

Investing & Casting Gold Crowns Lost Wax Process

Fixed Prosthodontics 1

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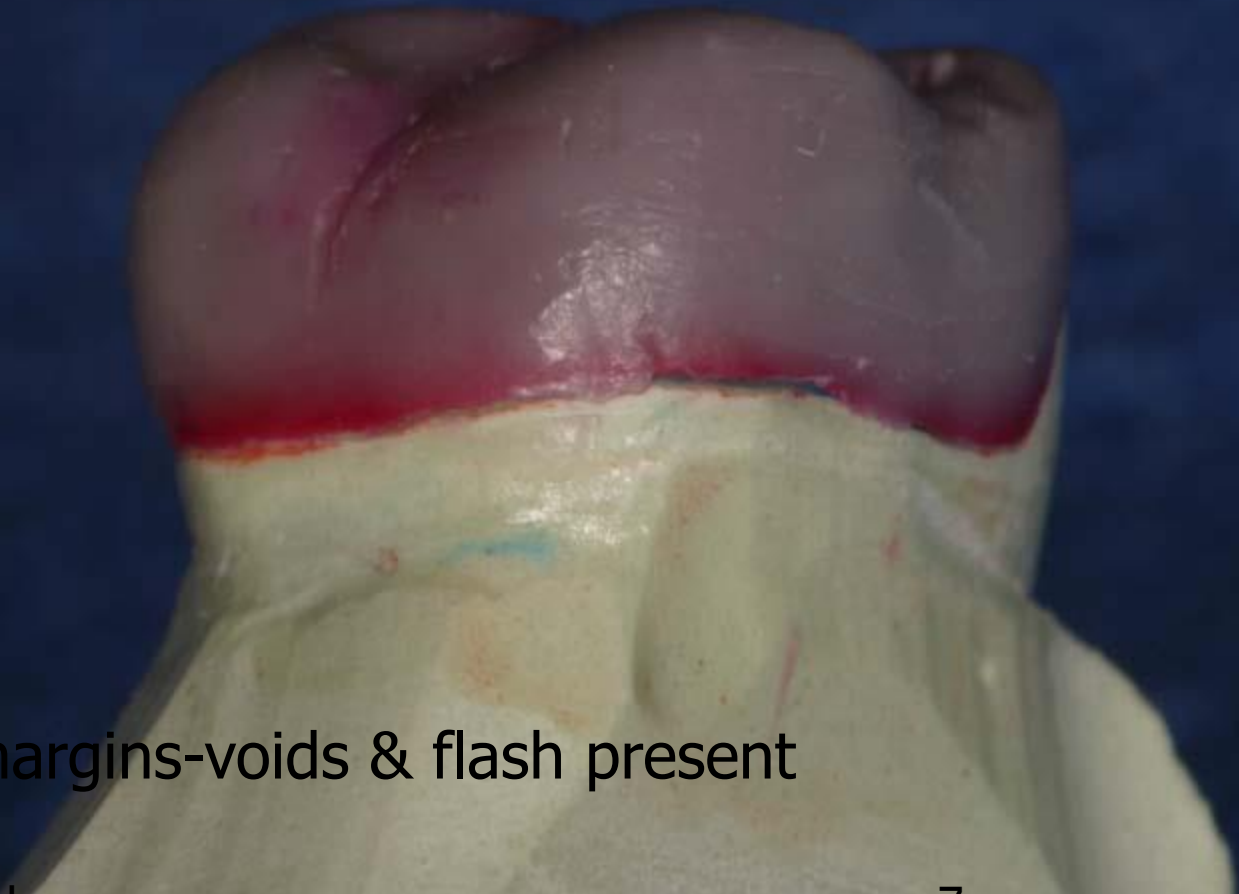




Margin Finishing



- Remelt margins and add wax to margins
- Allow to cool
- Carve back to finish line
- Inspect margin areas under microscope for flash and any other defects
 - Remove & reseal pattern to identify flash
- Correct as necessary

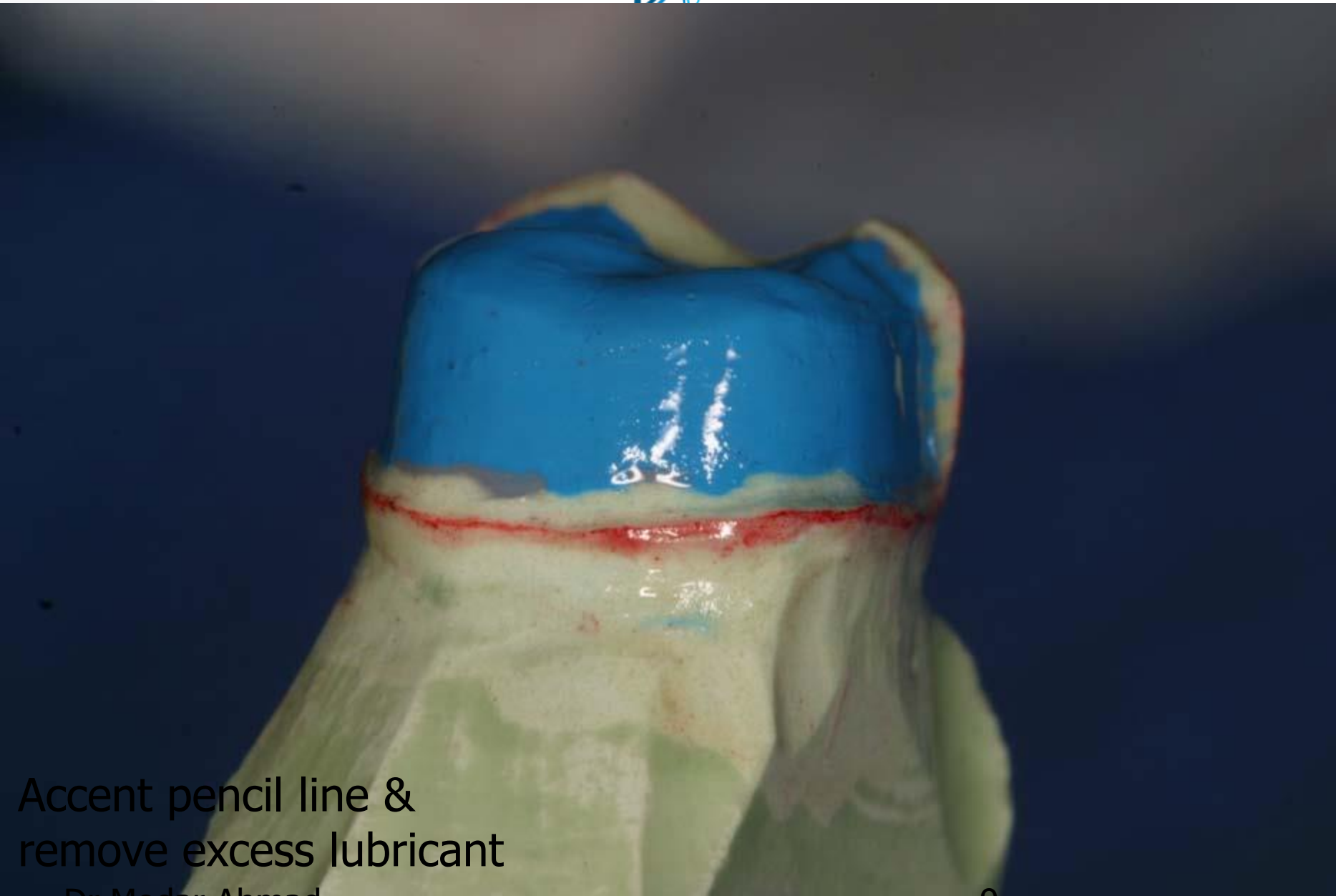


Unfinished margins-voids & flash present



Die lubricant

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Accent pencil line &
remove excess lubricant

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Add wax to seal margins
Allow to cool

