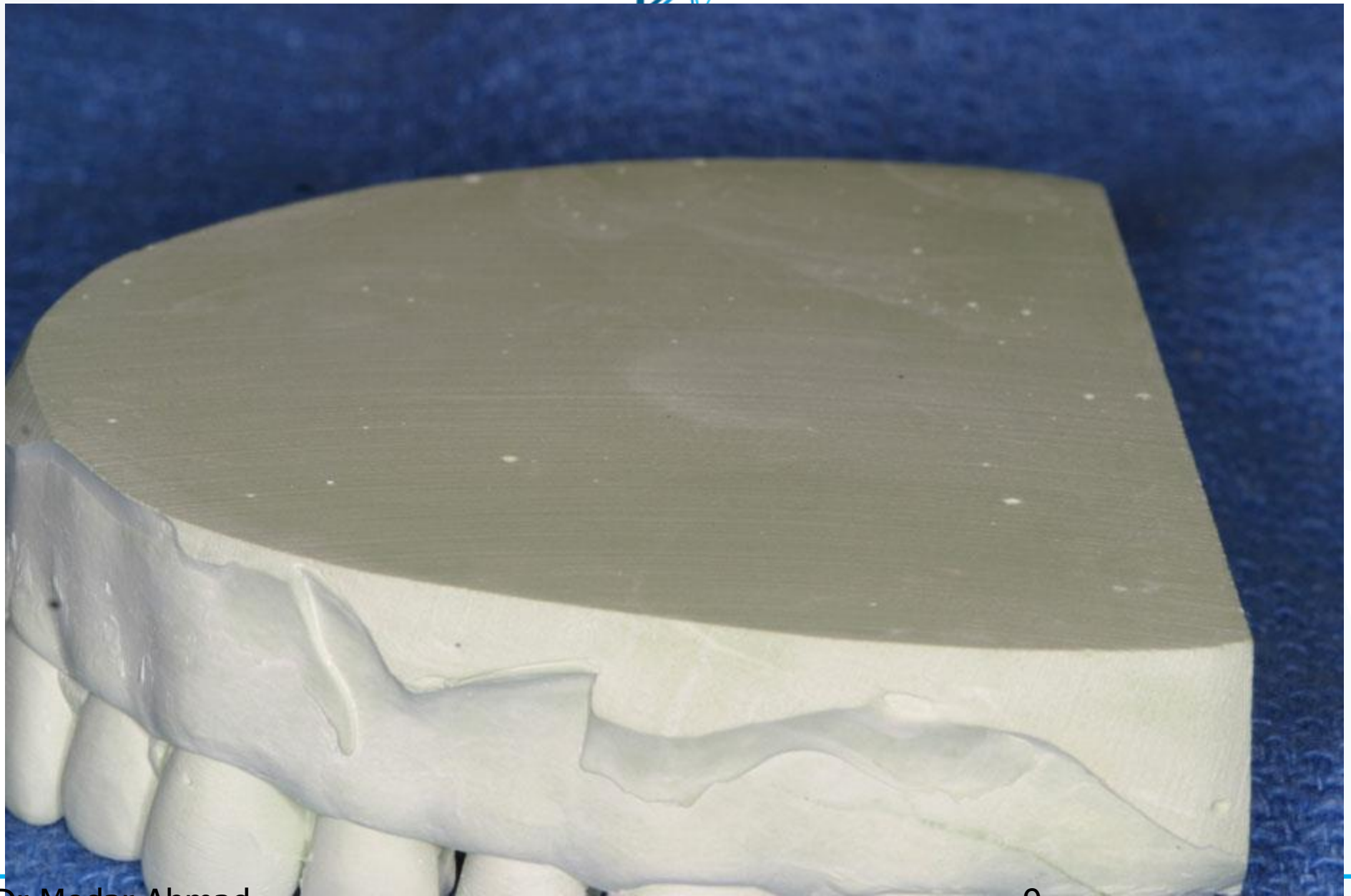
The cast must meet certain requirements:

- It must be an exact reproduction of both prepared and unprepared tooth surfaces.
- The unprepared teeth immediately adjacent to the prepared tooth or teeth must be free of voids.
- All surfaces of any teeth involved in anterior guidance and the occlusal surfaces of all unprepared teeth must allow for precise artificial of the opposing casts.
- All relevant soft tissues should be reproduced in the definitive cast, including all edentulous spaces and residual ridge contours that will be involved in the fixed prosthesis.

The die for the fixed restoration also must meet certain requirements:

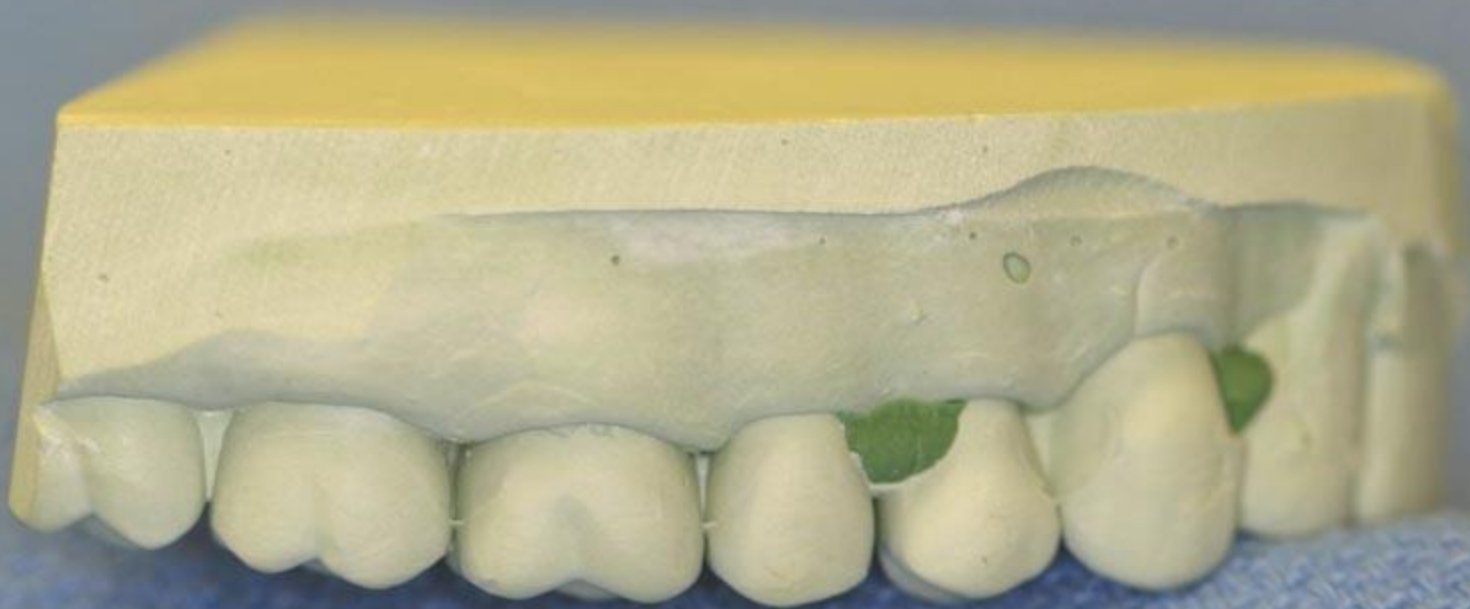
- It must be an exact reproduction of the prepared tooth
- All surfaces must be accurately duplicated, and no bubbles or voids can be accepted.
- The remaining unprepared tooth structure immediately cervical to the finish line should be easily discernible on the die, preferably with 0.5 to 1 mm visible.
- Adequate access to the margin is imperative.