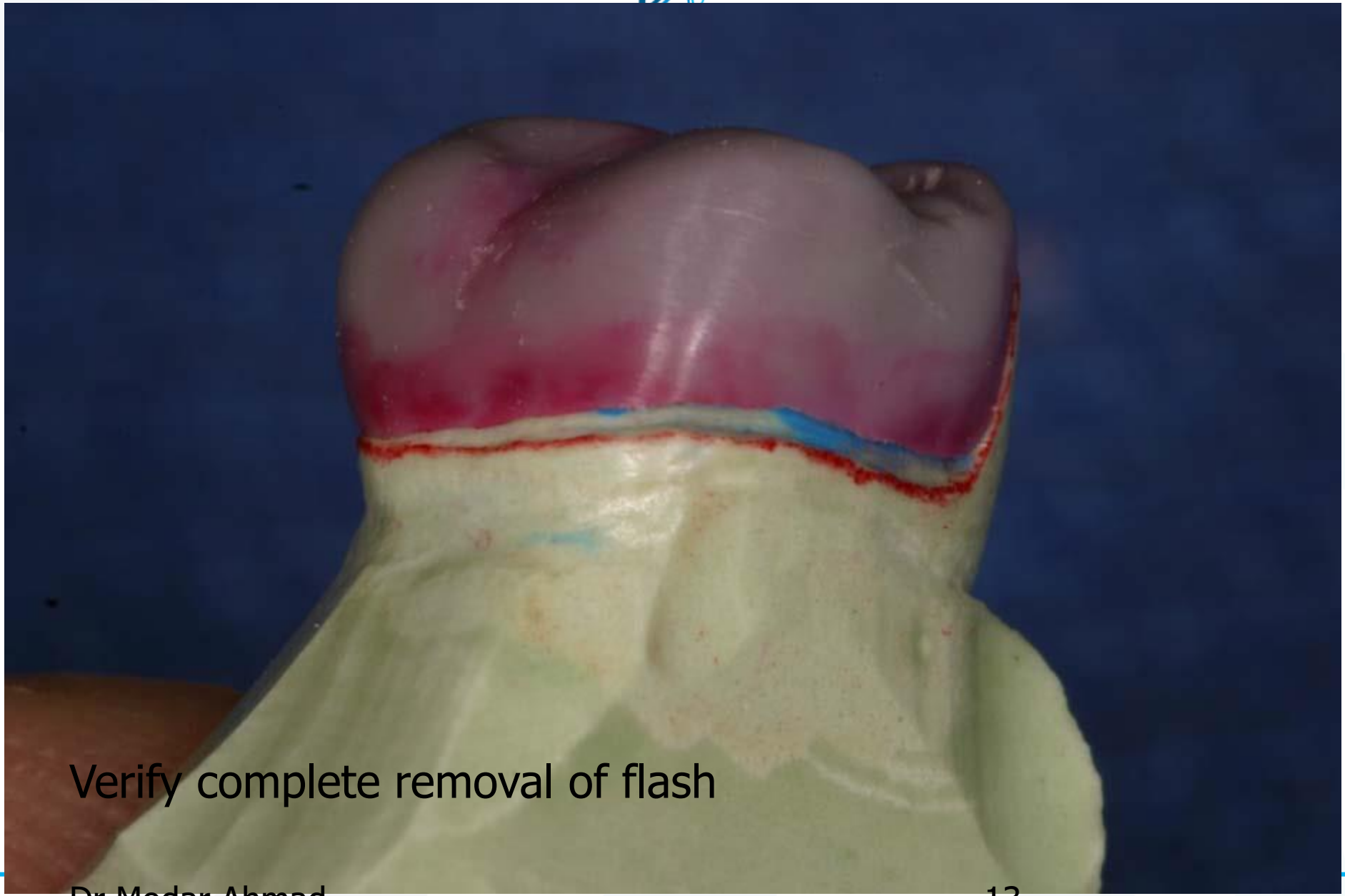


Remove excess wax to
expose finish line

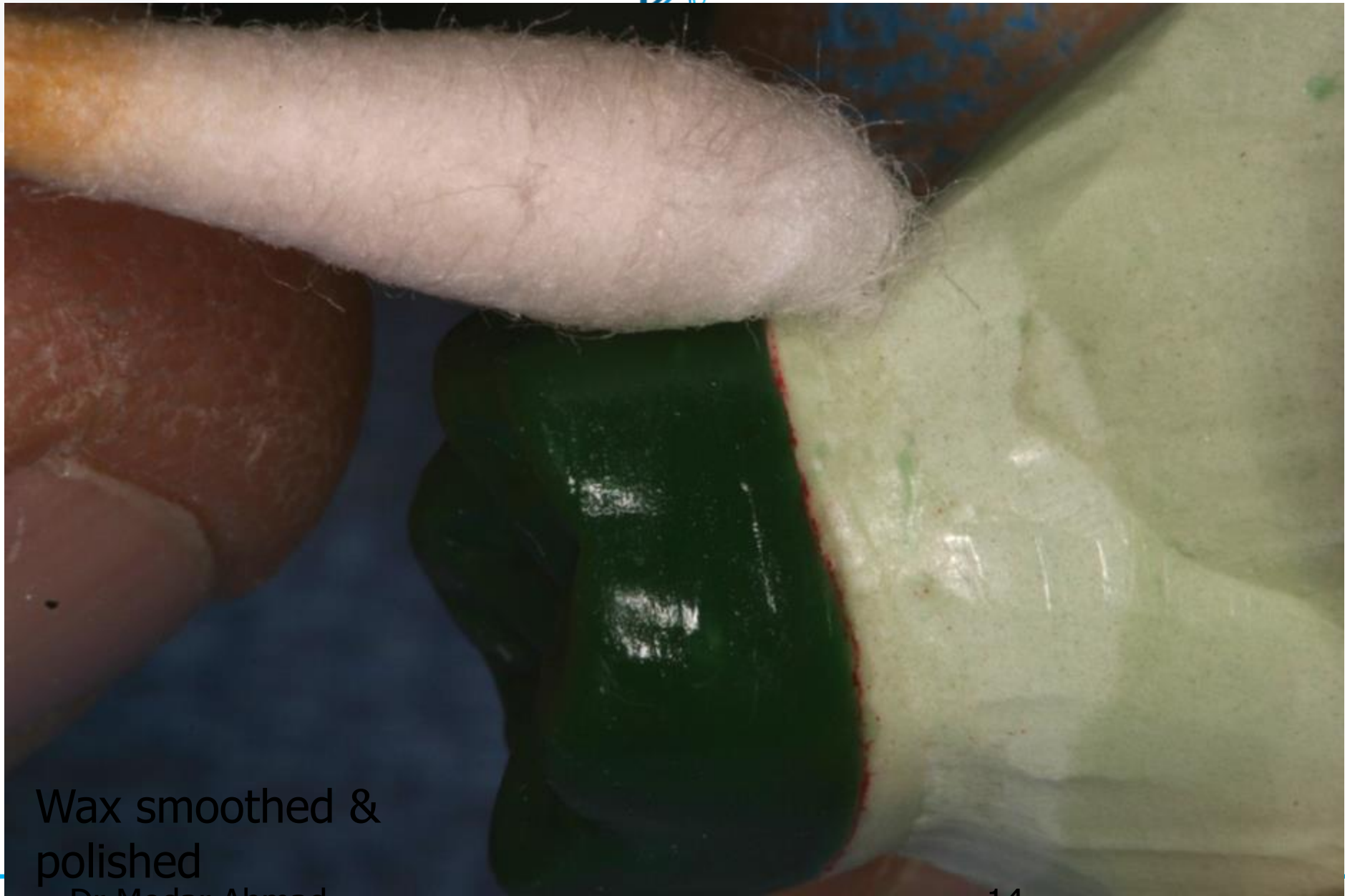
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Excess wax beyond finish removed