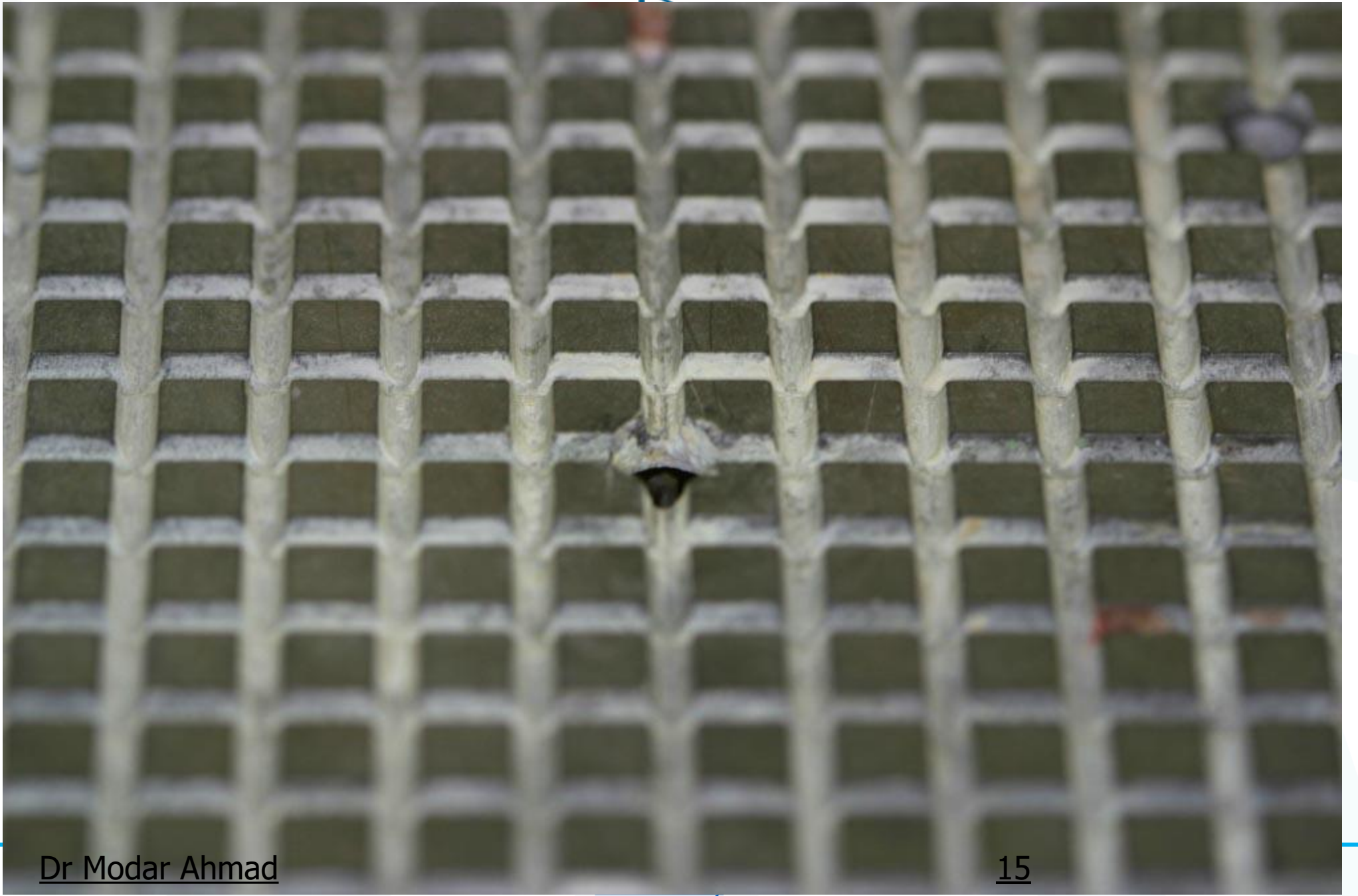


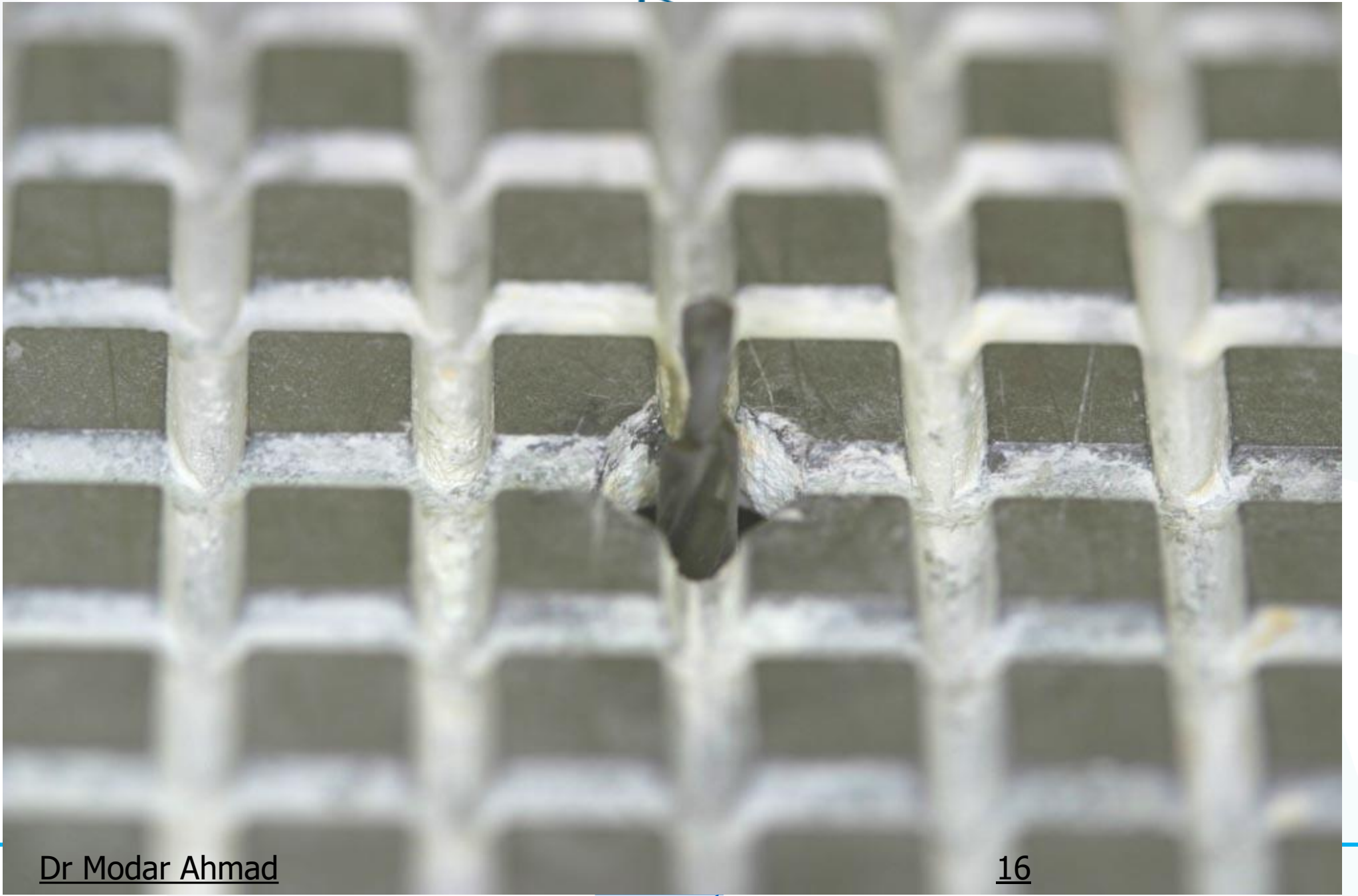


Base of cast to
gingival crest
15-20 mm

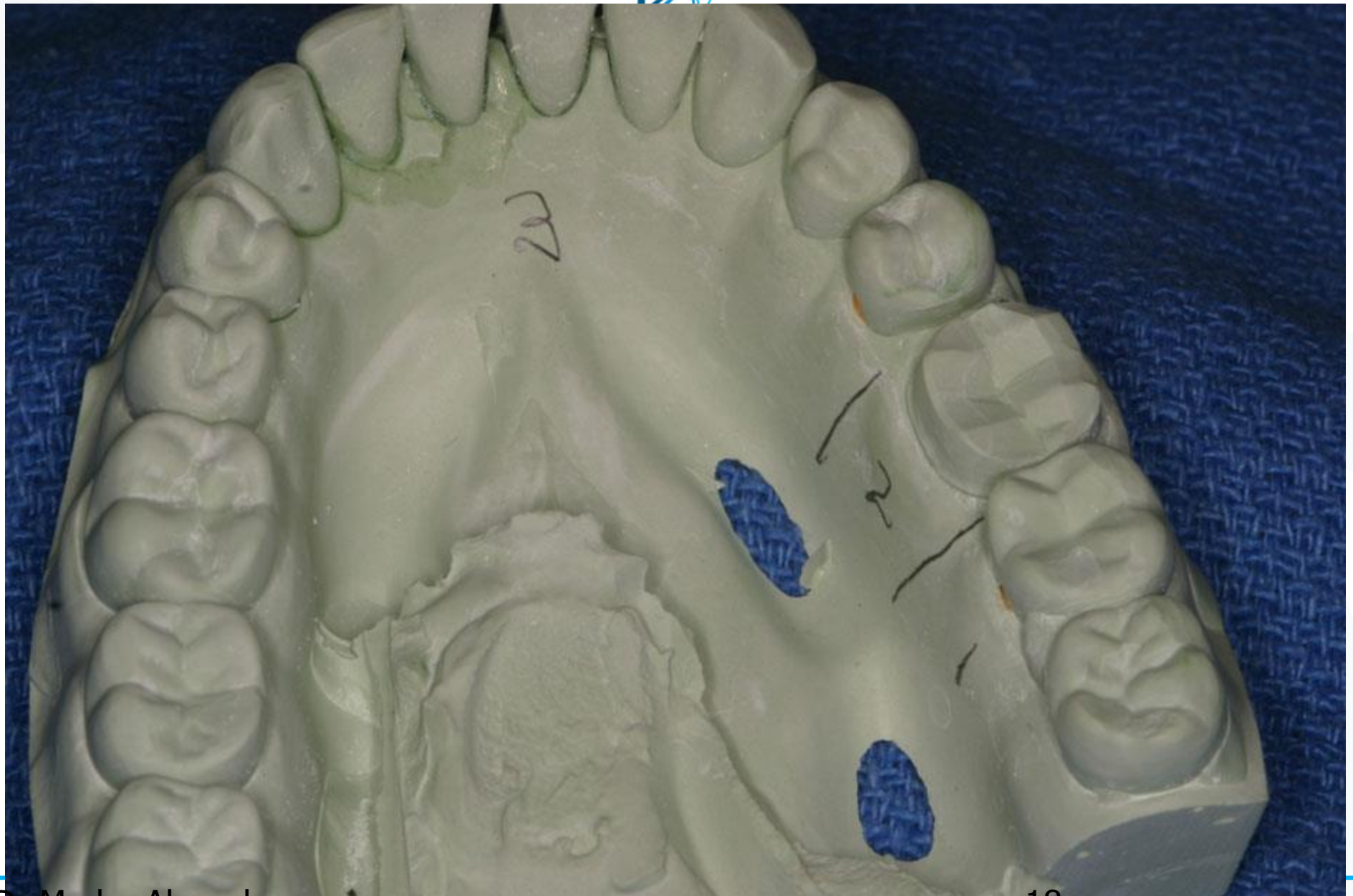


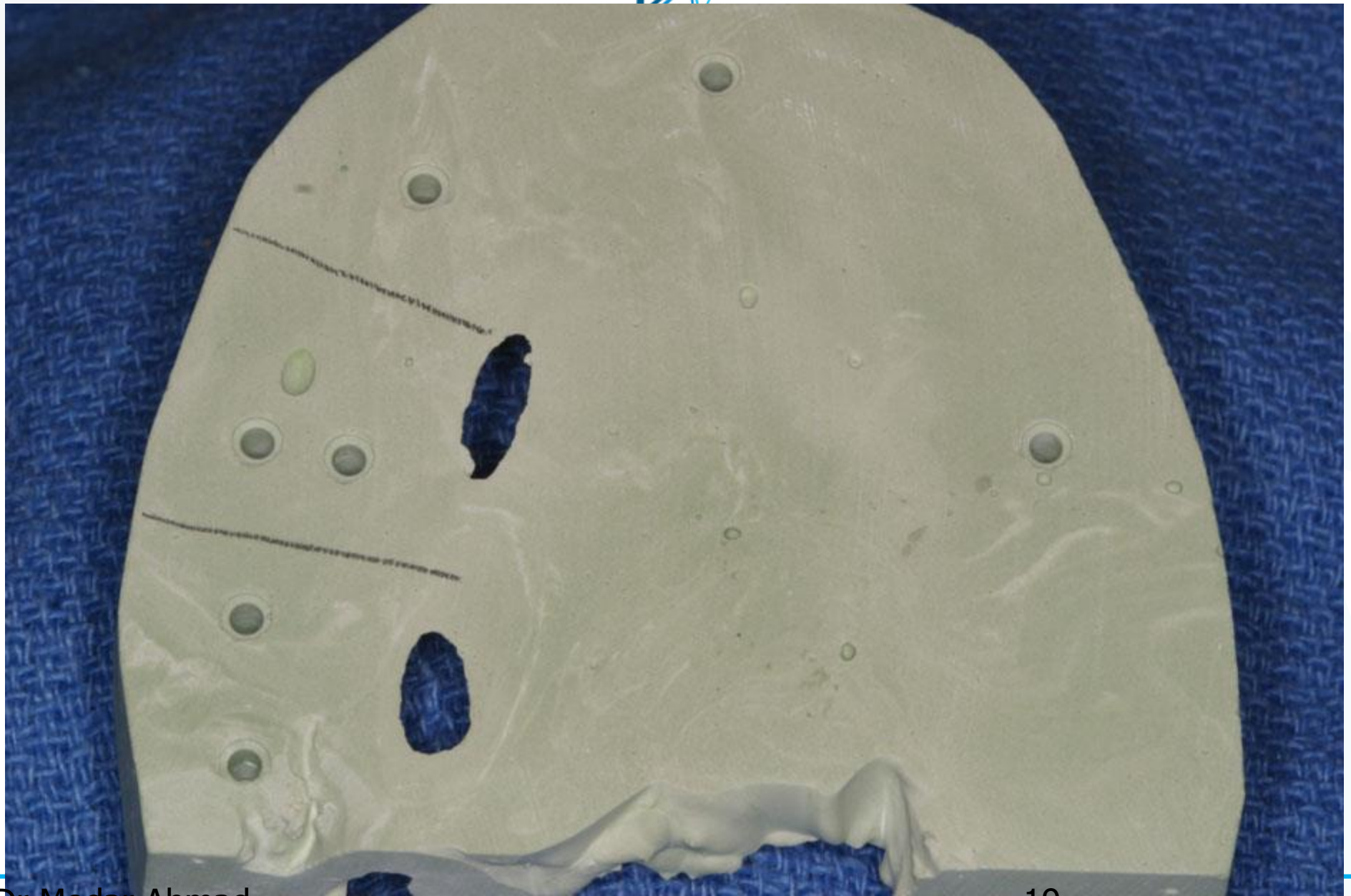




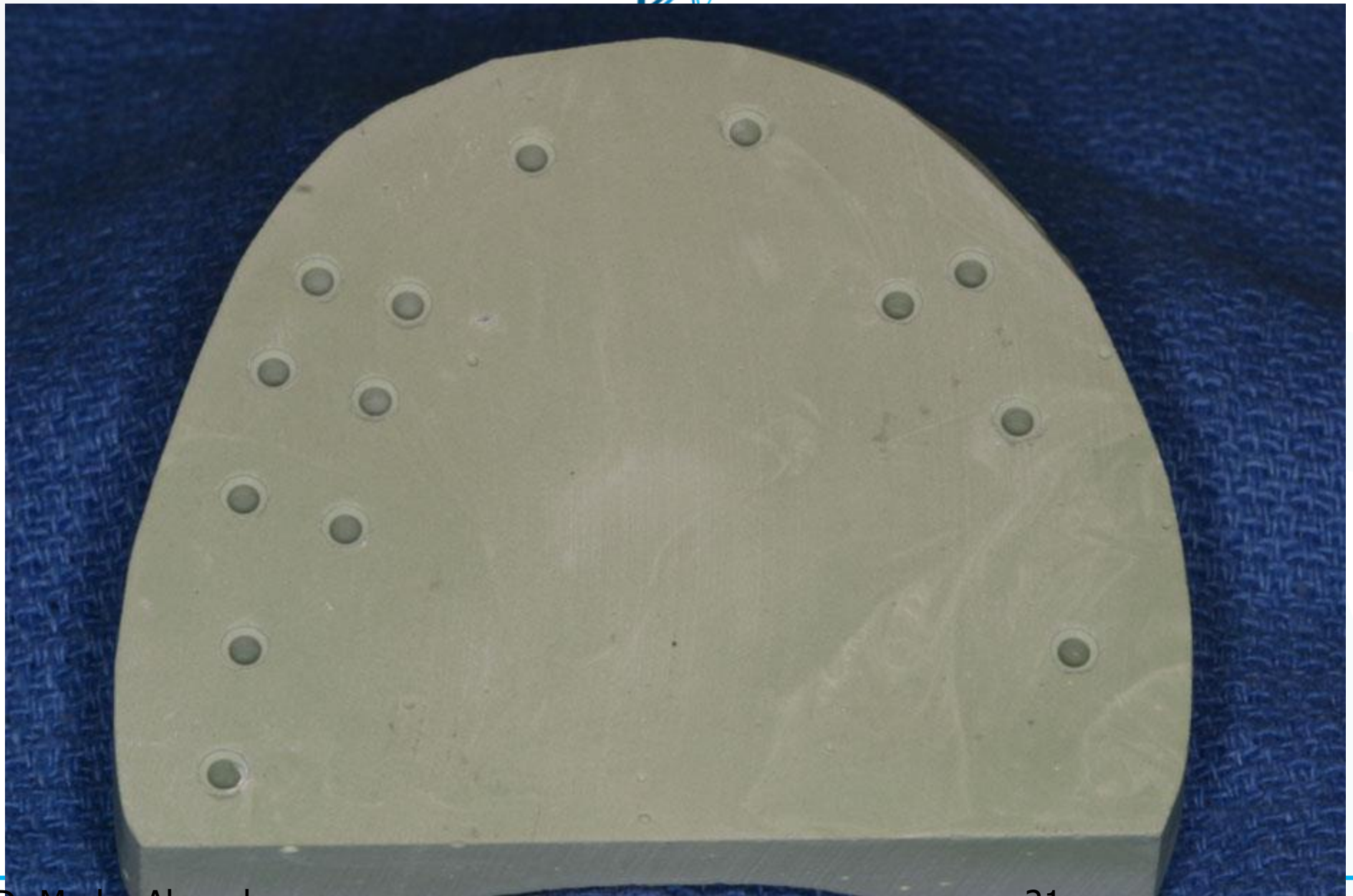


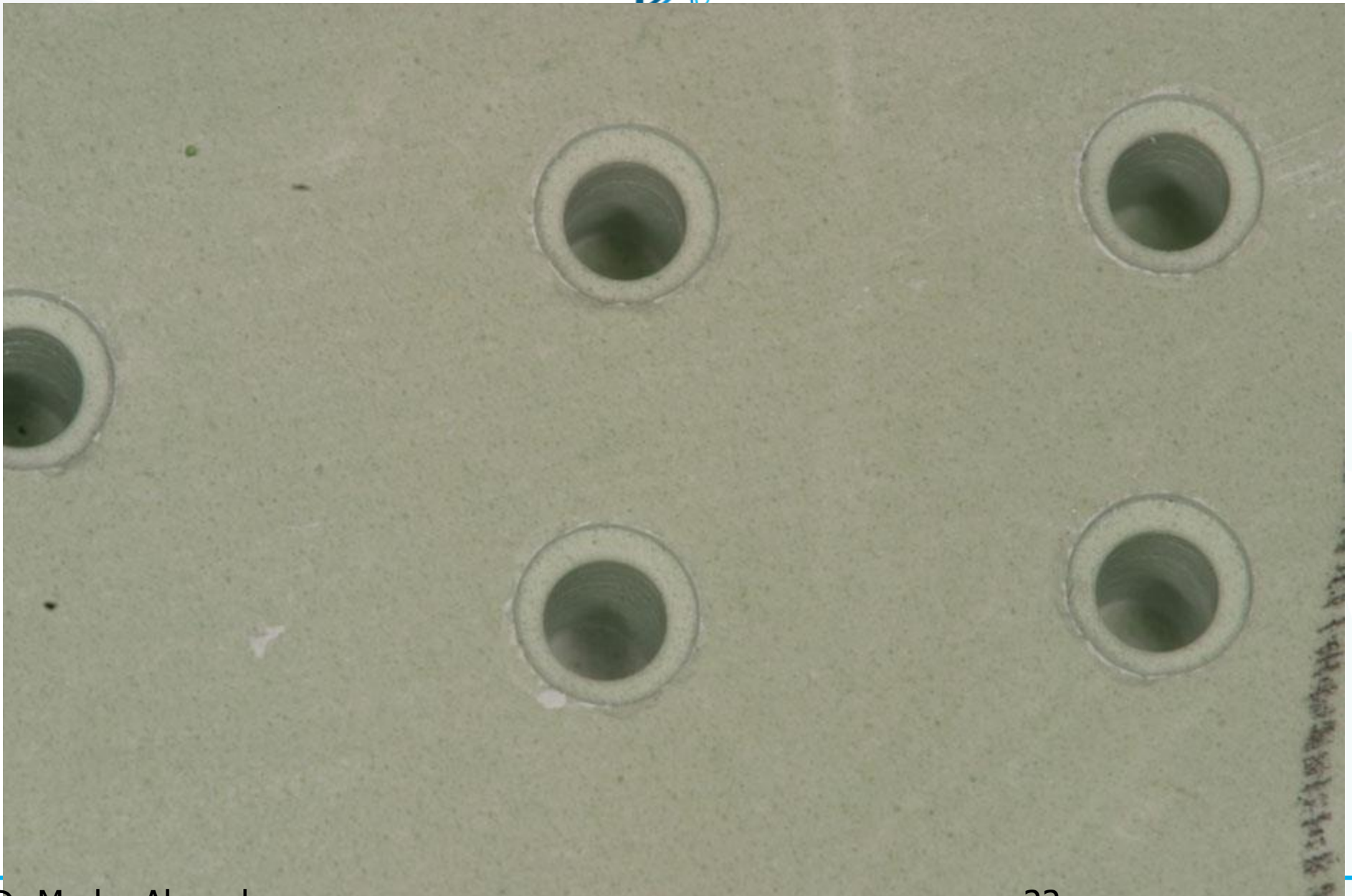


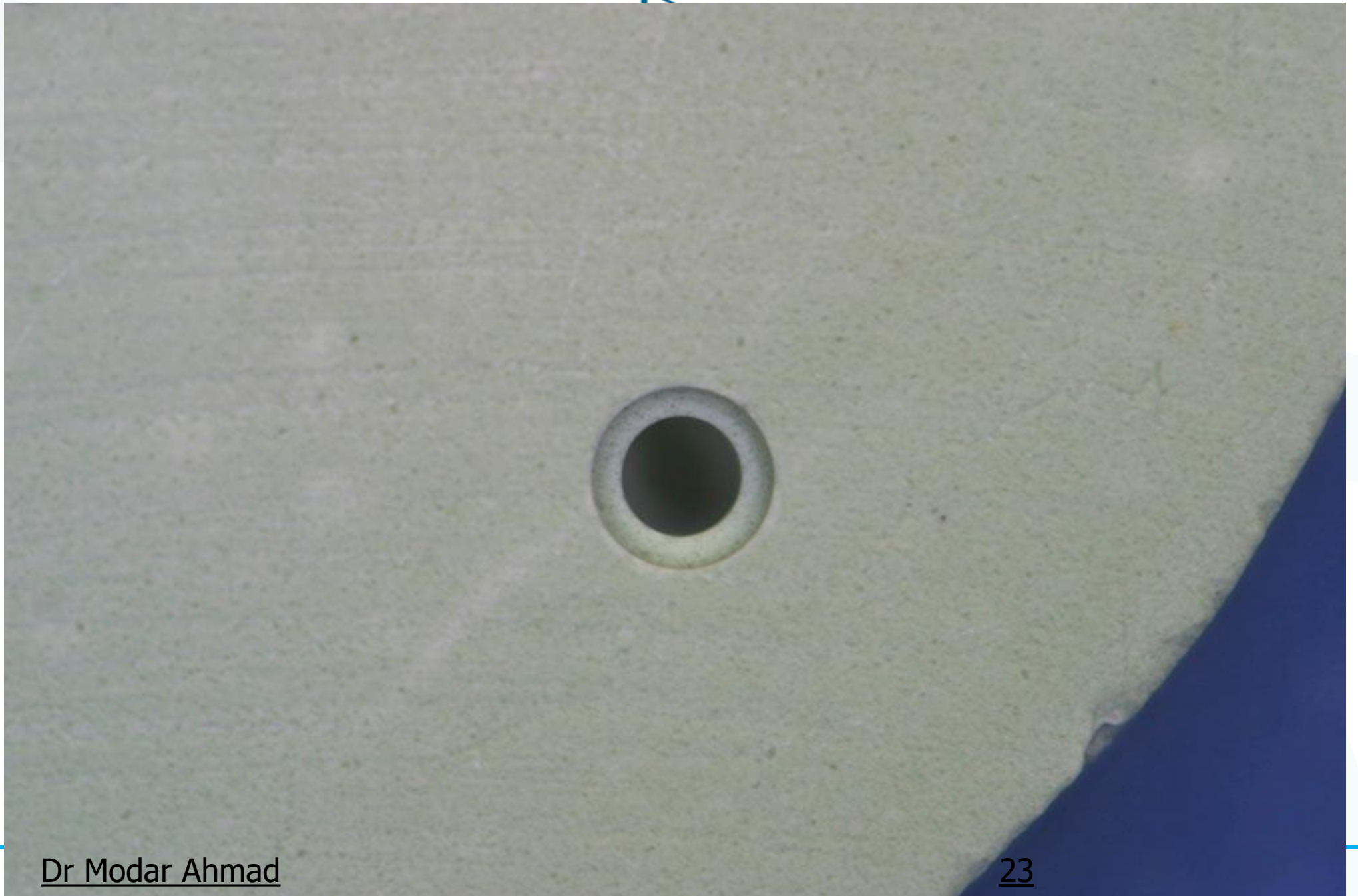










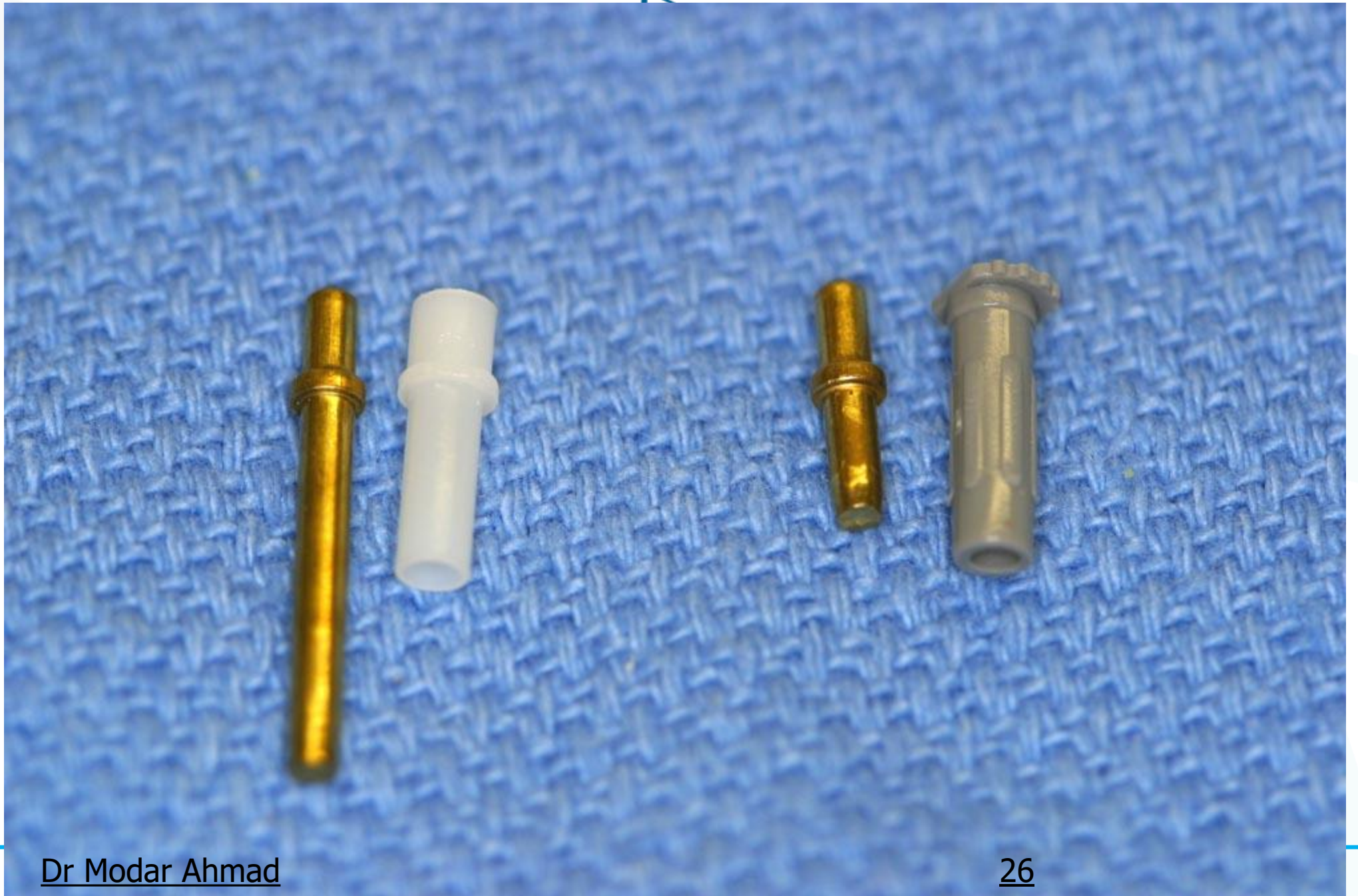


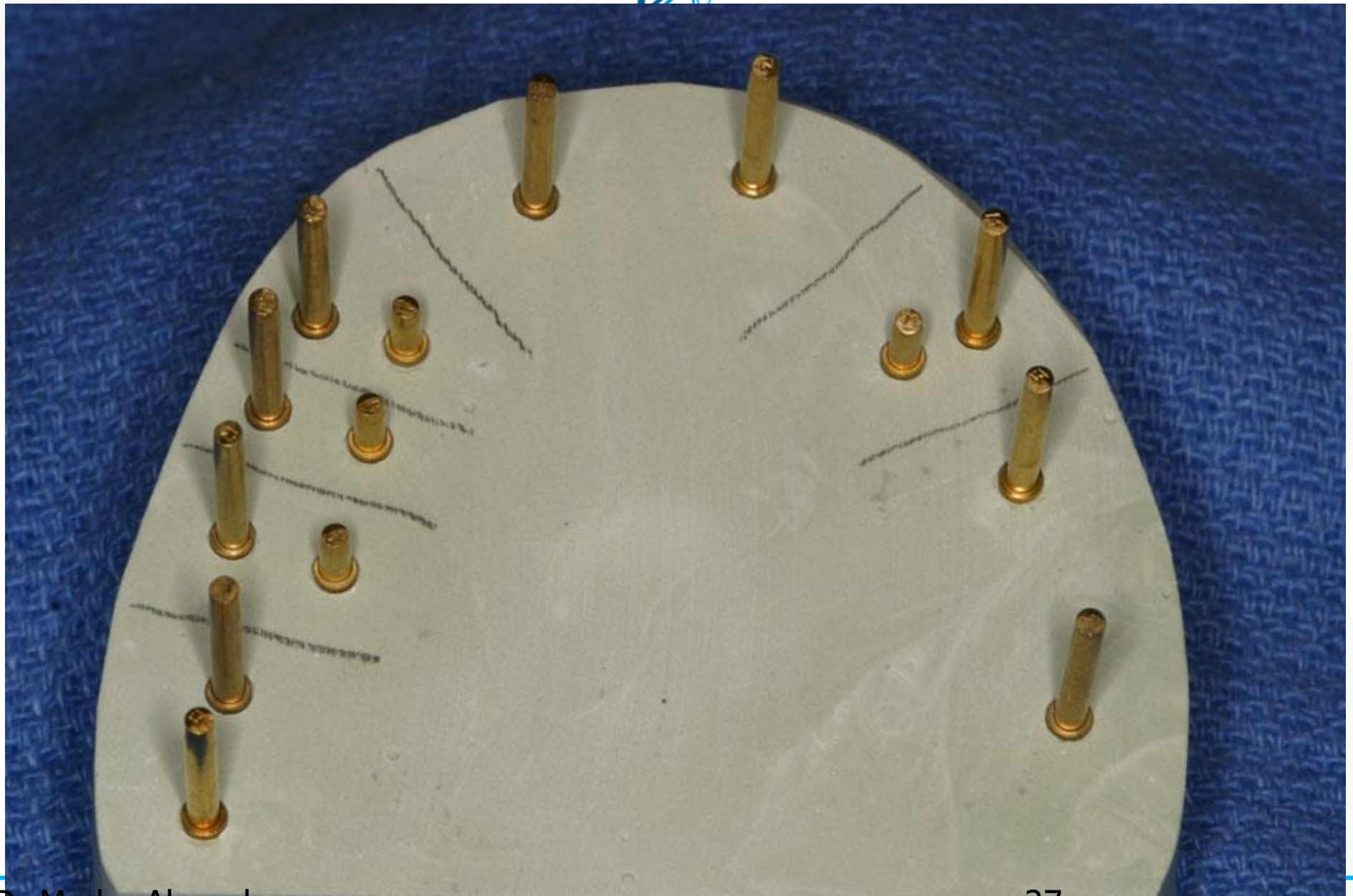
Index the Cast

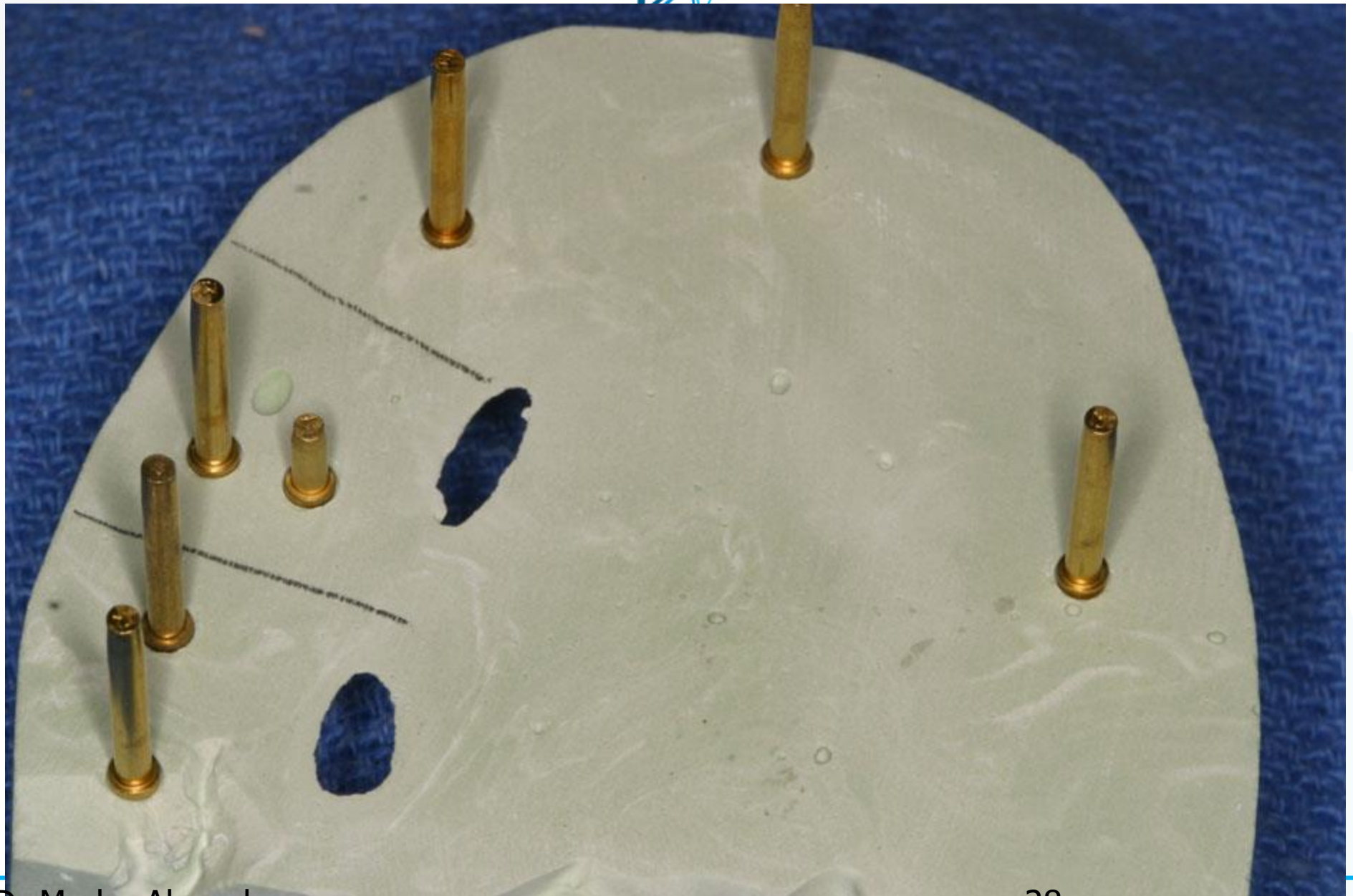


- 1. Glue pins with cyanoacrylate cement
 - Long pin toward facial
 - Short pin toward lingual
 - Glue short pins first (better access)
- 2. Place sleeves on pins (stability of pins)
- 3. Box and seal cast
- 4. Apply separating solution (Super-Sep)
 - Not Alcote or Vaseline
- 5. Pour second base with yellow stone