Verify complete removal of flash



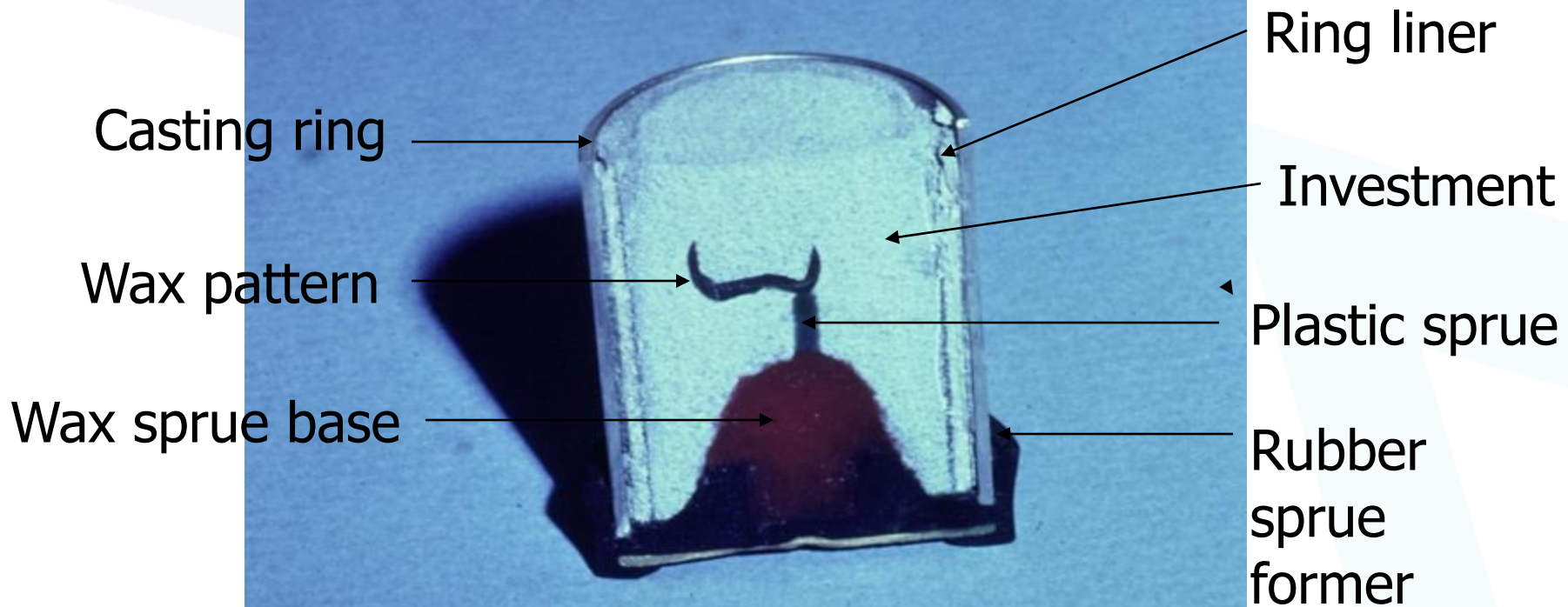
Wax smoothed &
polished

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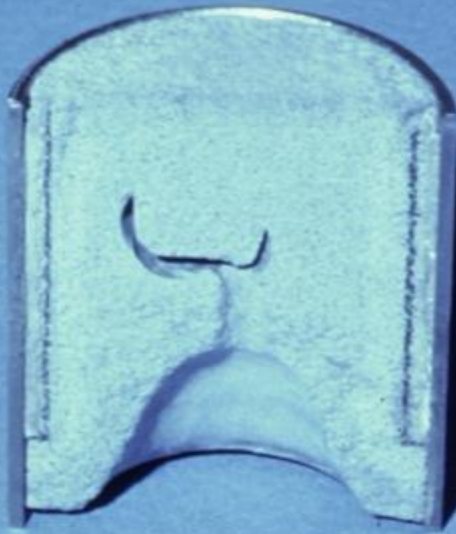
Investing Technique

- Place liner in ring-attach with sticky wax
- Attach sprue to pattern
 - Area of significant bulk
 - Allow smooth flow of gold into pattern
 - Not near margin
- Attach sprue to rubber sprue former
- Vacuum mix investment
- Flow investment into ring





Cross section of invested wax pattern in casting ring



Casting ring with void
after wax elimination

Expansion/Contraction

- Gold expands as it is melted and shrinks as it cools
- Die stone expands as it sets
- Investment expands against ring liner as it sets
- Investment expands in the oven

Attaching Pattern To Rubber Base Former

Armamentarium



- Clean work area
- Bunsen burner
- Casting ring, liner & rubber sprue former
- Hollow plastic sprue
- Sticky wax
- Cotton forceps
- Waxing instrument
- Perfect wax pattern



Pattern Position

- Center of casting ring
- Margins 6-8 mm from closed end of ring
- Sprue 4-6 mm long
- Build up base to allow for proper positioning