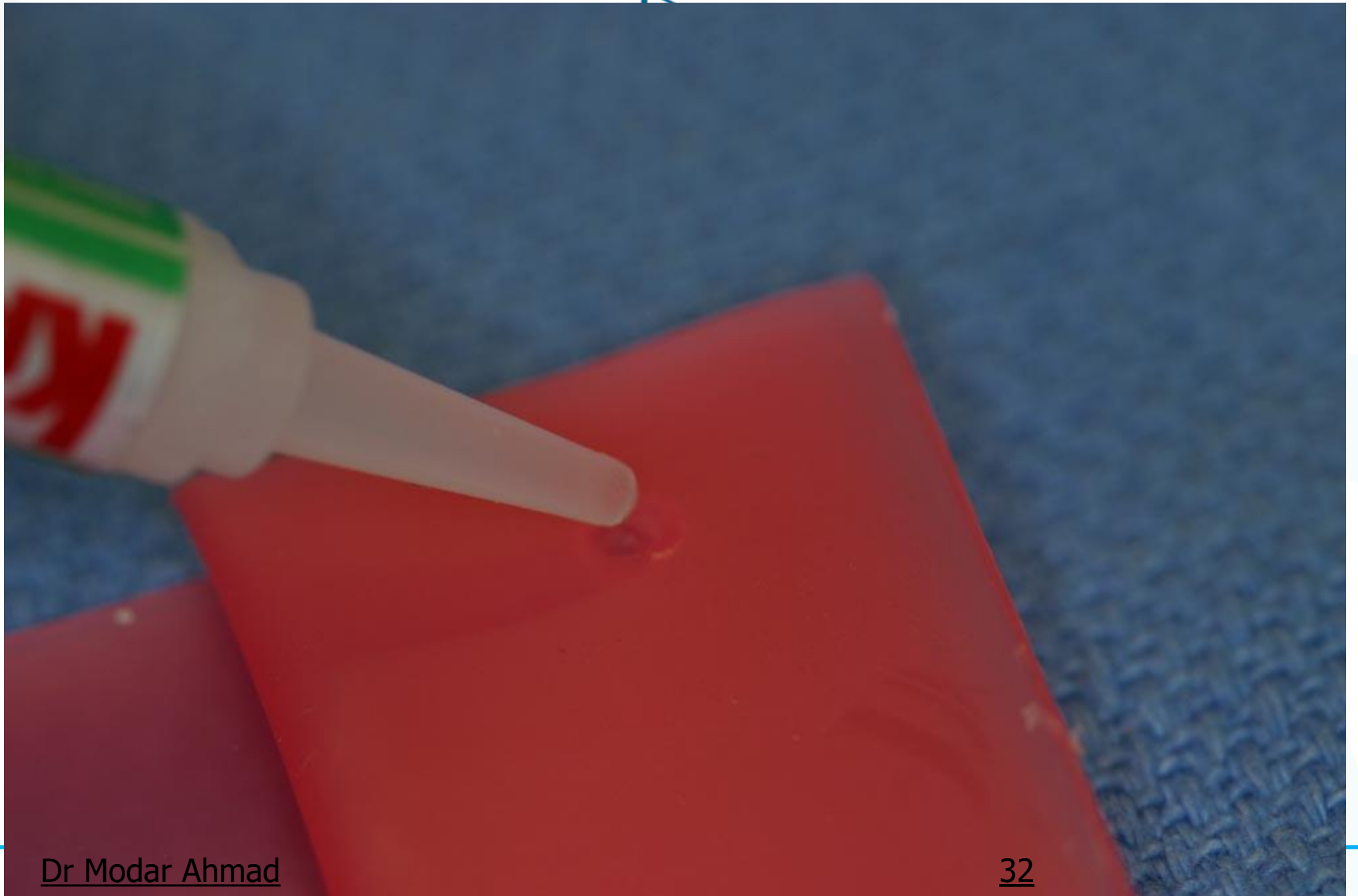


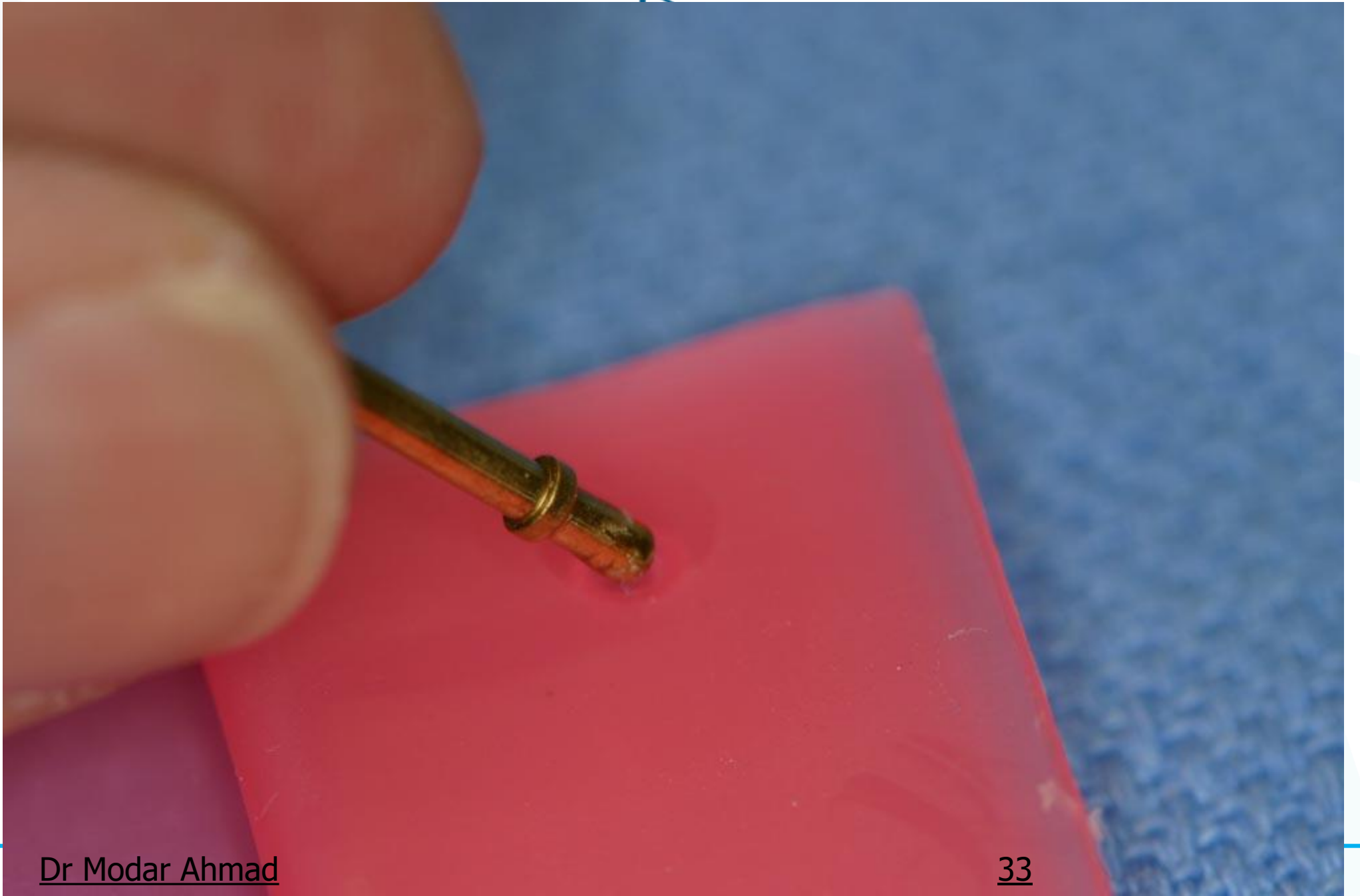


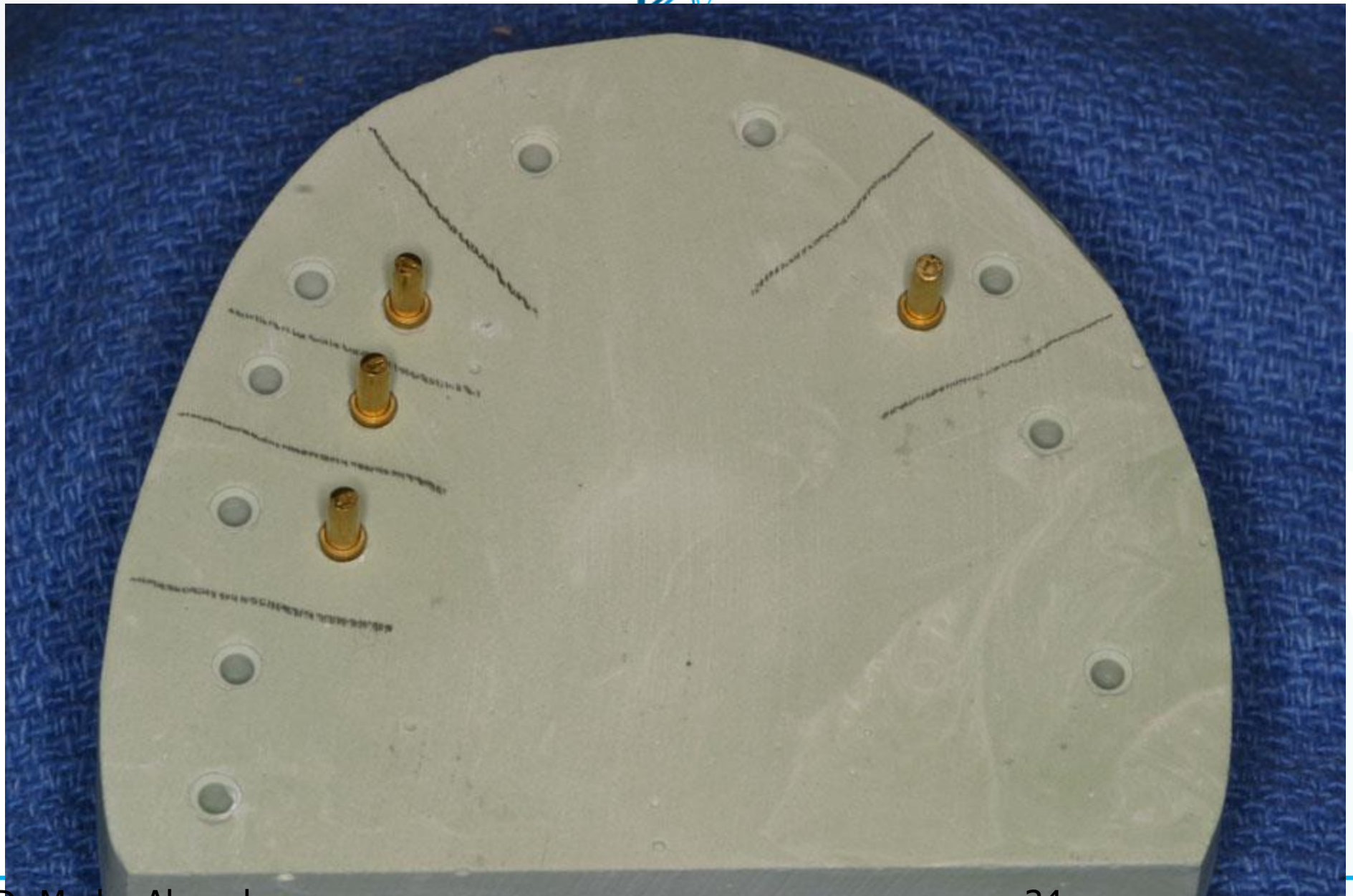


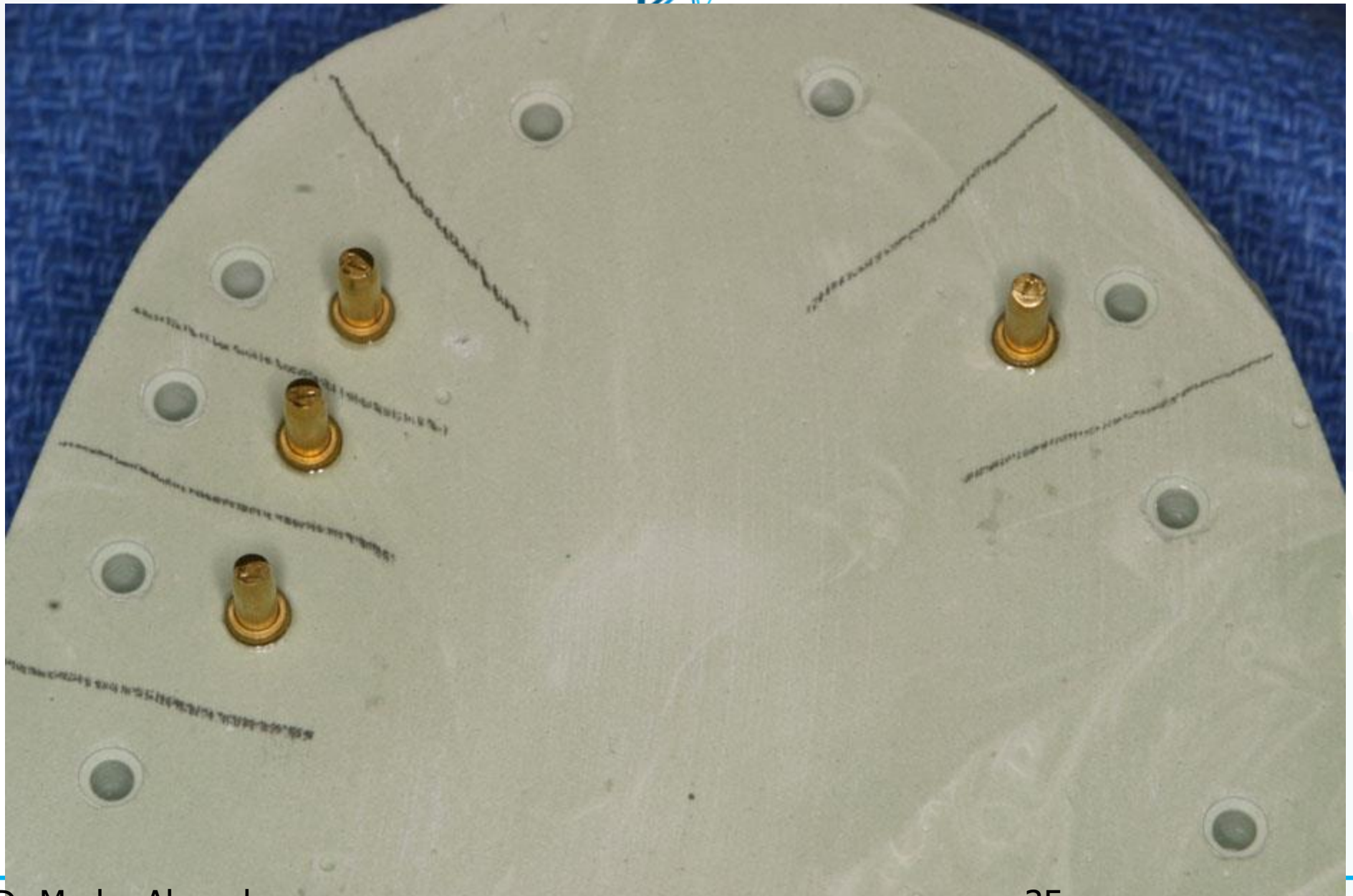


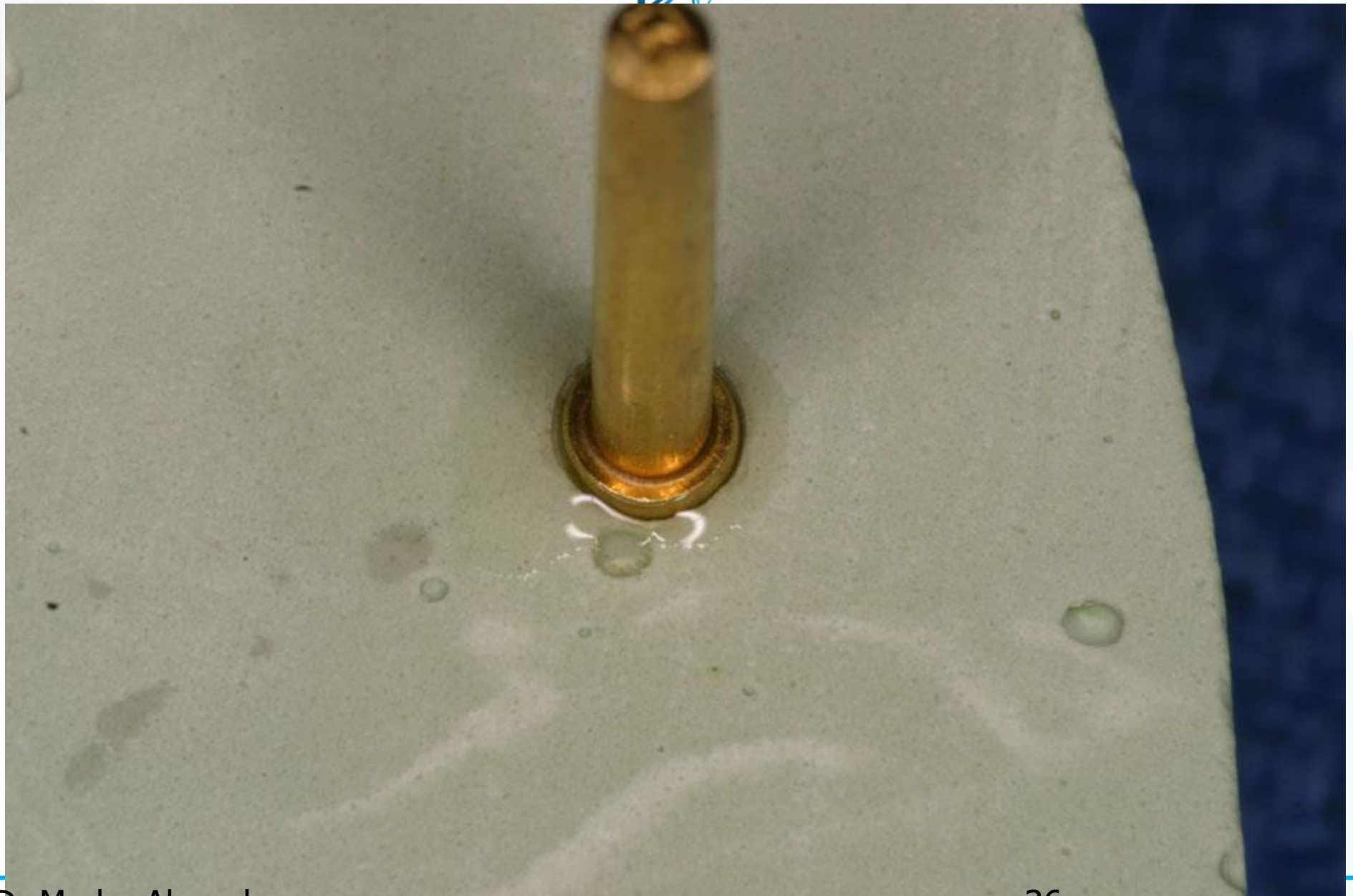






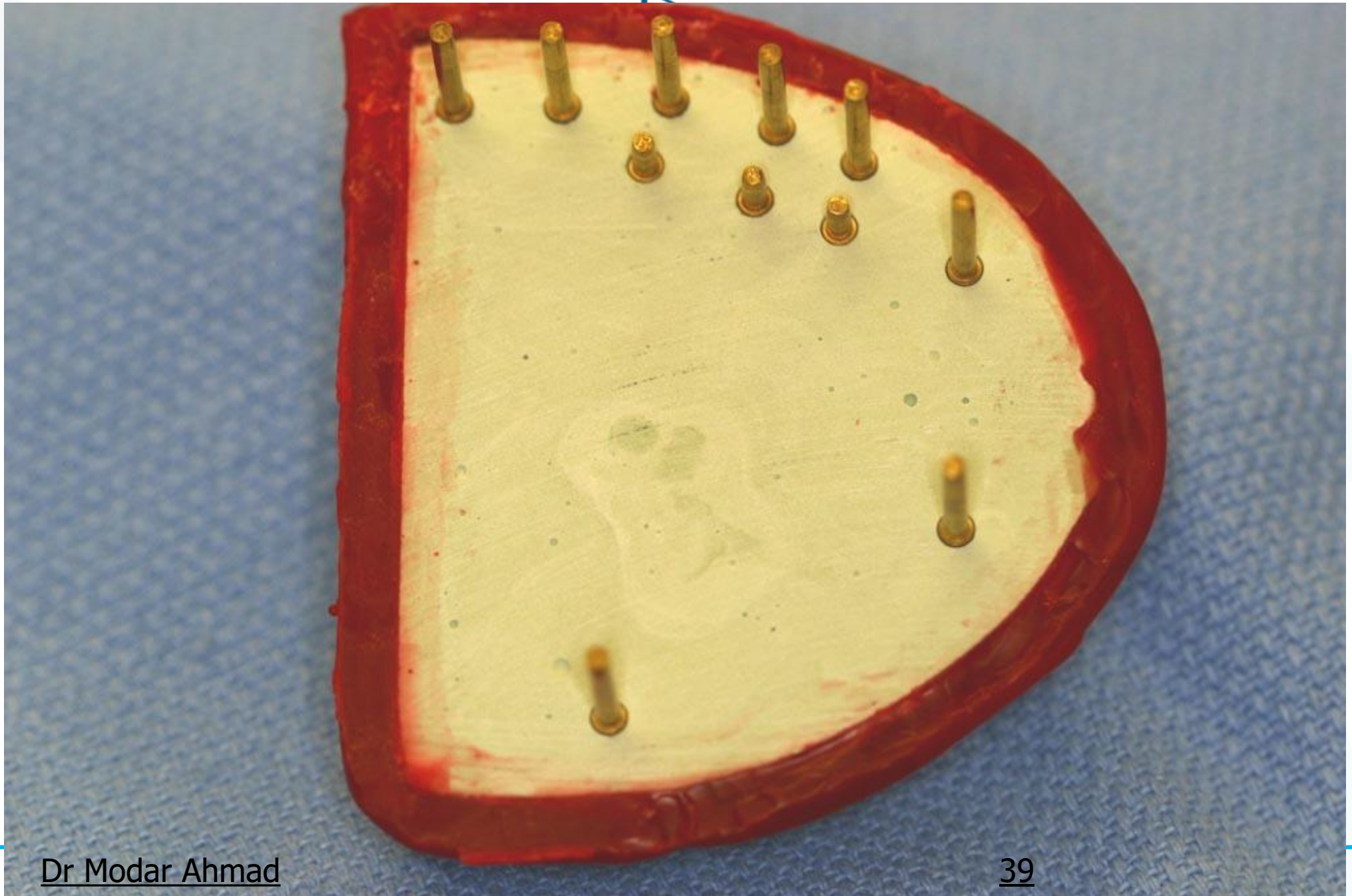


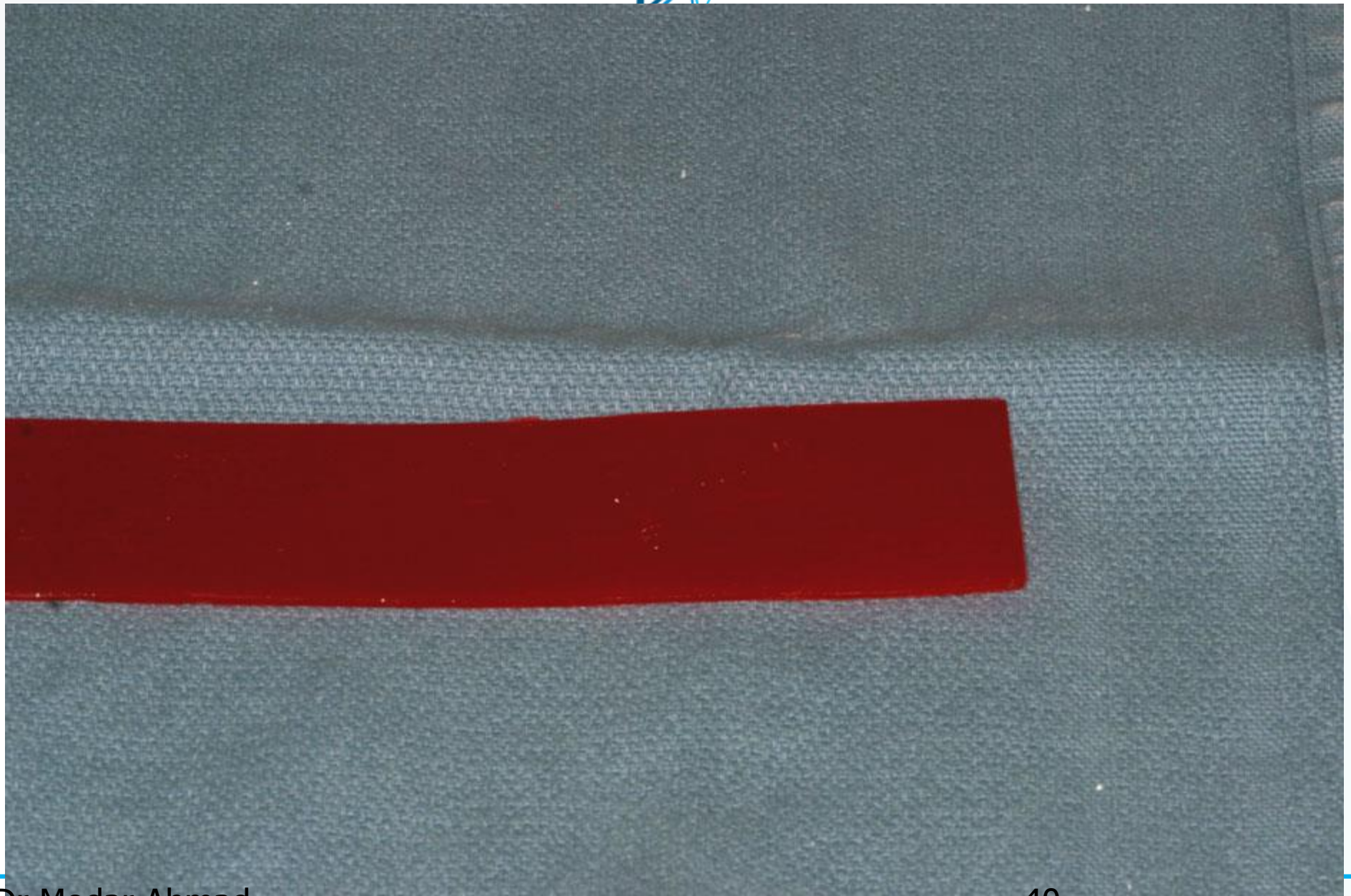




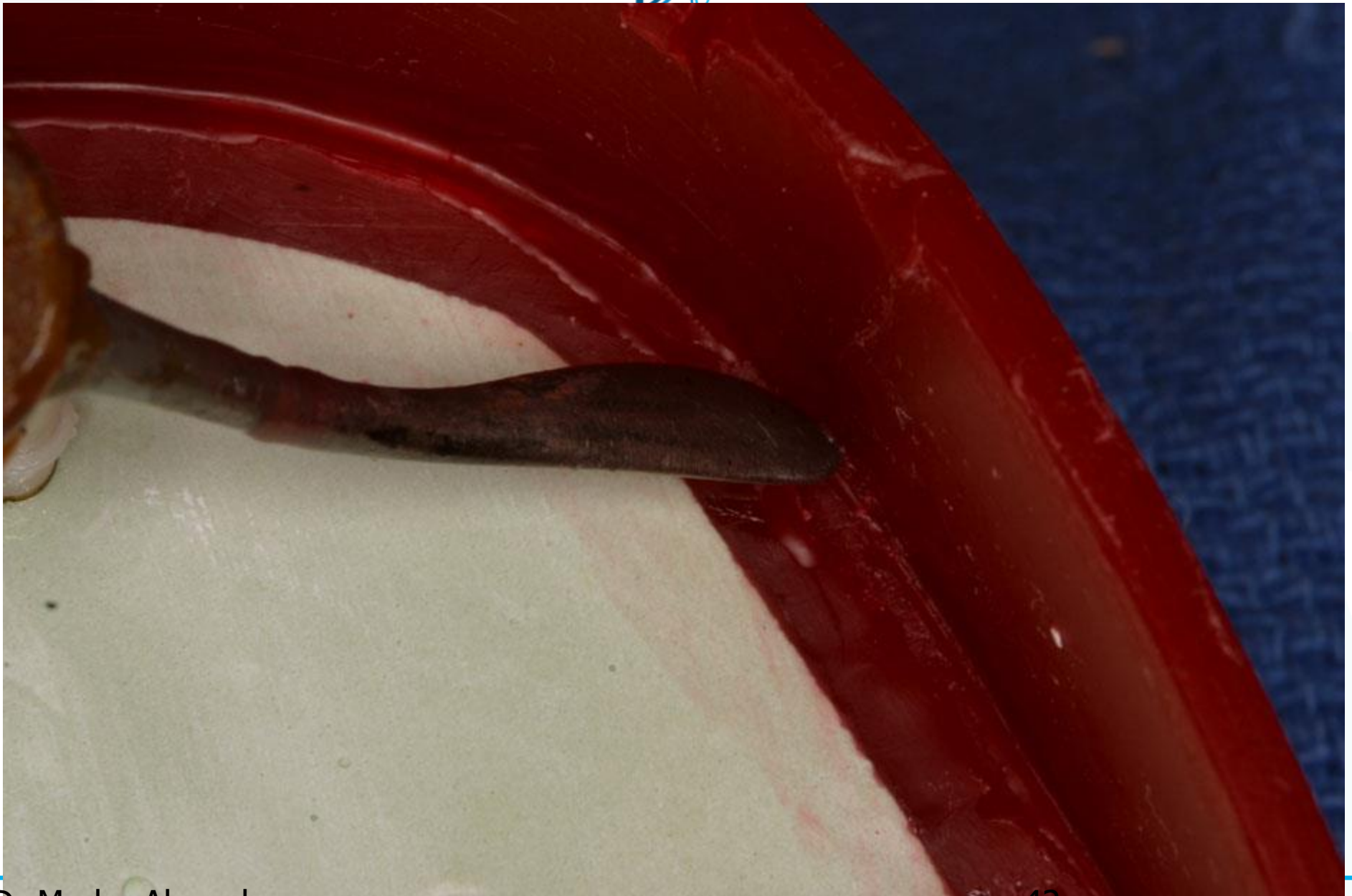






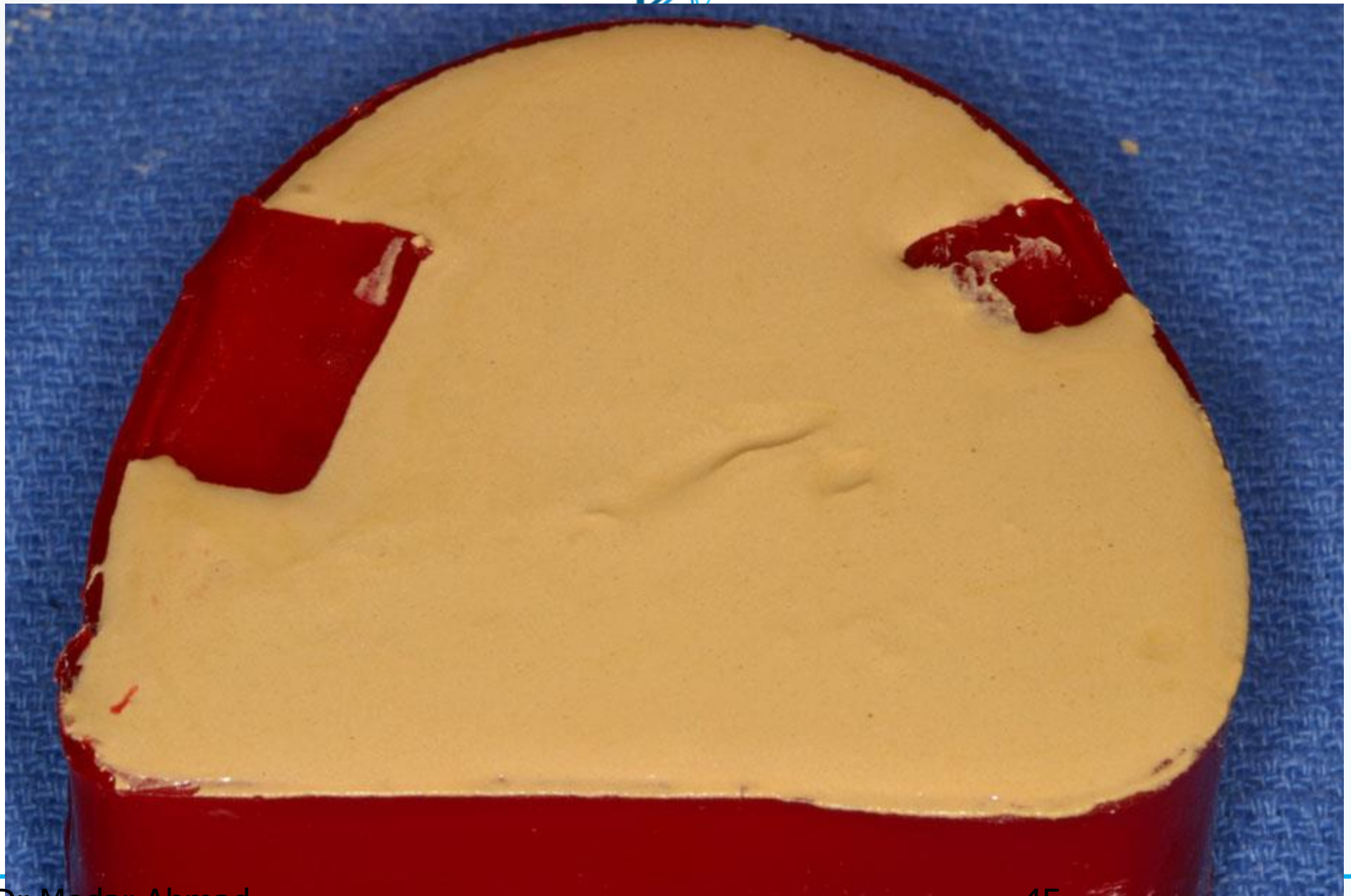






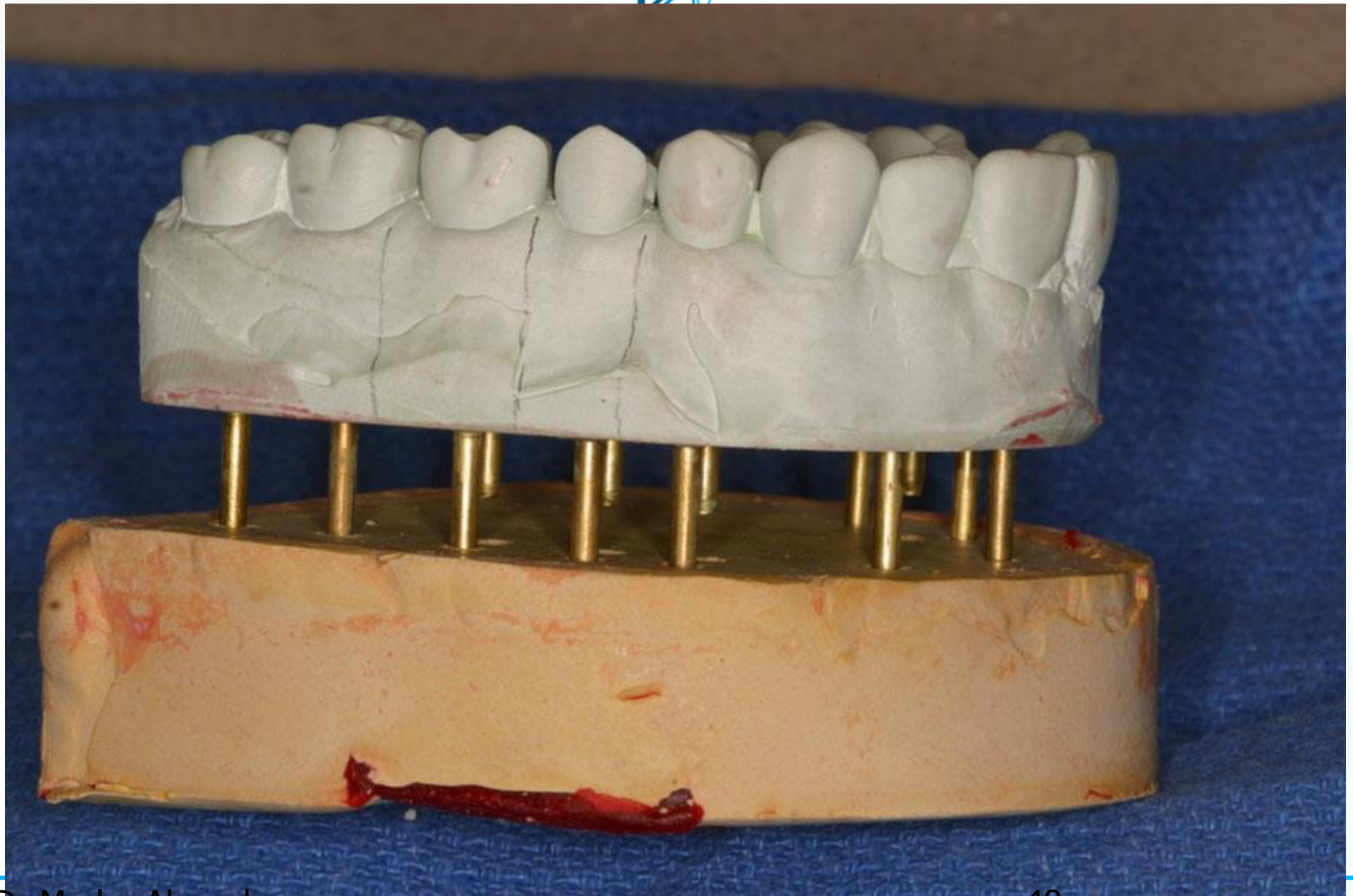








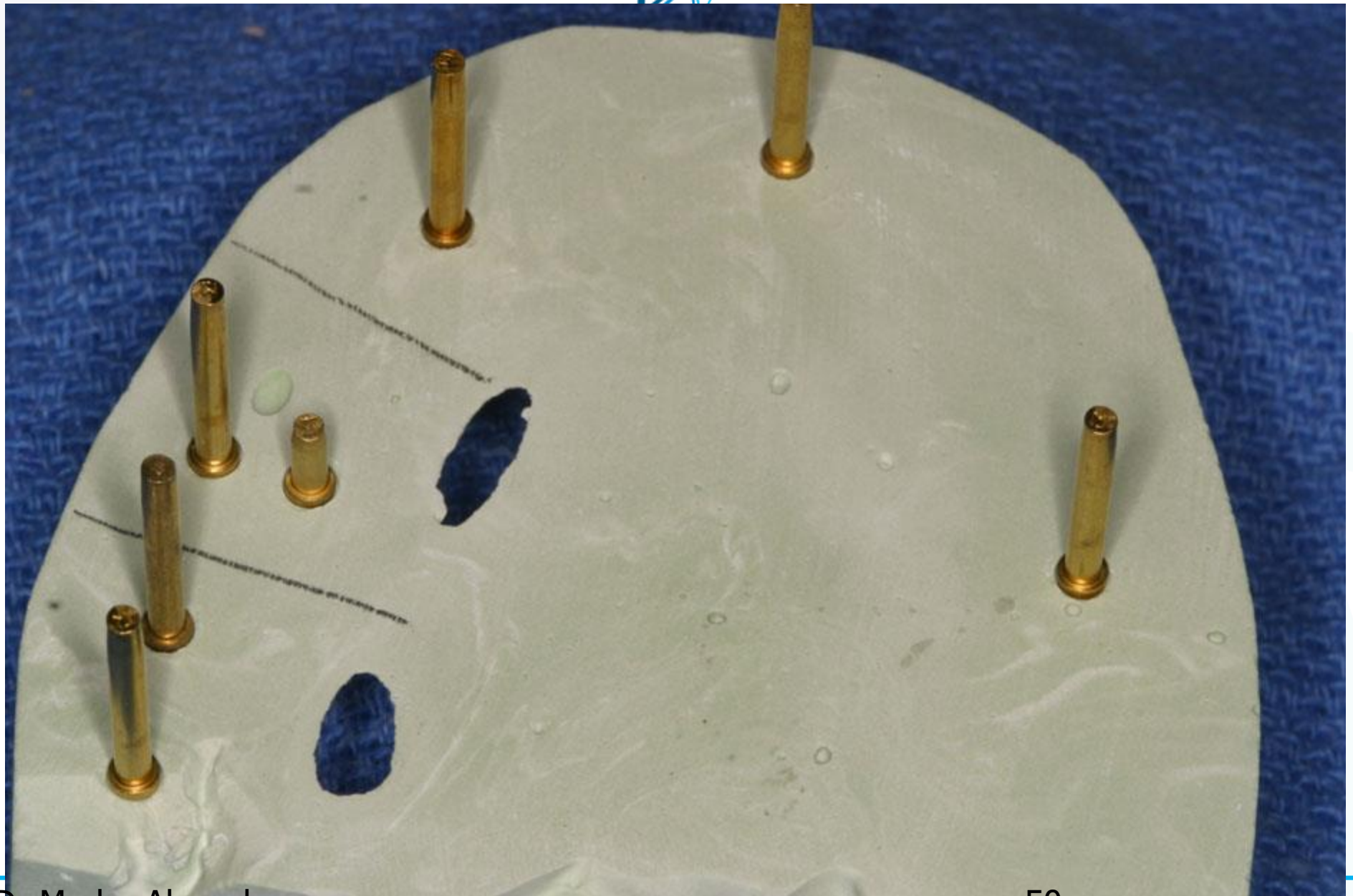




Section & Trim Dies



1. Remove palate or lingual area of cast
2. Mark planned saw cuts with a pencil
2. Create removable segments with a saw
 - Parallel saw cuts
 - Each segment individually removable
4. Using microscope, remove gross stone beyond finish line with a #7 lab carbide bur in straight handpiece
5. Finish trimming with scalpel or cleoid-discoid under microscope