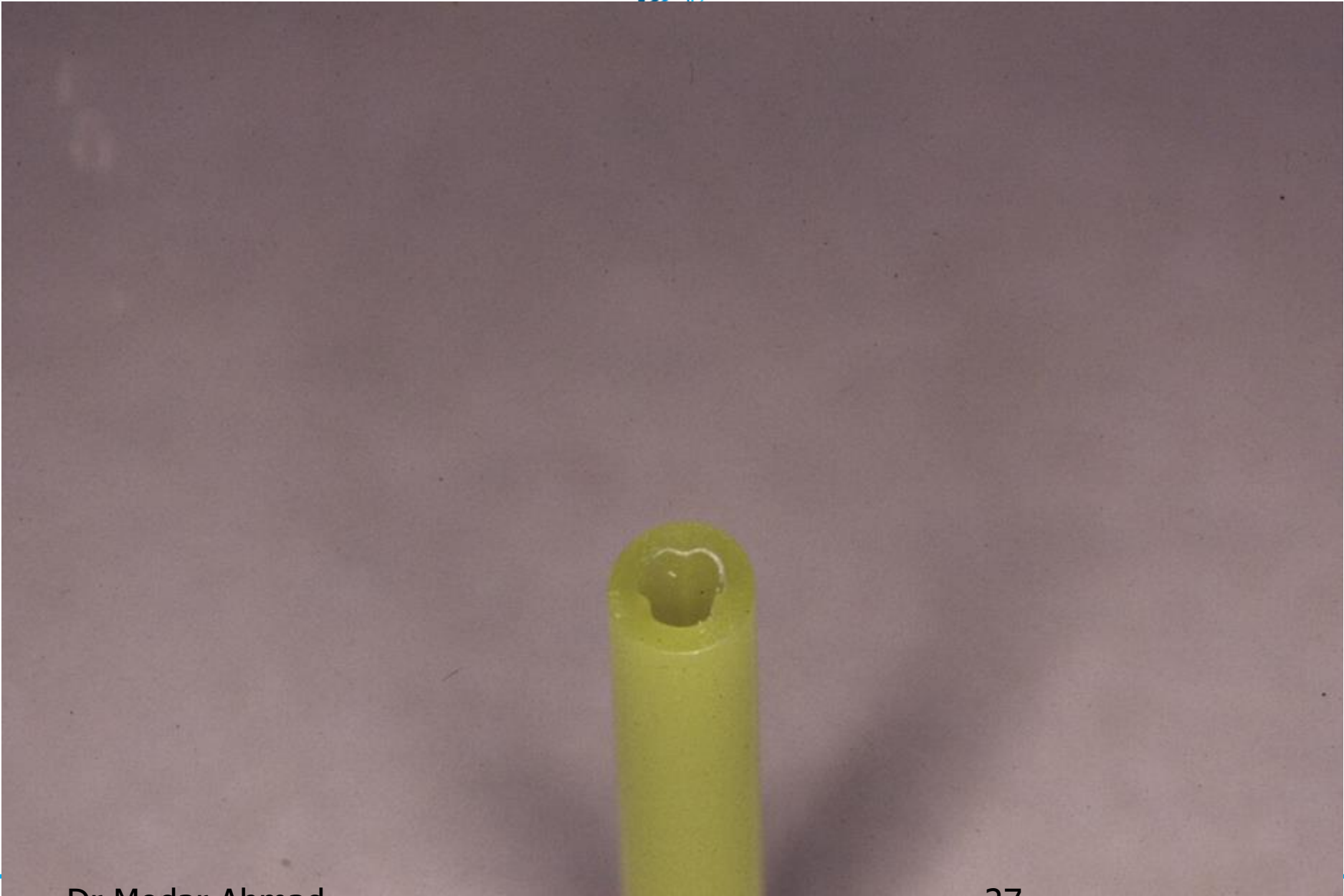
2-4 mm

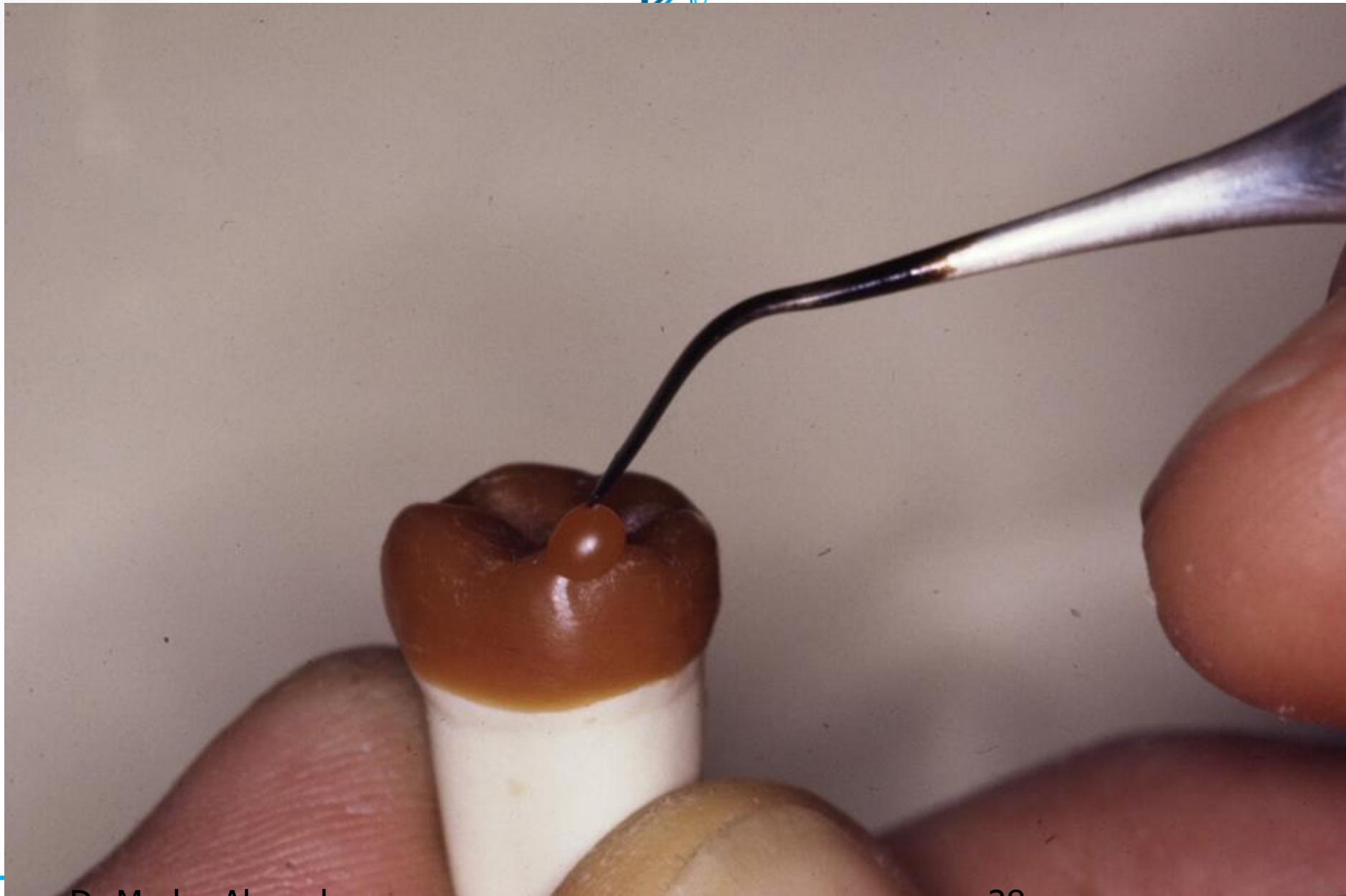
4-6 mm

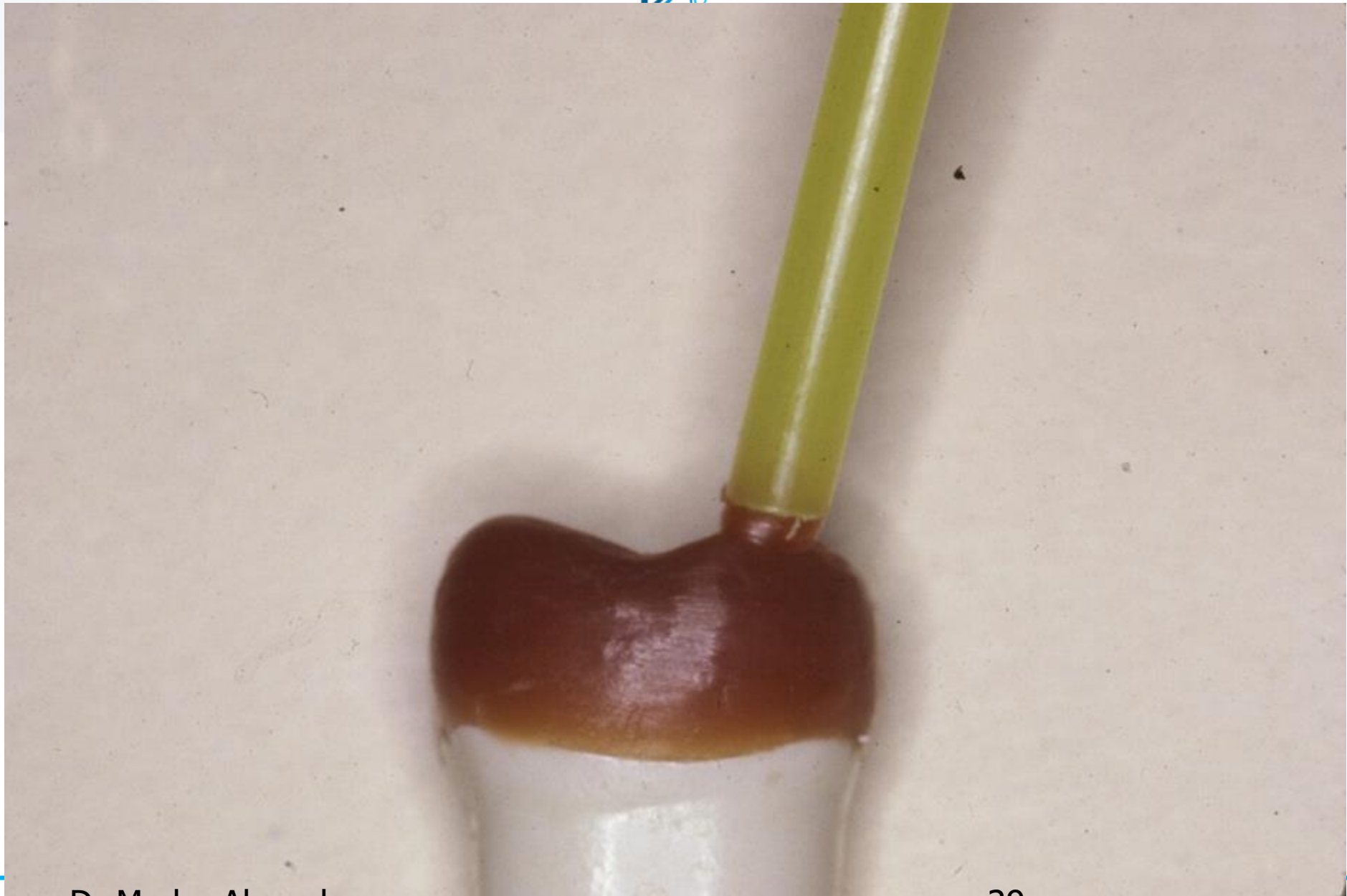
4 mm

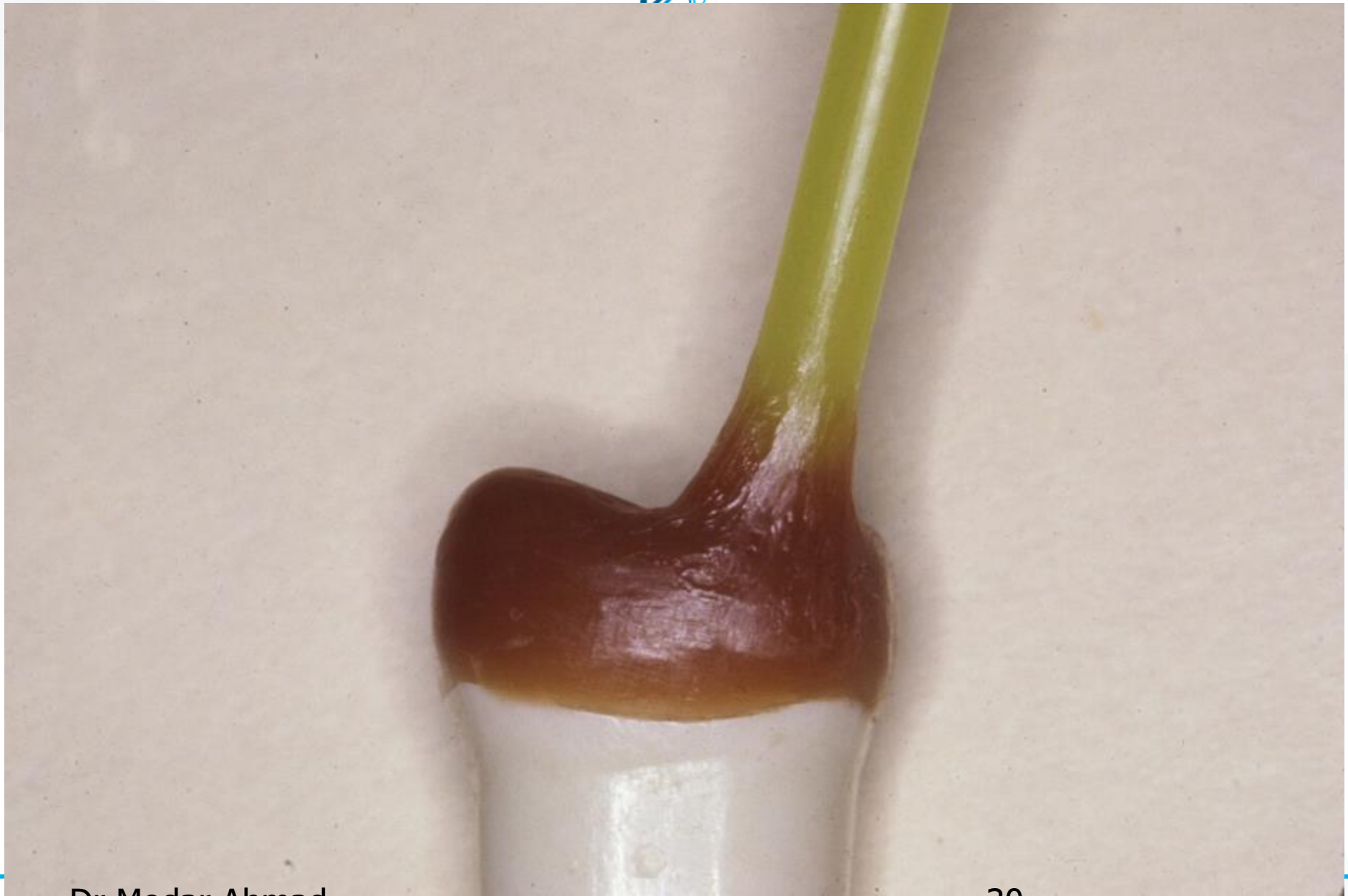


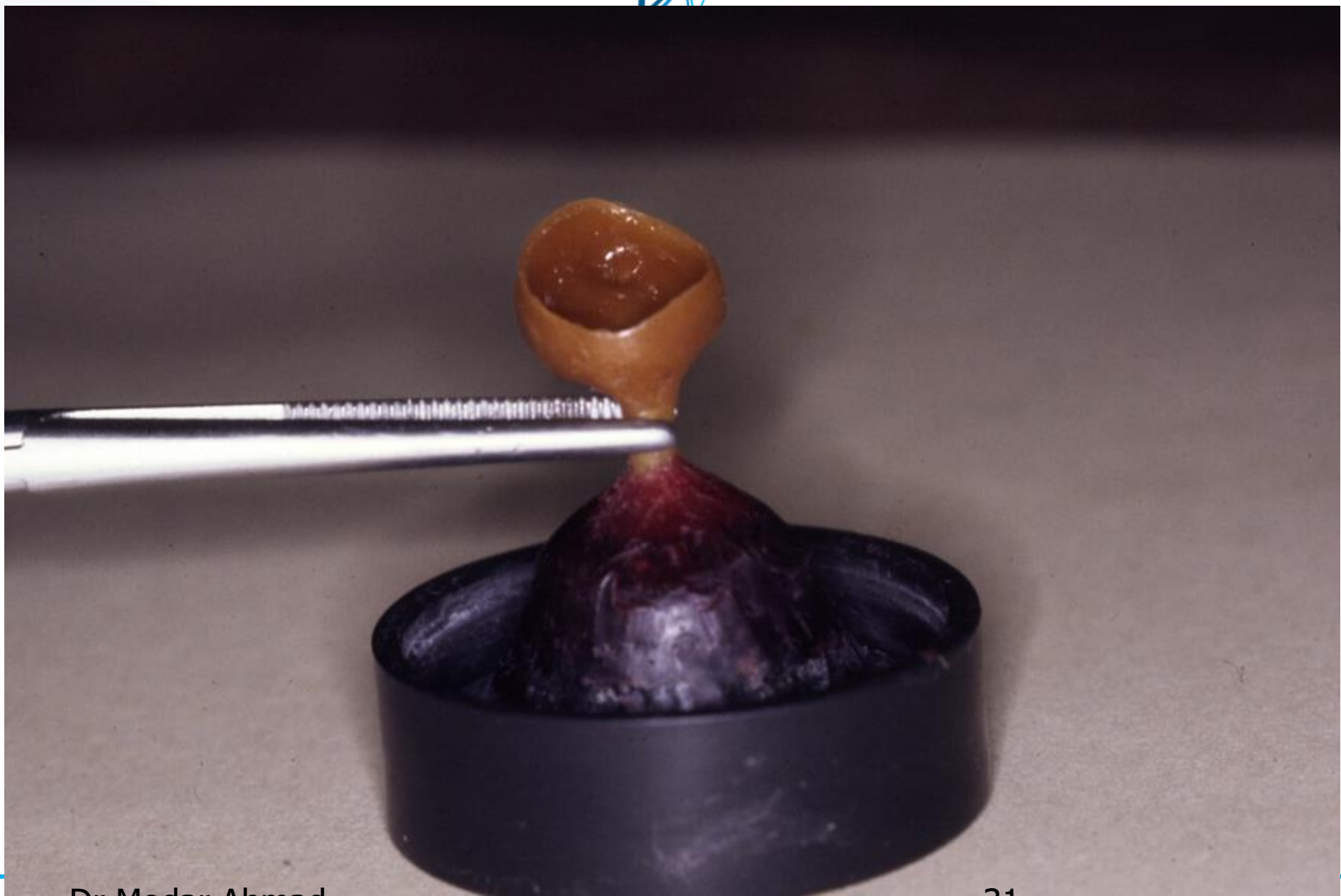






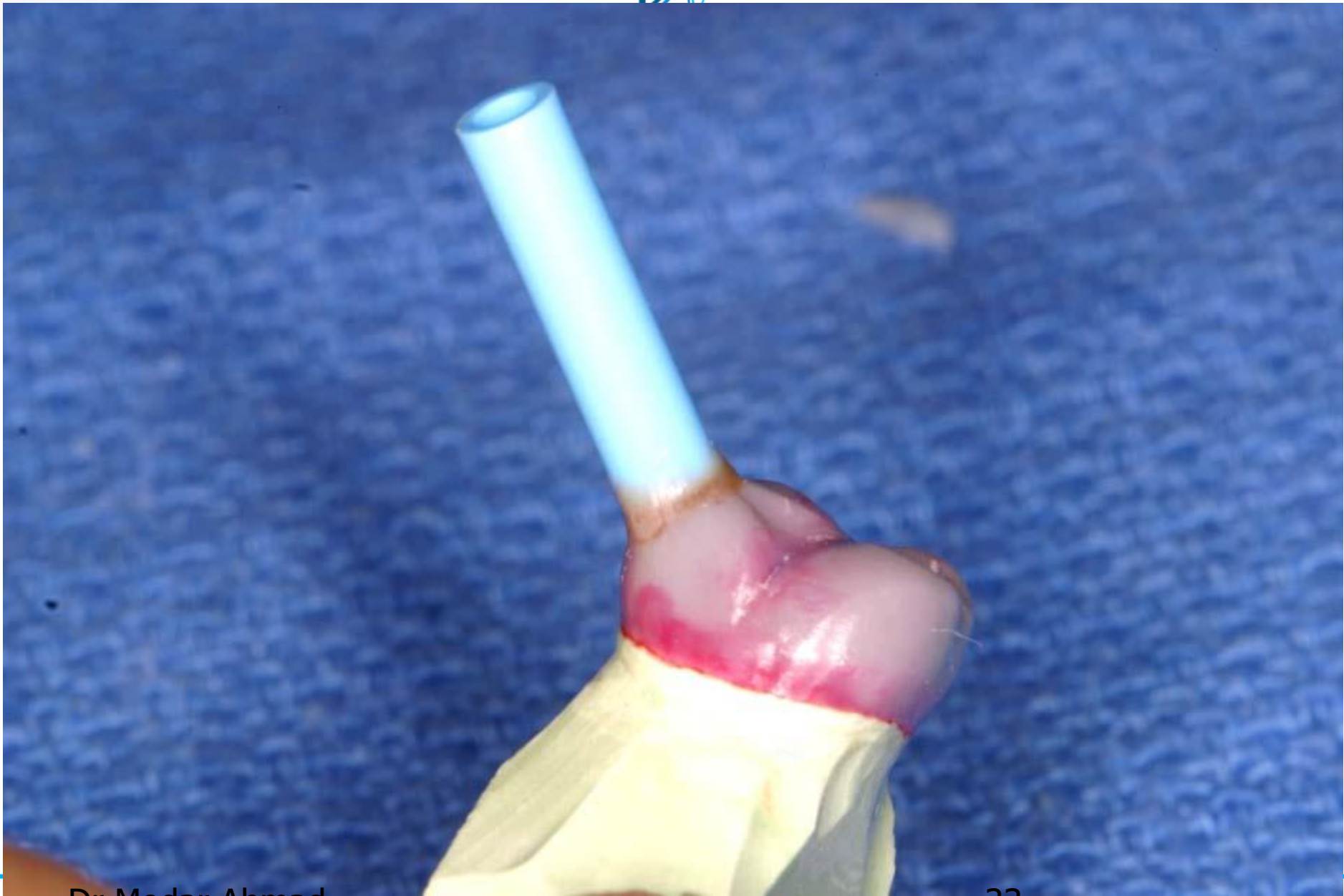