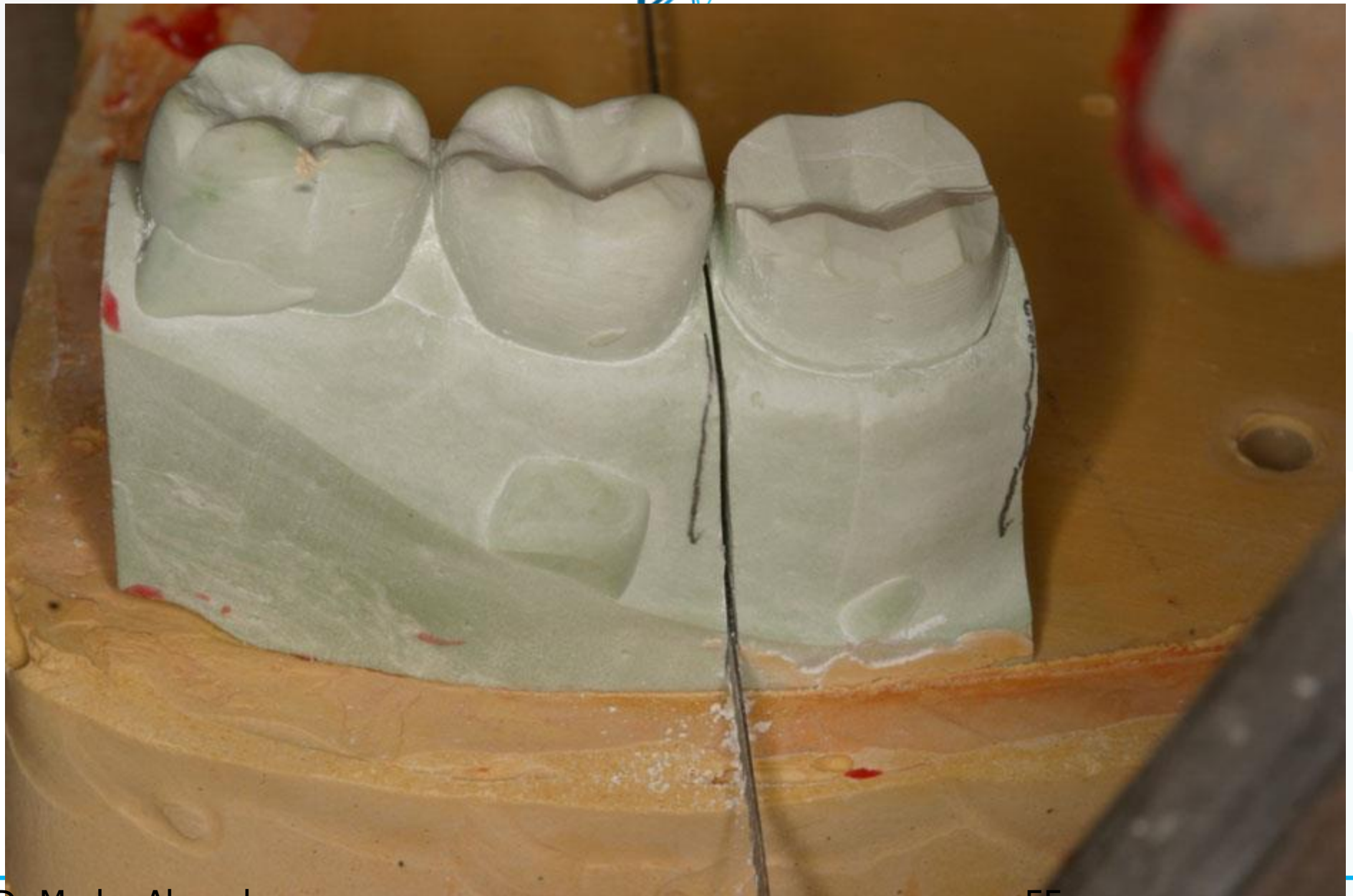


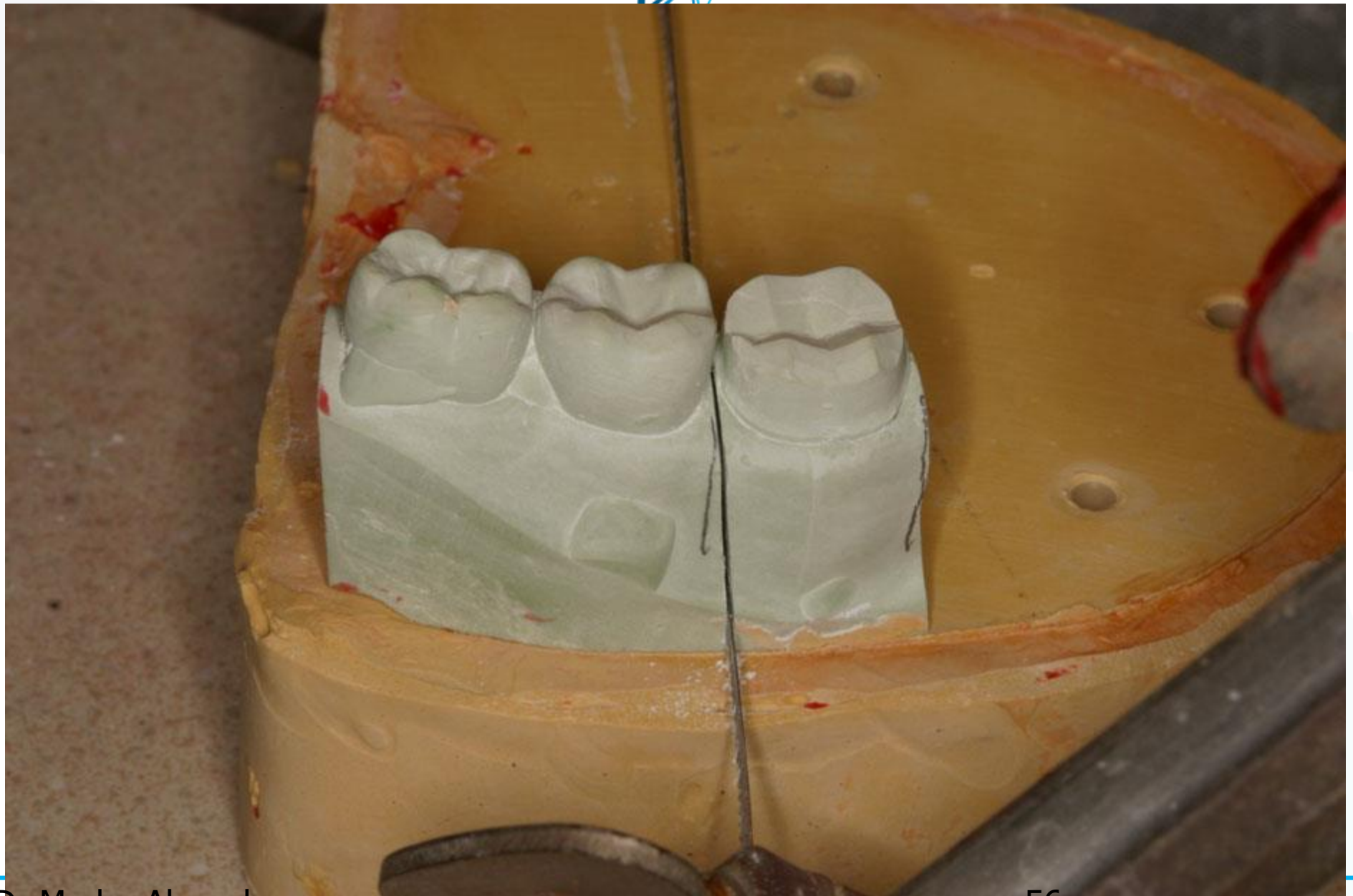






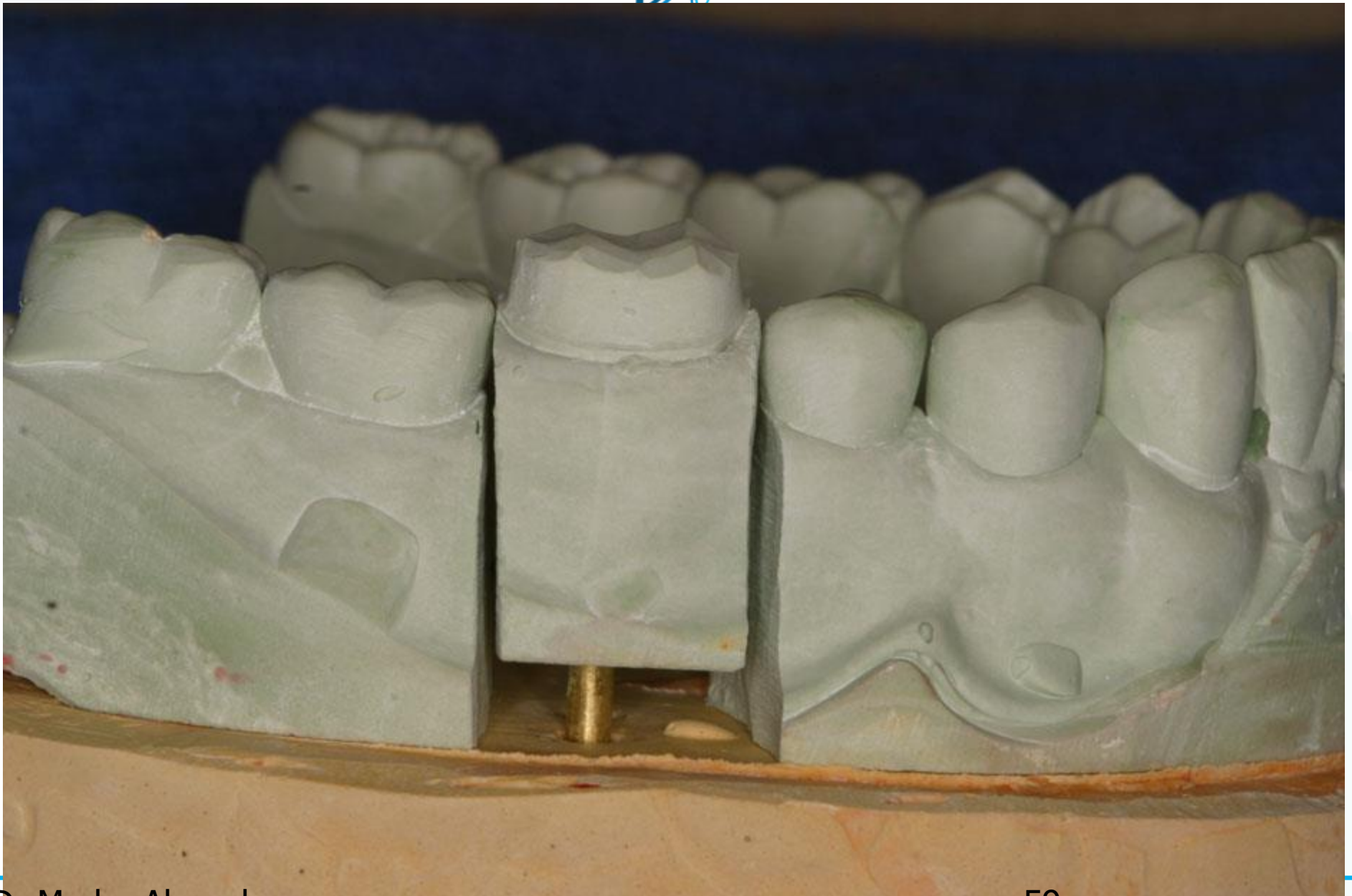


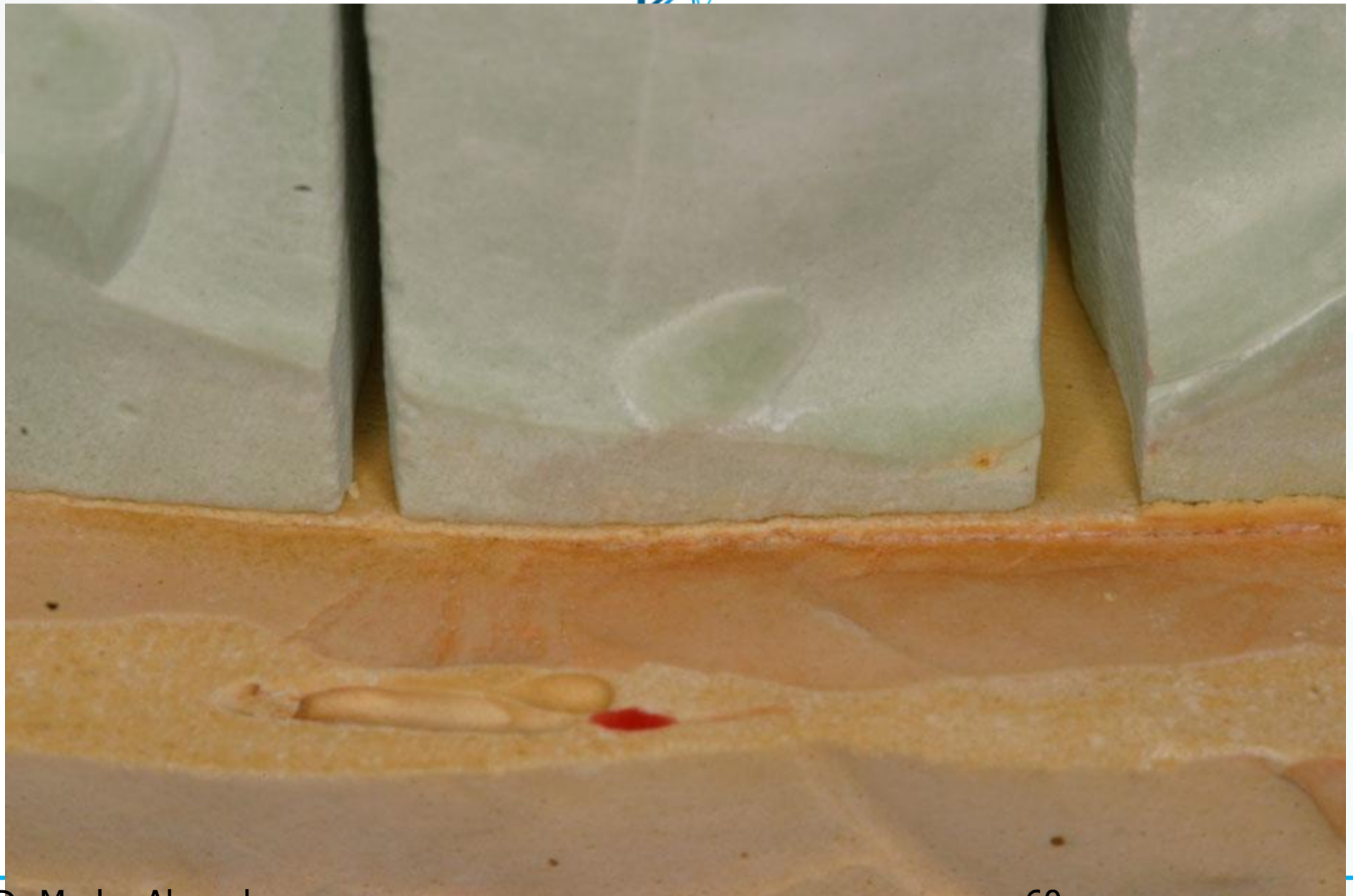






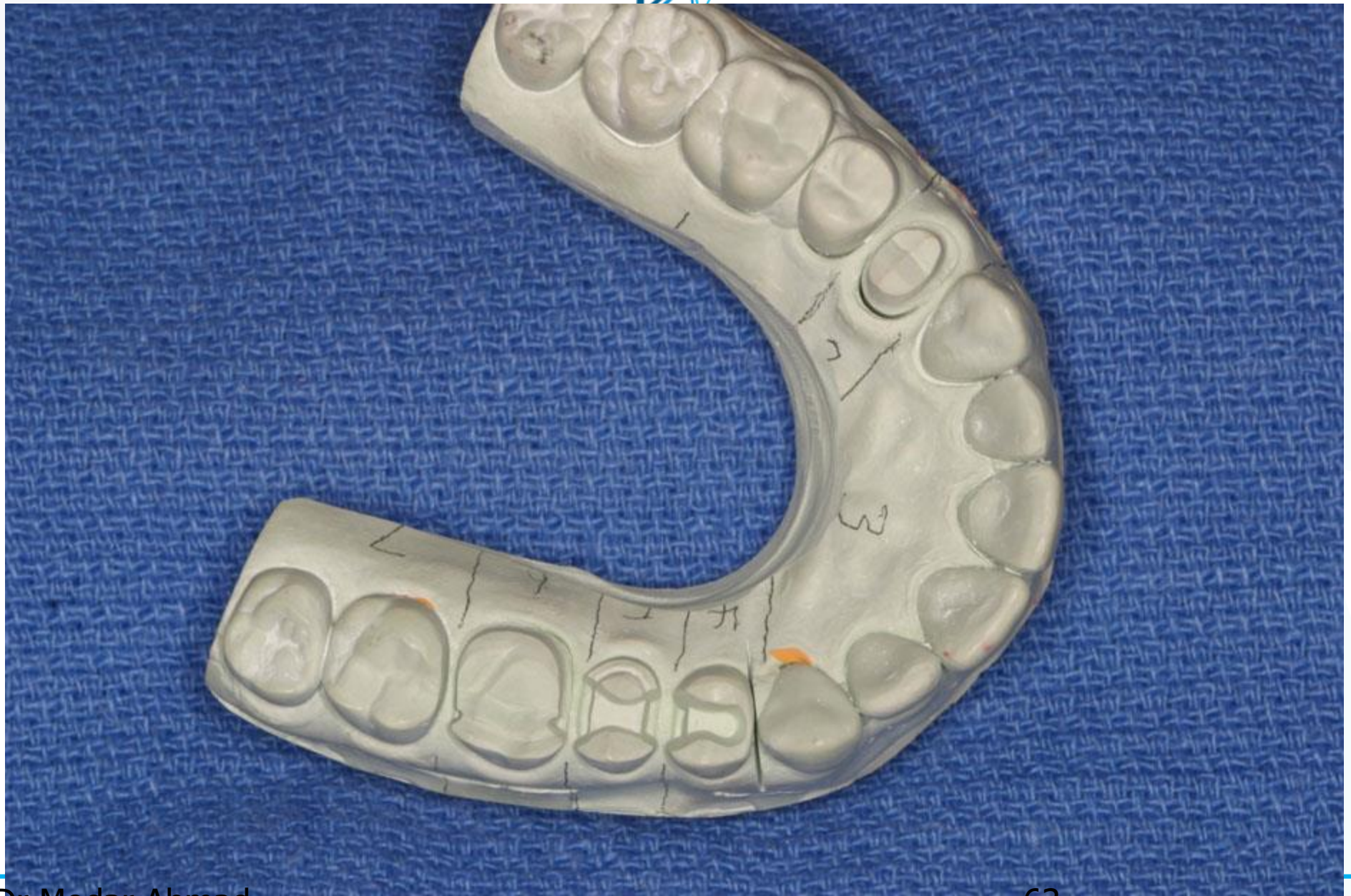




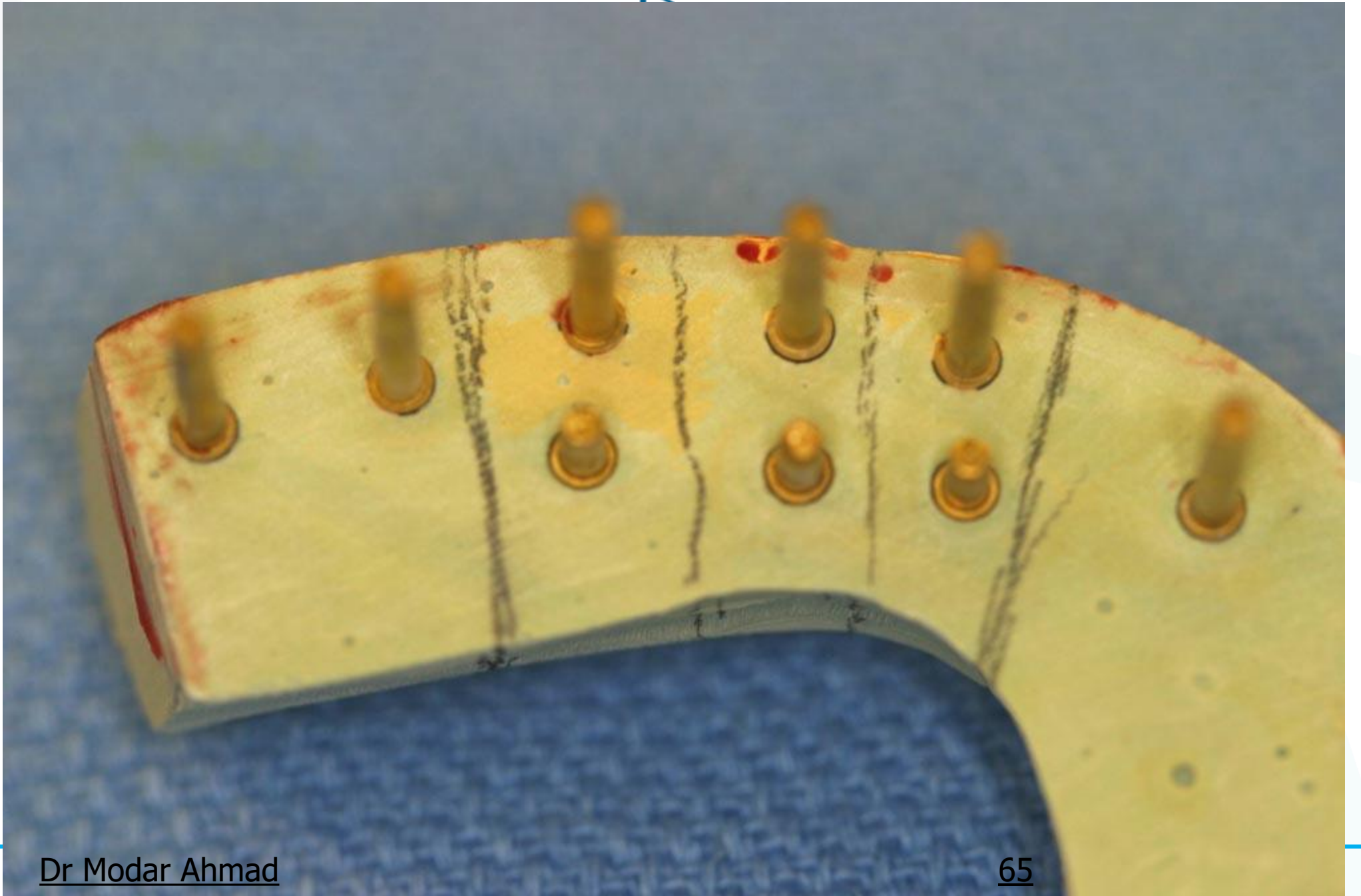


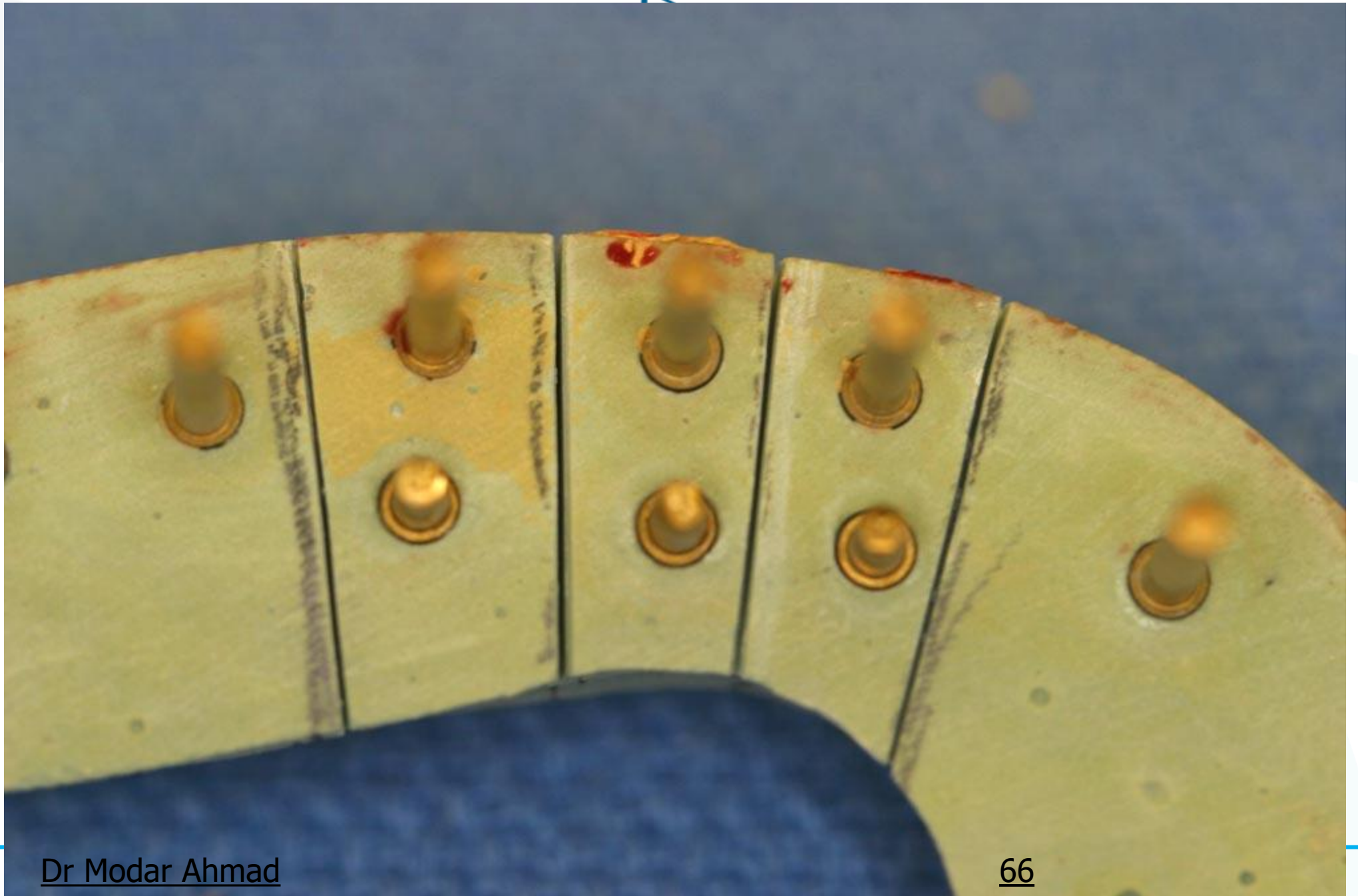










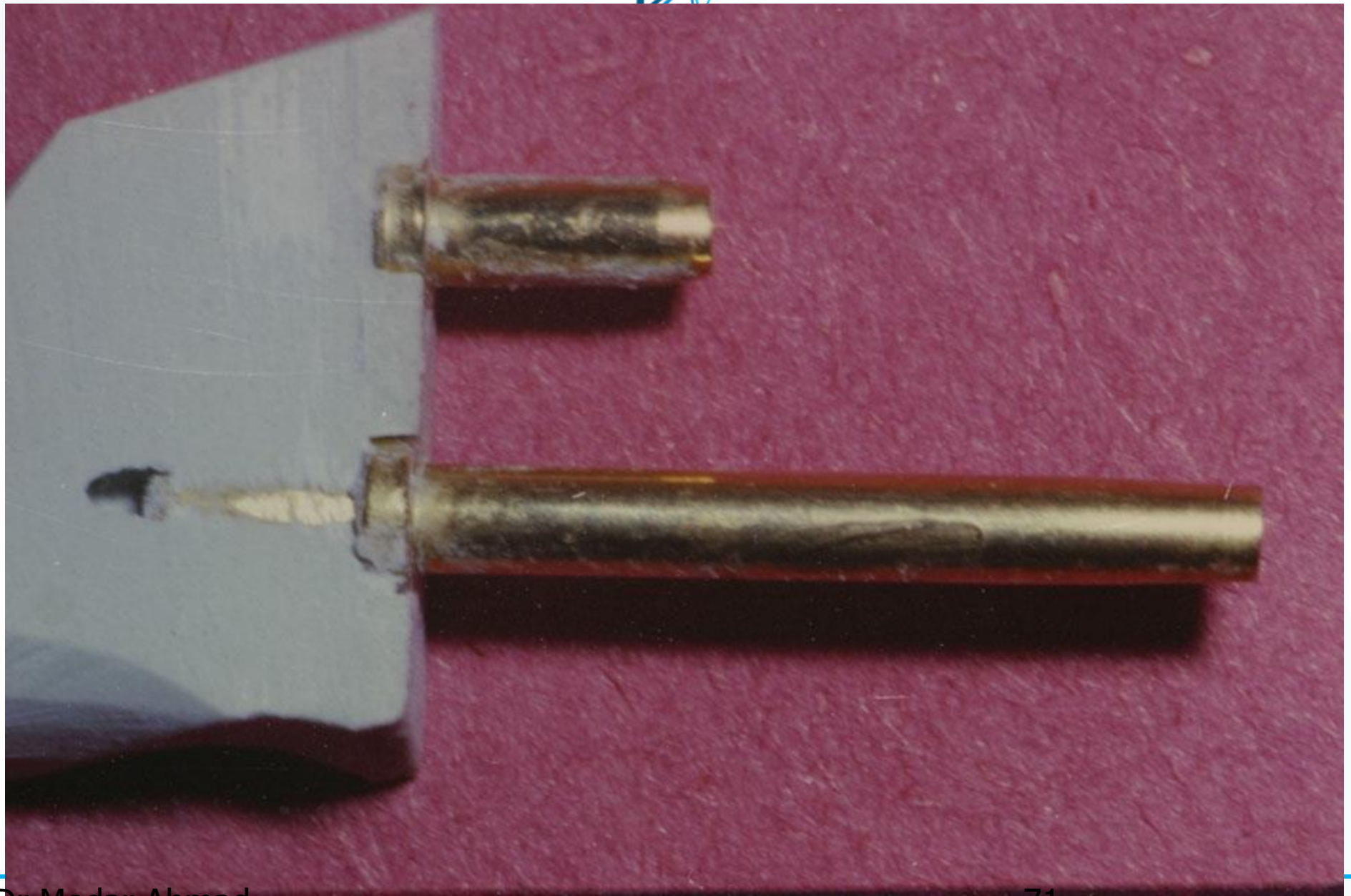


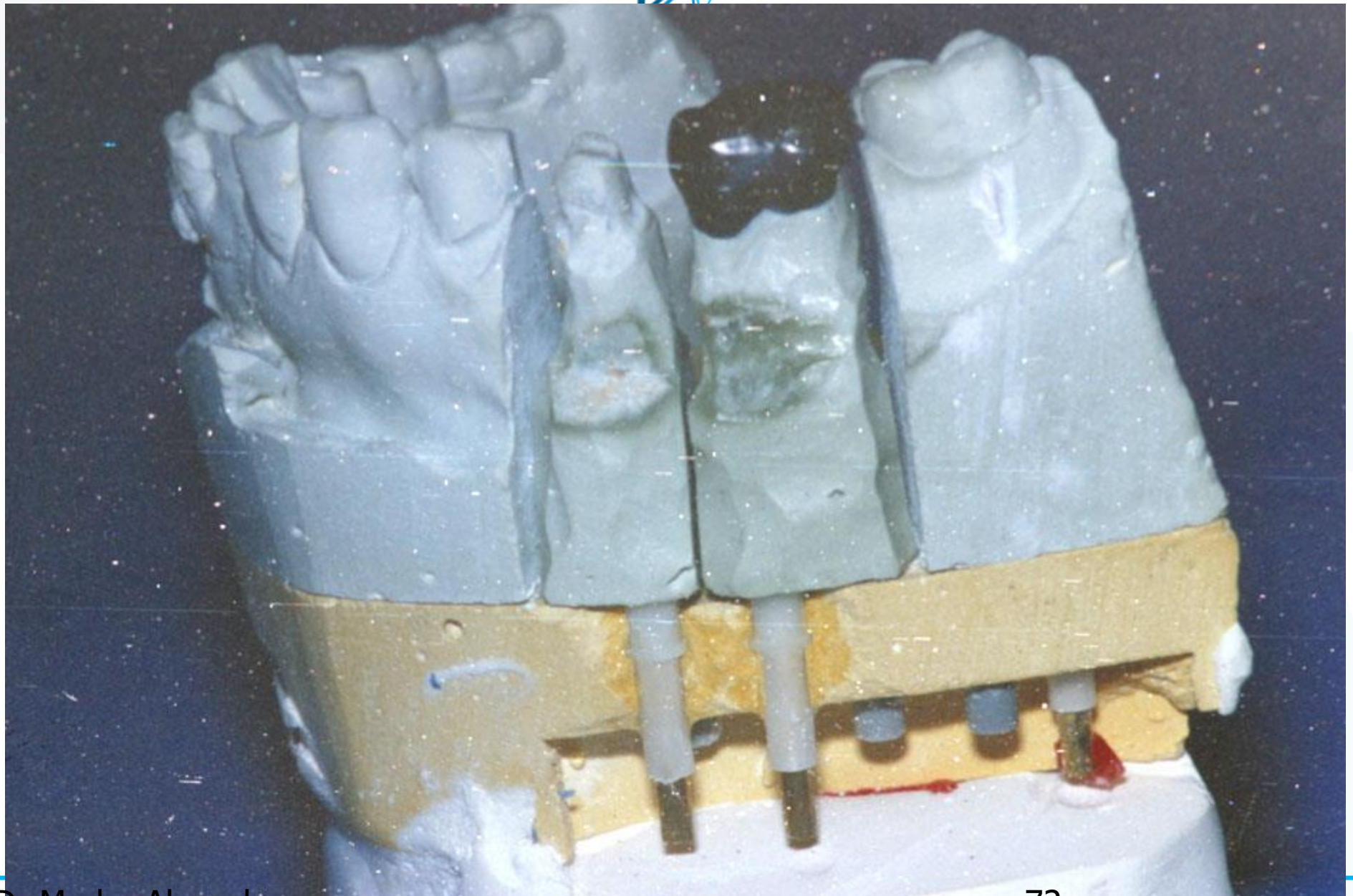












Die Trimming



1. Remove most of excess stone with #7 lab carbide bur with protective eyewear
2. Fine trimming with scalpel or cleoid-discoid carver
3. Margin should be sharp and distinct for access, but it should not be undermined
4. Uncut tooth beyond finish line should be maintained to provide proper contours in wax