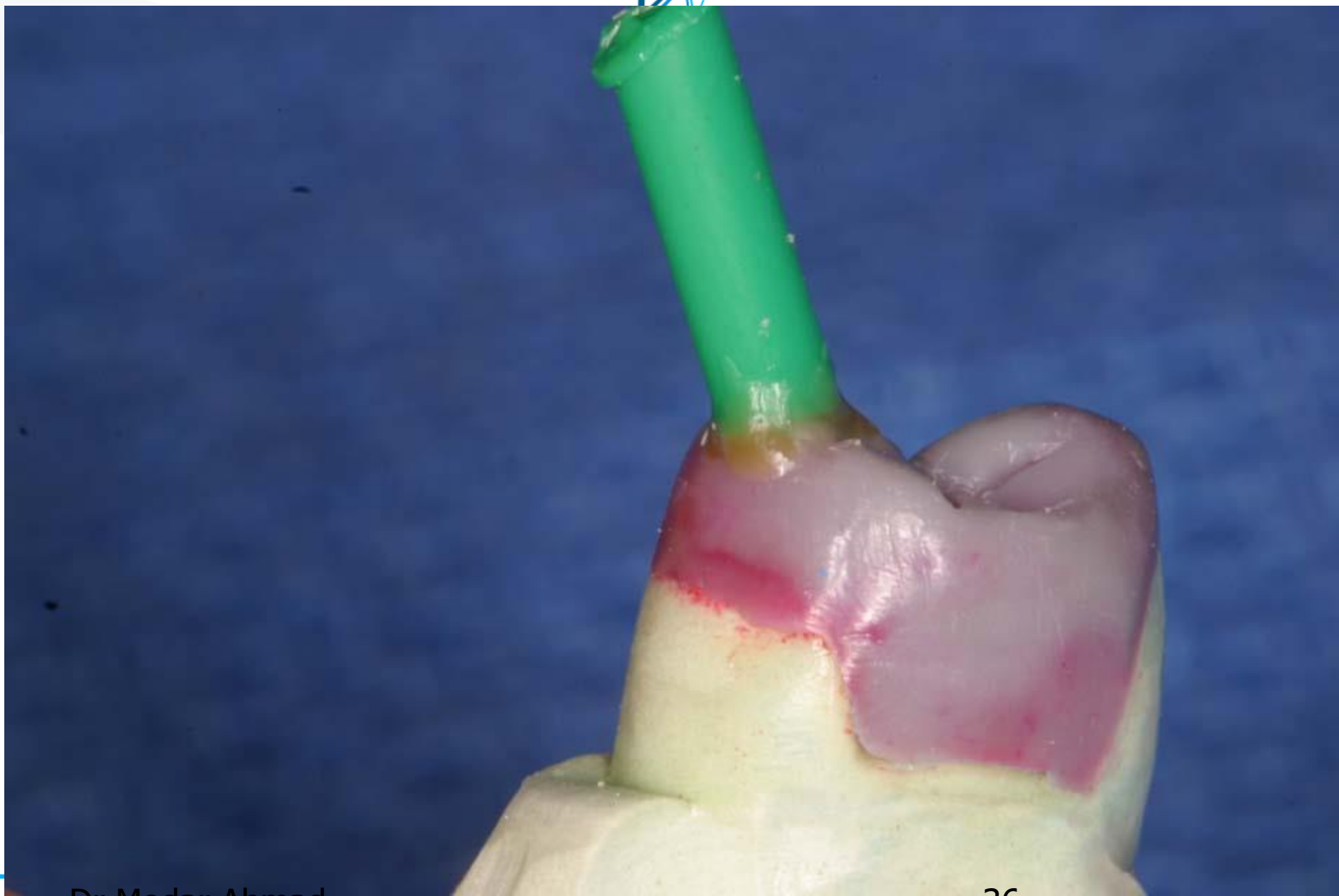
Margin end of pattern
6-8 mm from top of ring













Mixing Investment Armamentarium

- Investment
- Measuring Cylinder
- Vacuum Mixer
- Vac-U-Spat Unit
- Mixing Spatula & Rubber Hose
- Ring With Pattern Inside

Mixing Investment Technique

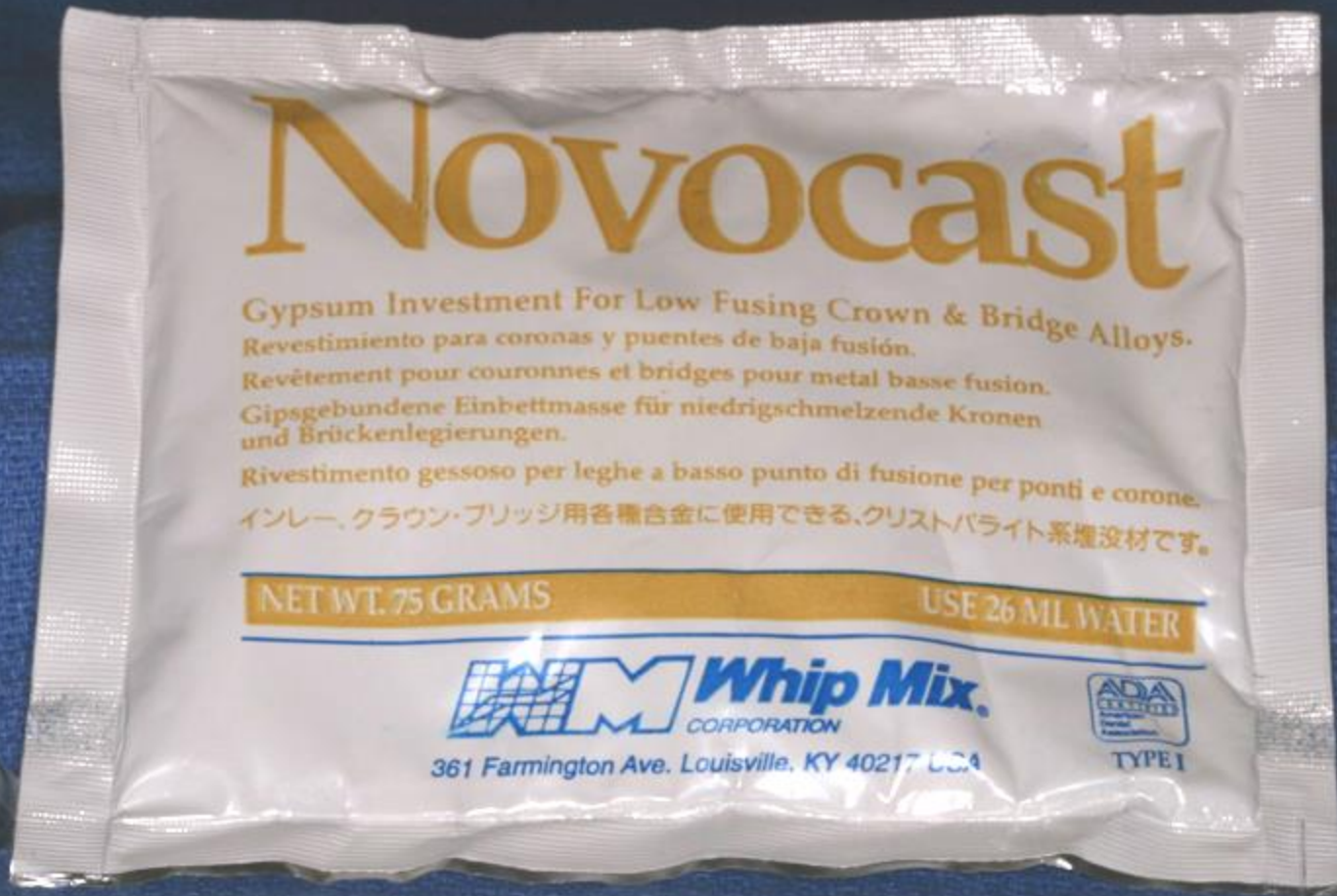
- Attach liner inside ring & soak one minute
- Assemble ring and sprue former base
- Attach ring into Vac-U-Spat
- Add investment and water into bowl
- Hand mix 15 seconds
- Vacuum mix slow speed for 30 seconds
- Under vacuum pour investment into ring