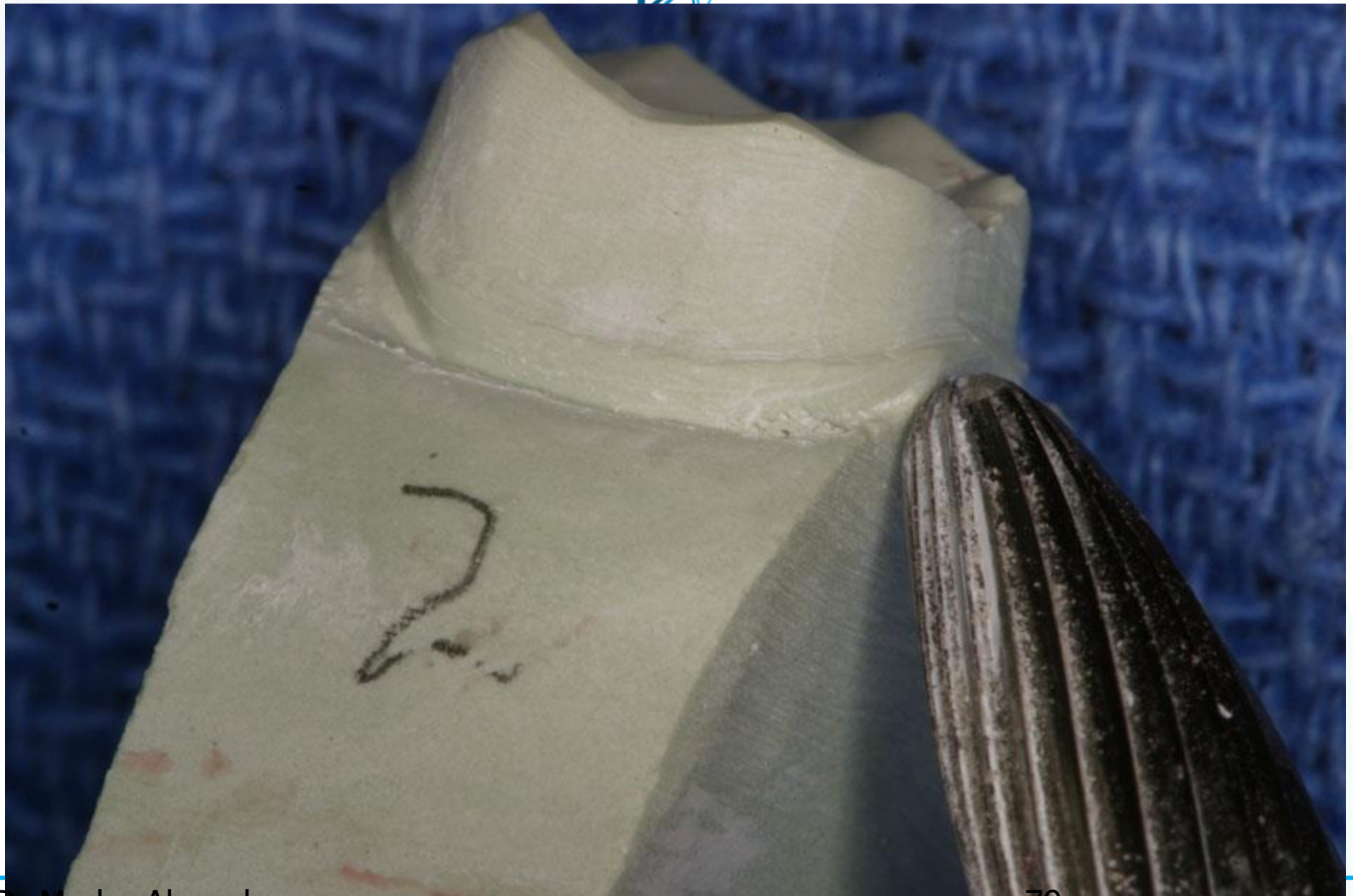




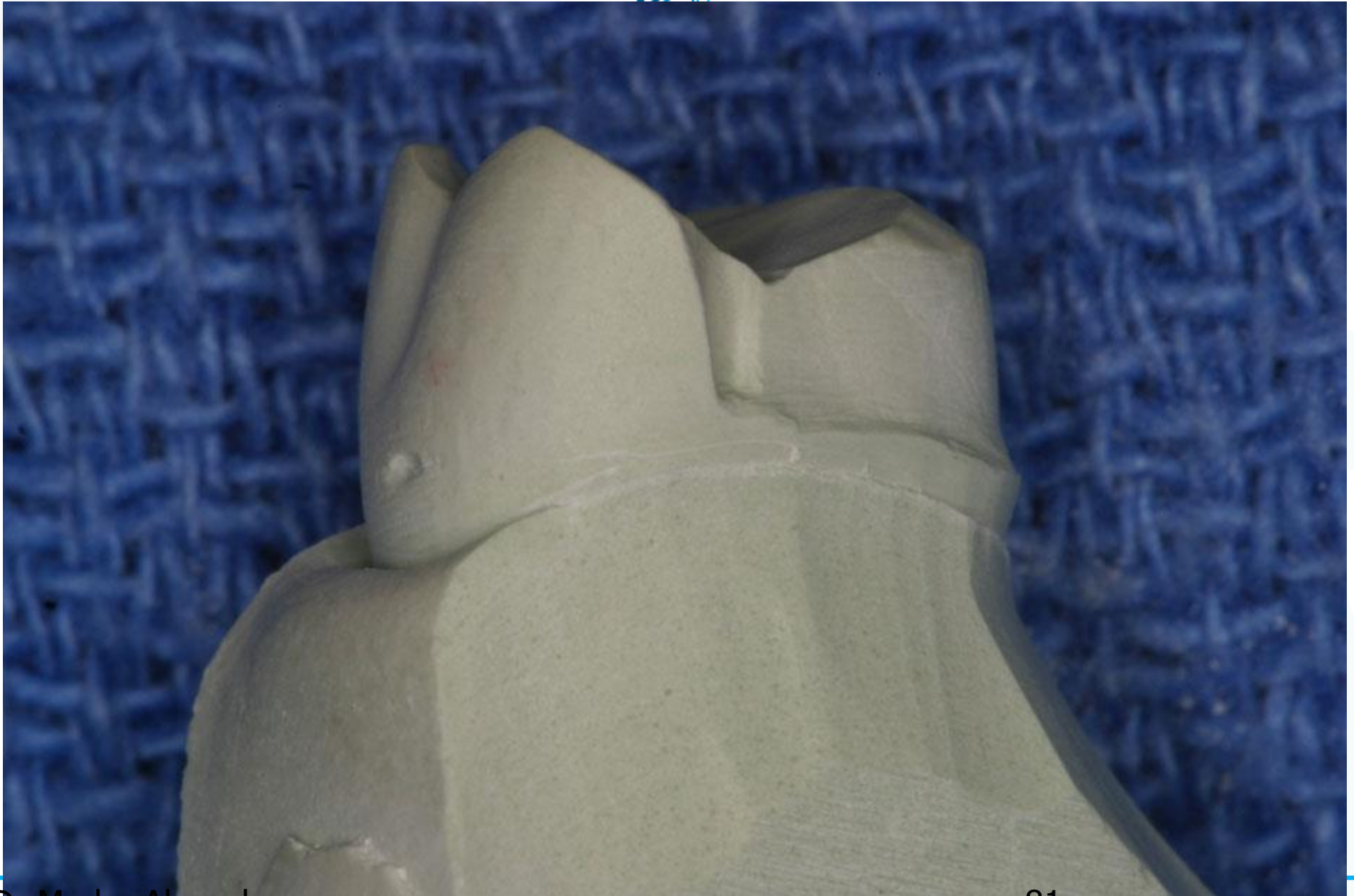


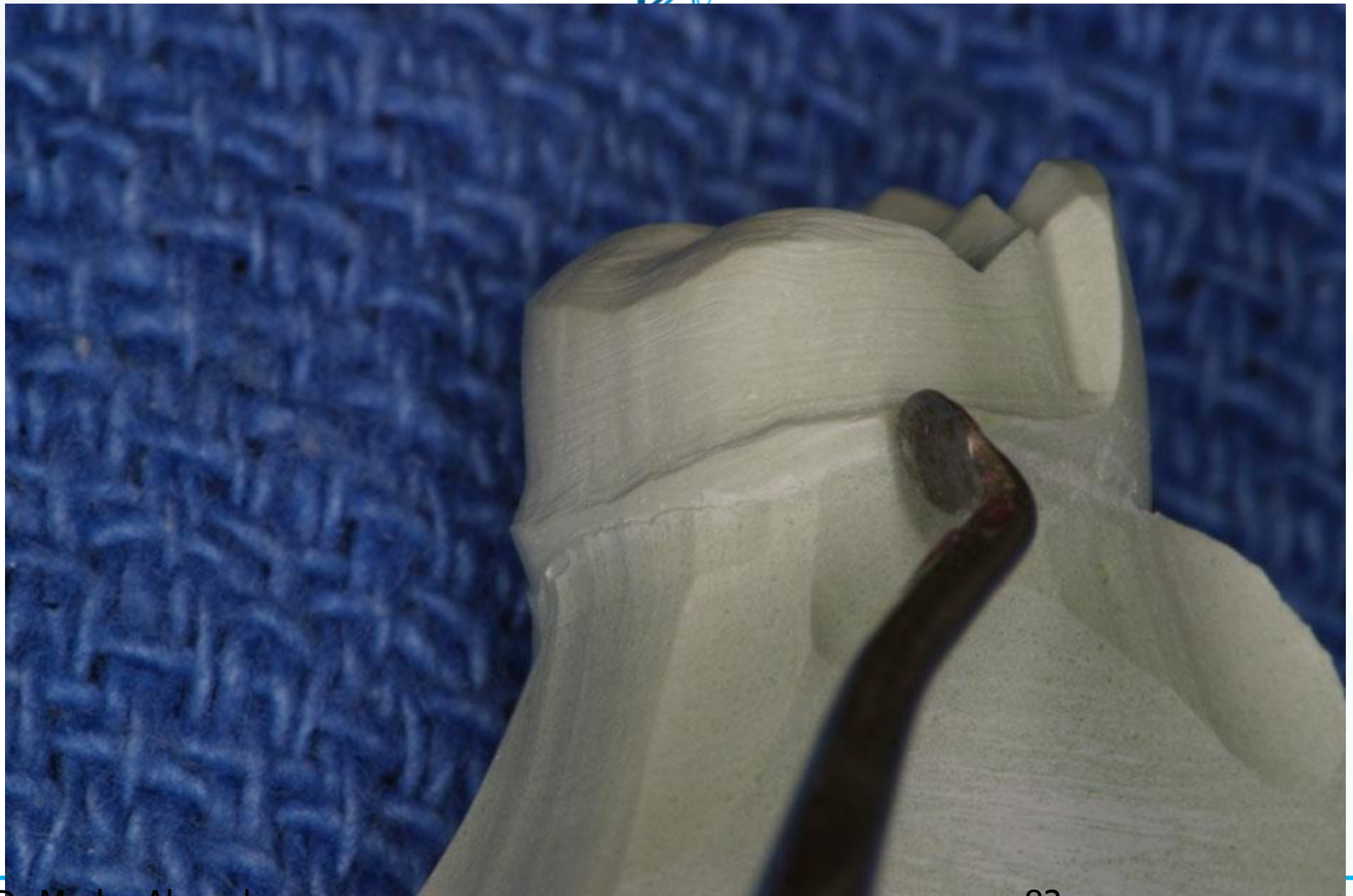




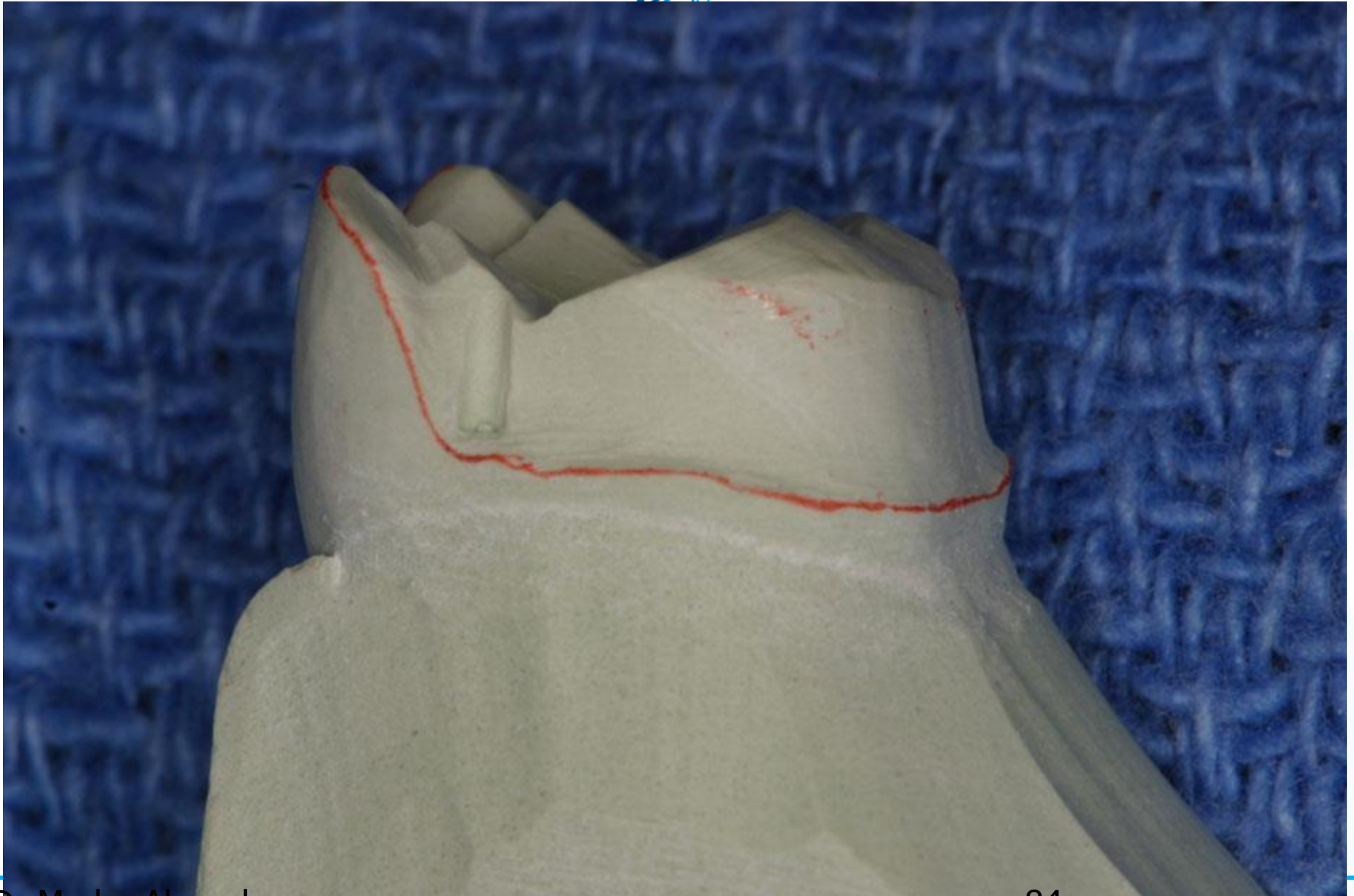


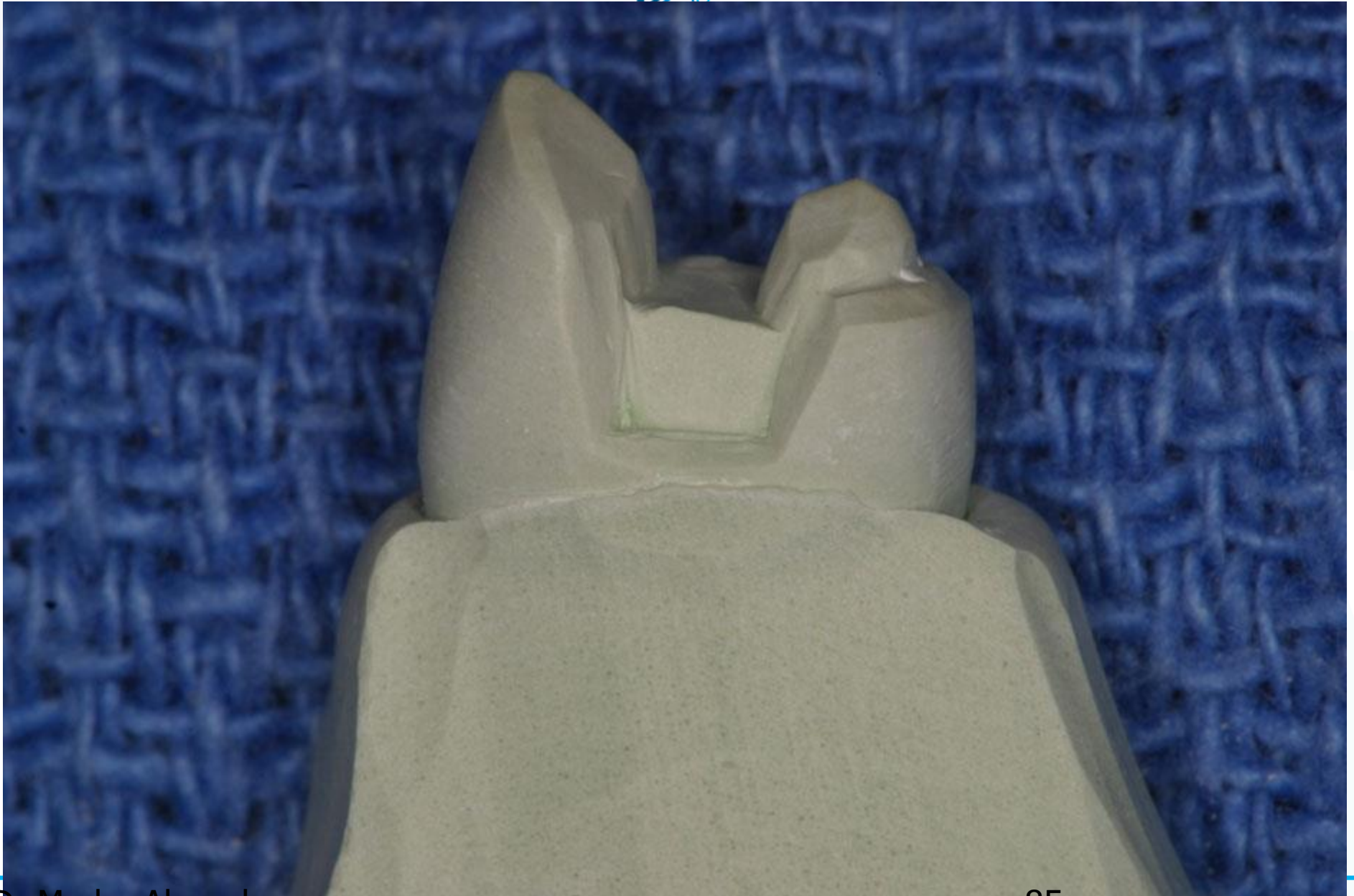




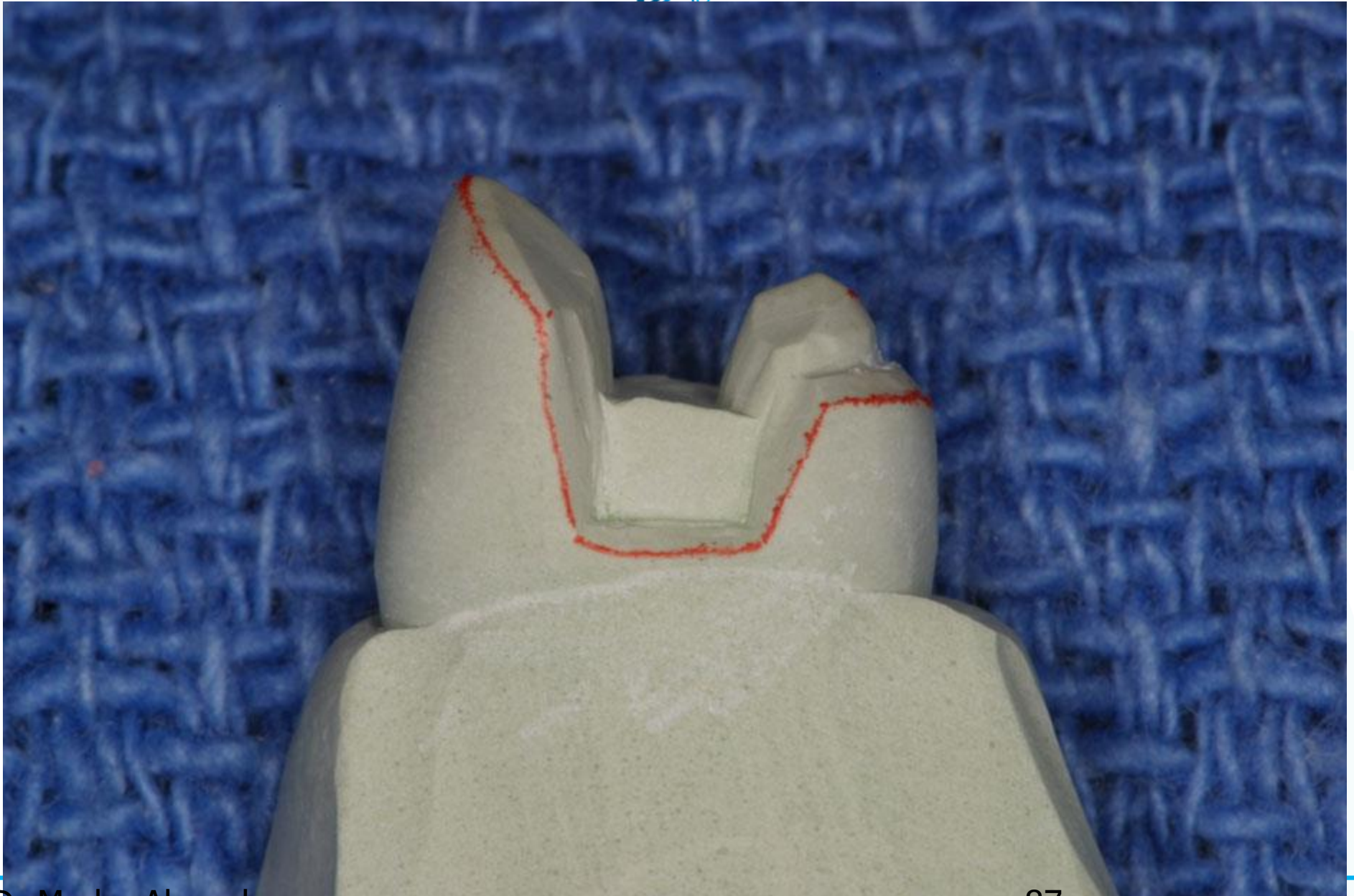










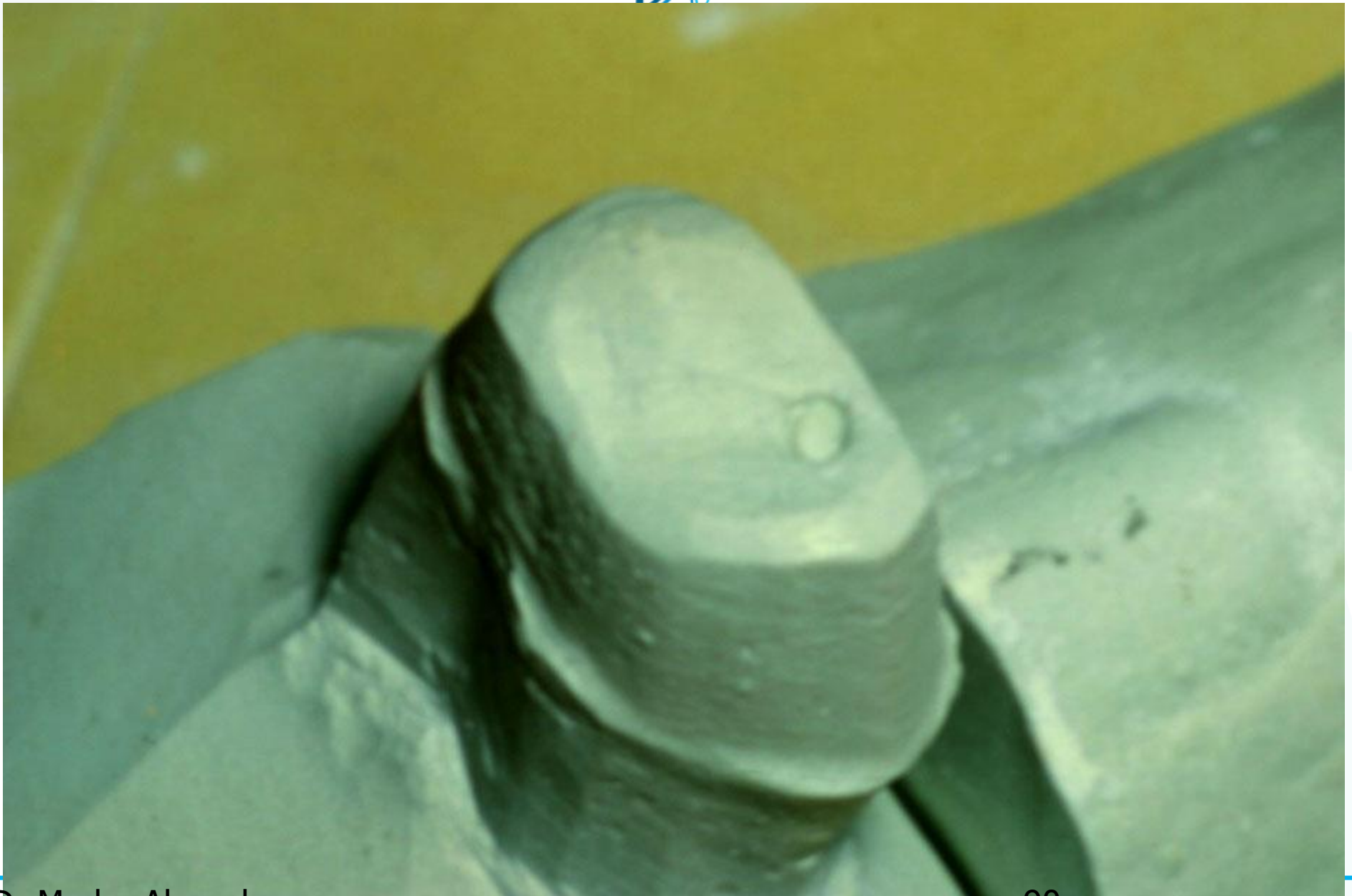






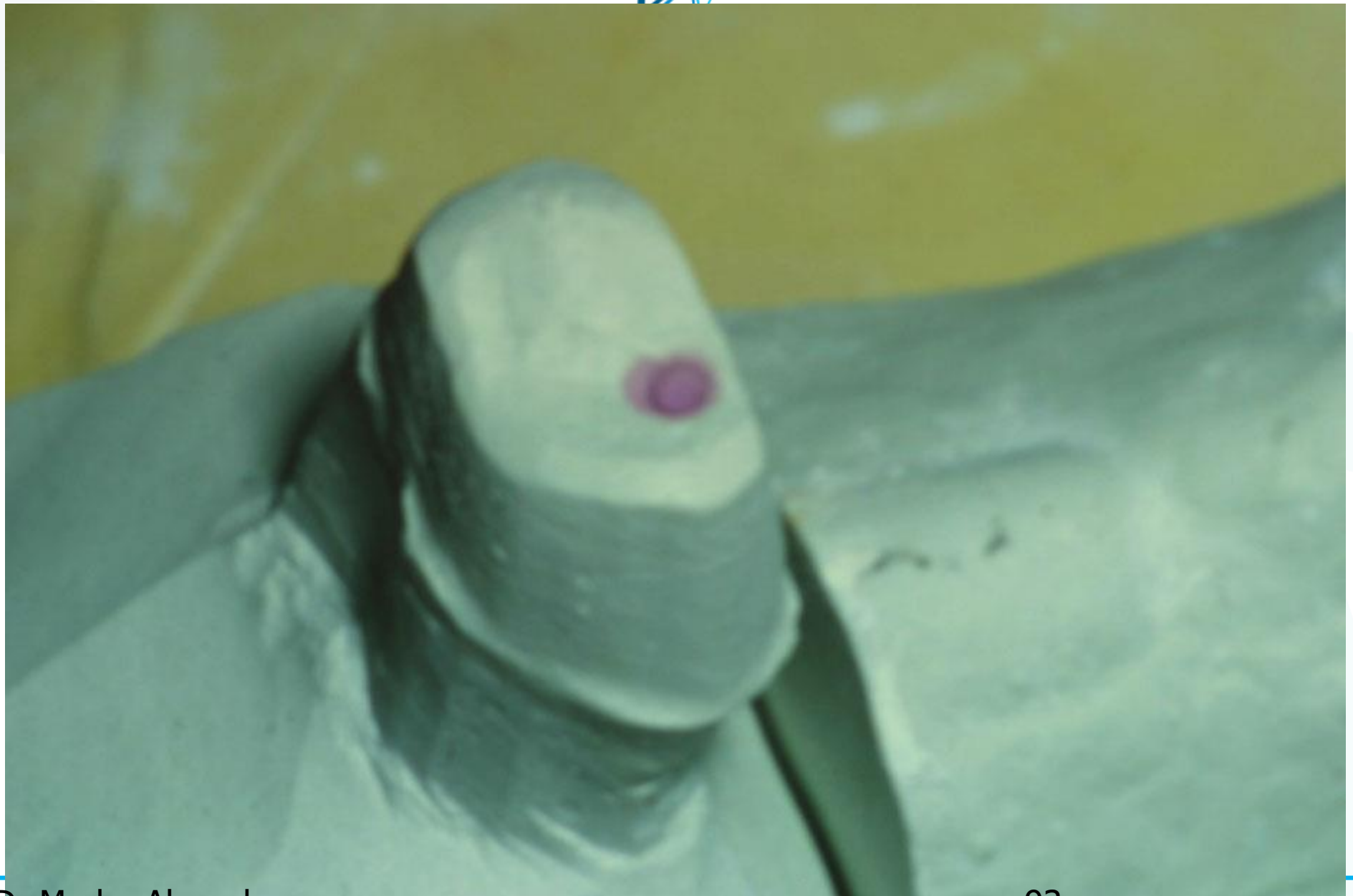
Blocking Out Irregularities Or Undercuts

- 1. Undercuts on finish lines are never blocked out
- 2. Usually blocked out on preparation
- 3. Can be filled in or blocked out on die
- 4. Resin used (Zapit) and sprayed with accelerator













Methods Used to Improve the Seating of Cast Restorations

1. Internal carving of wax patterns
2. Internal grinding of castings
3. Aqua Regia etching
4. Electrochemical milling
5. Paint-On die spacer
20-40 microns

Die Preparation