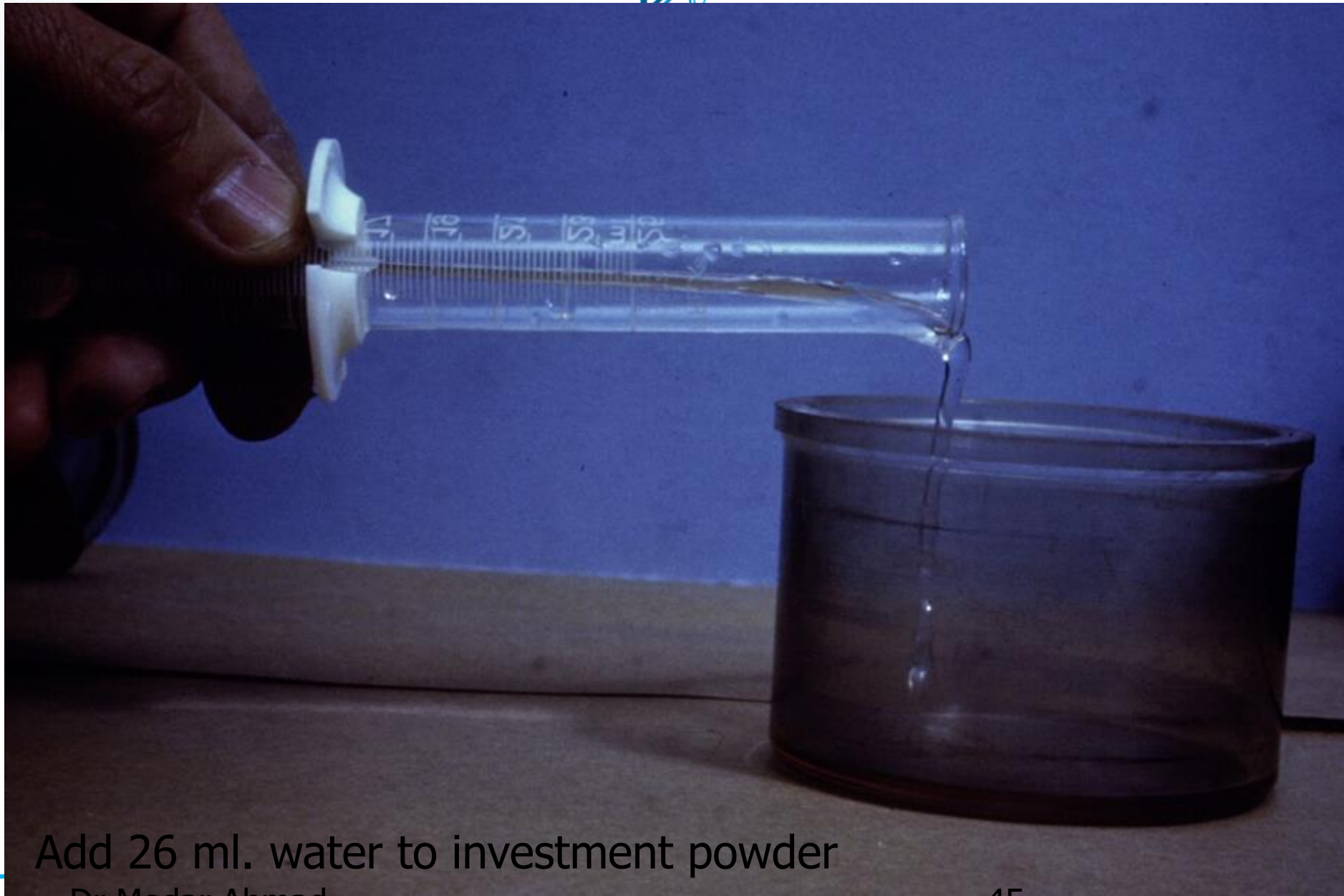






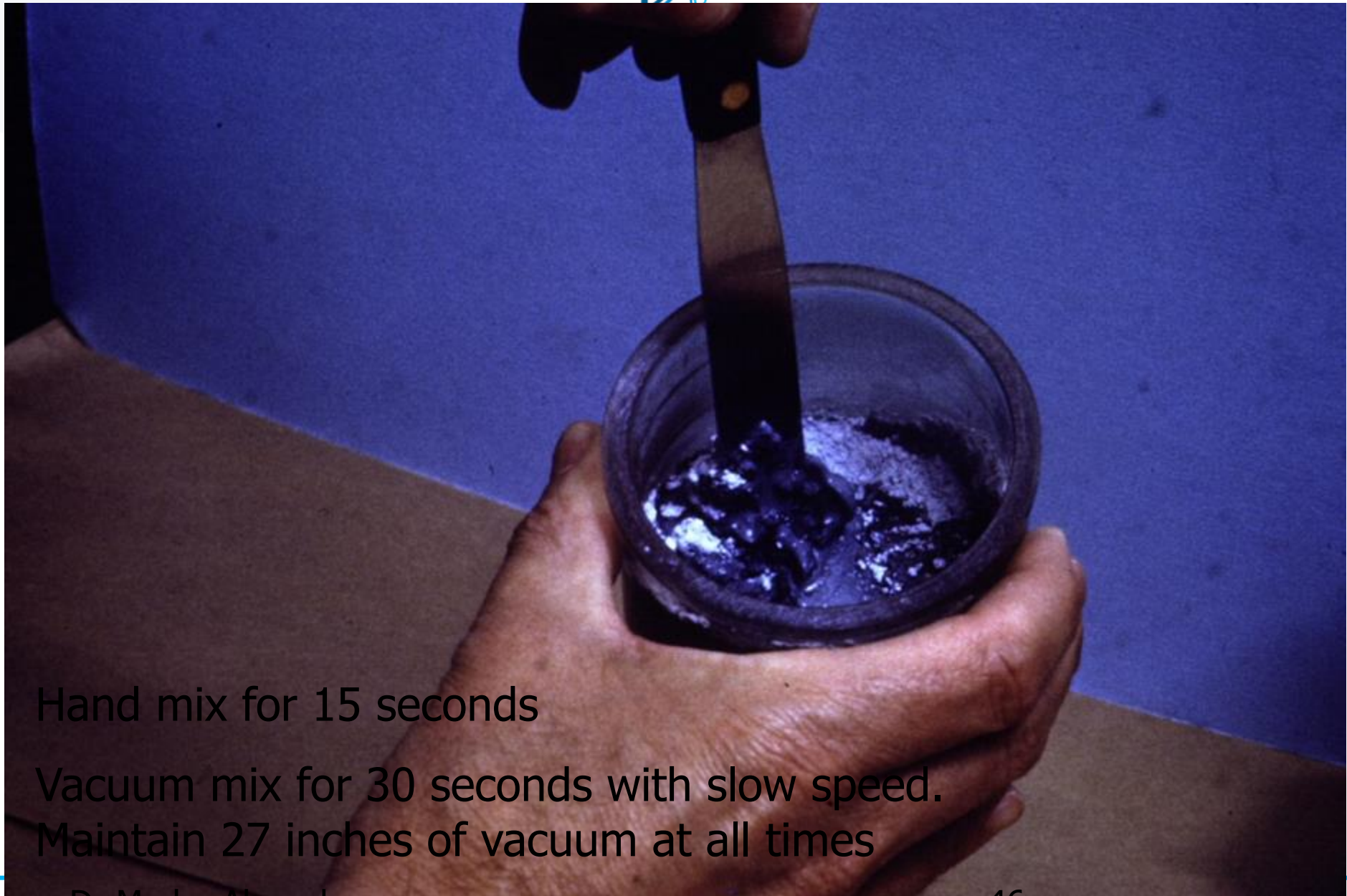






Add 26 ml. water to investment powder

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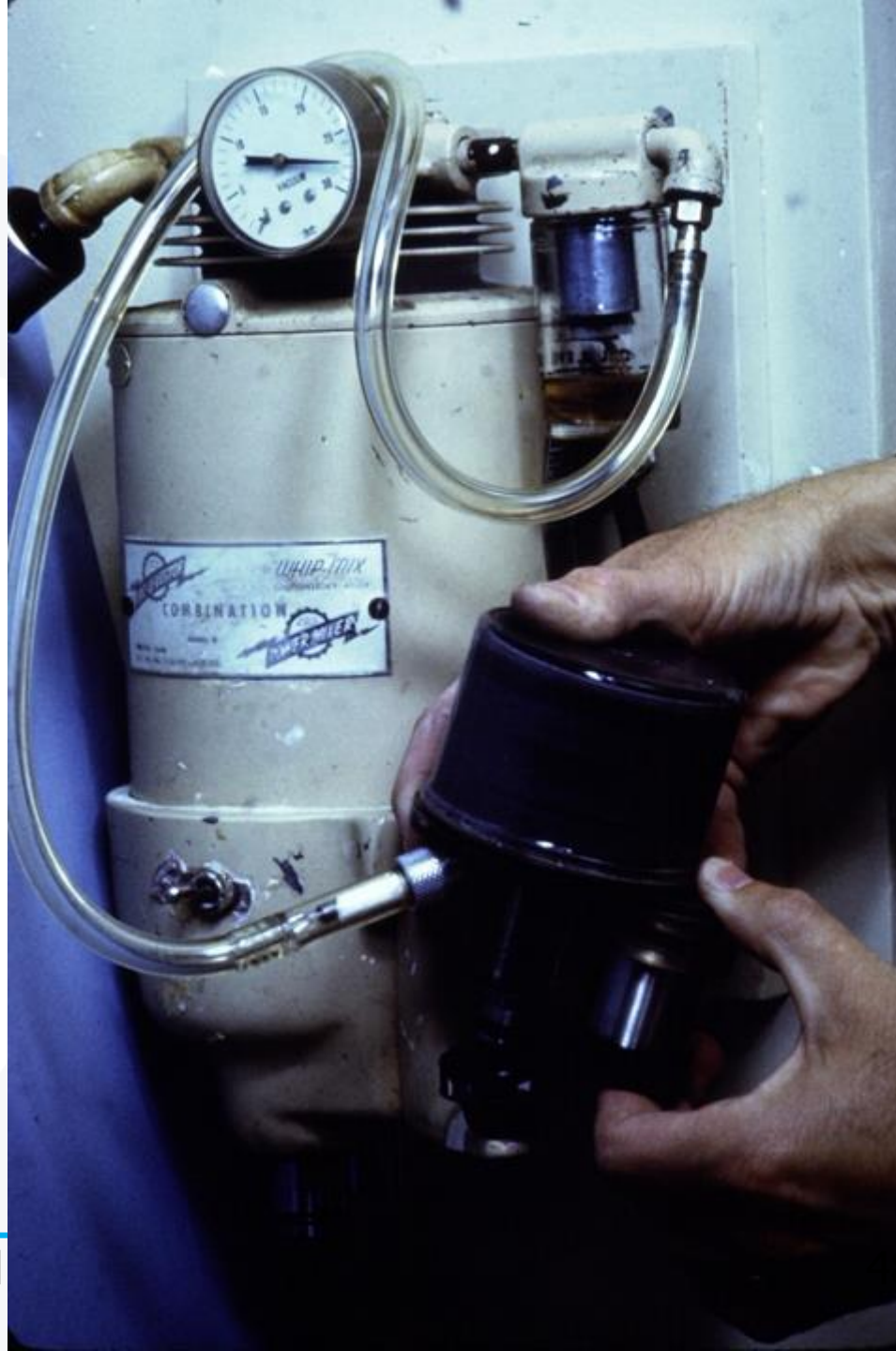
Hand mix for 15 seconds

Vacuum mix for 30 seconds with slow speed.

Maintain 27 inches of vacuum at all times



Tilt bowl and vibrate
investment into ring.
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Maintain vacuum





Remove ring and
sprue former





Burnout & Casting

- Bench set ring for 1 hour
- Remove rubber sprue former
- Place in cold oven and run oven up to 1100 degrees Fahrenheit in 90 minutes