1. Apply die hardener

Cover die beyond finish lines

Allow to set for 5 minutes

2. Apply die spacer

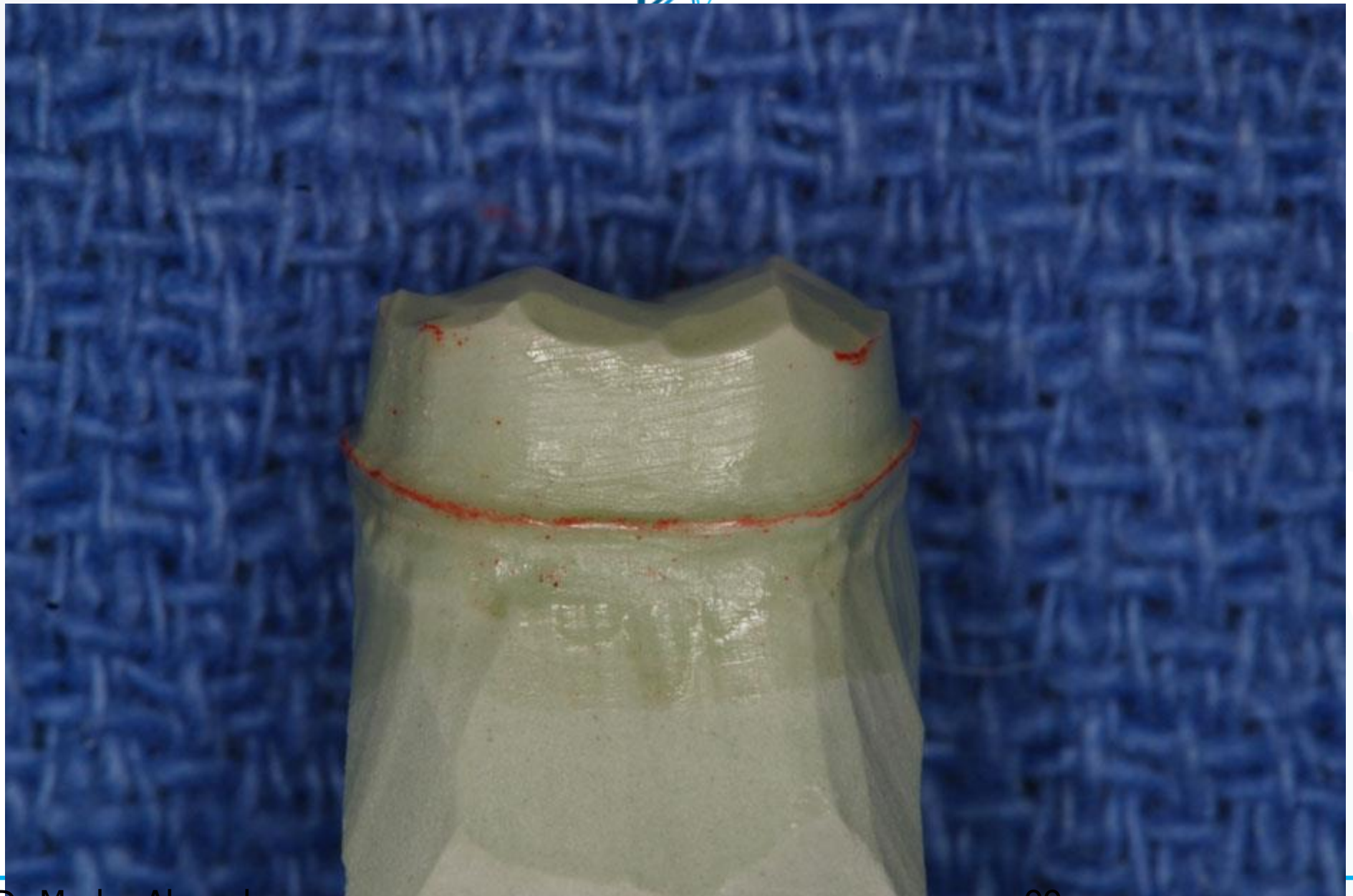
40 micron thickness allows space for cement

2-3 coats placed

Spacer 1 mm from finish line

Remove excess with die setting retardant









013-301
Classic
Die Spacer
Blue

1/2 fl oz (15ml)

MADE IN USA

Featuring
belle de st. claire[®]

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013-302
Cement
Spacer
Gray

1/2 fl oz (15ml)

MADE IN USA

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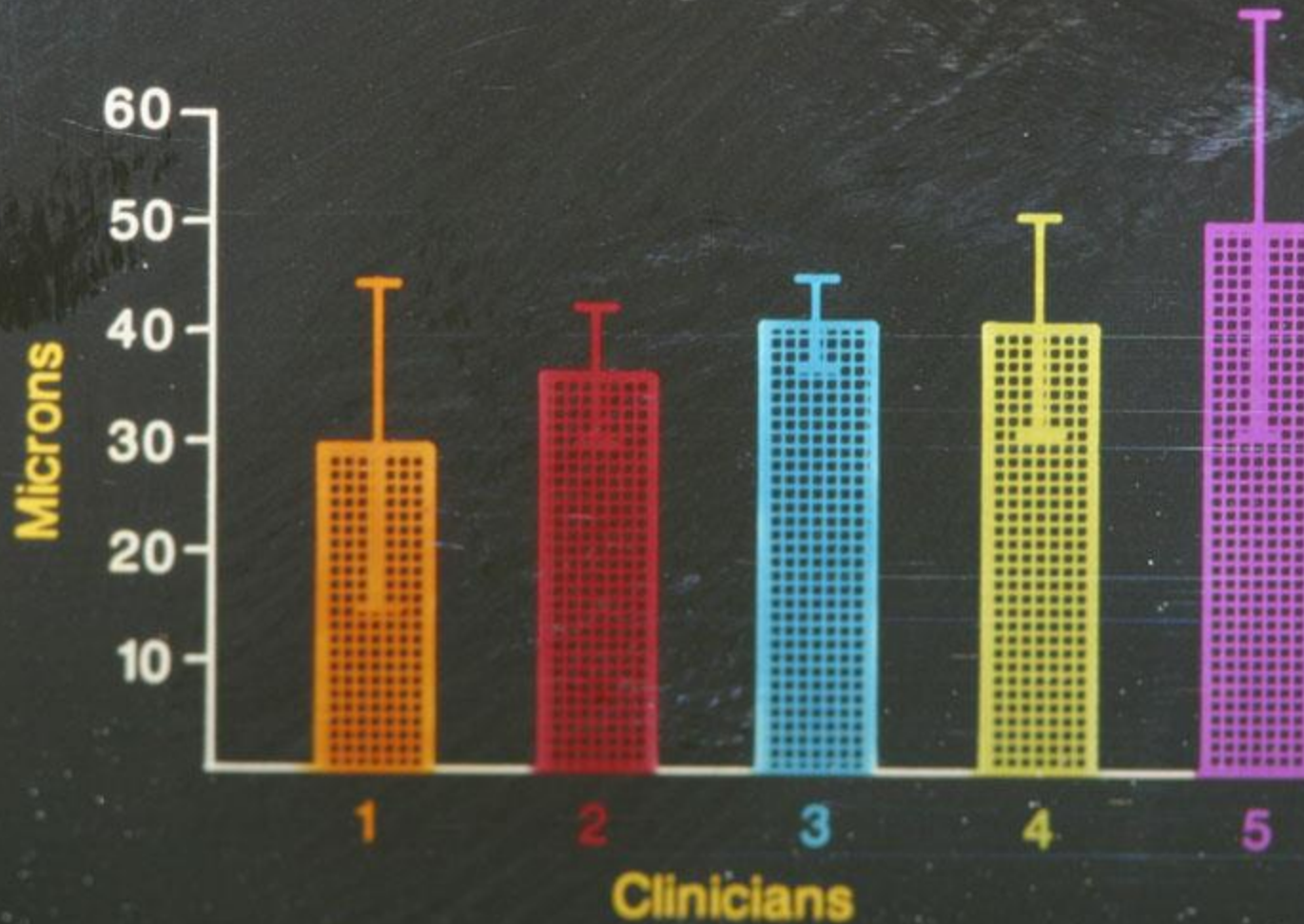
SYBRON DENTAL SPECIALTIES

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29611 Rev A



Mean Film Thickness of Paint-On Die Spacer by Five Clinicians on 20 Dies



**Film Thickness of Paint-On Die Spacer at
Seven Measurement Locations on 100 Dies**