- Melt gold and cast
- Quench in water after 1 minute

Ring Storage

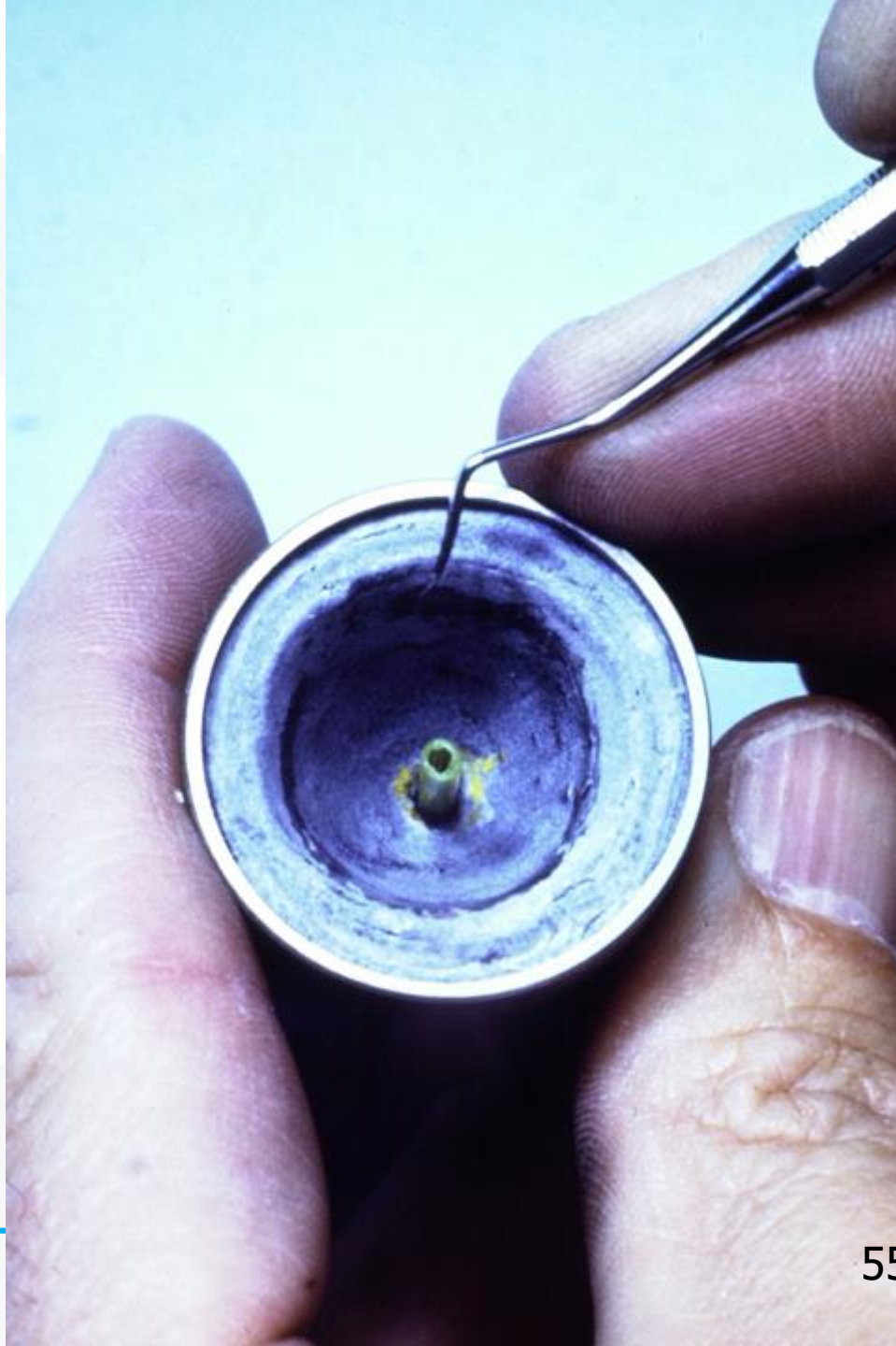


- If crown will not be cast in one hour, store ring in a humidior until placing the ring in the oven. A closed container with a damp paper towel in the base with the ring placed on top of it will accomplish this. When ready to cast, remove the ring from the humidior and place the ring in the oven to burn out and cast.

Remove rubber
sprue former



Inspect for
defects-voids
and positives





Place ring in oven with hole down. Be sure to remove sprue former first.



Wind casting machine three
turns and secure machine

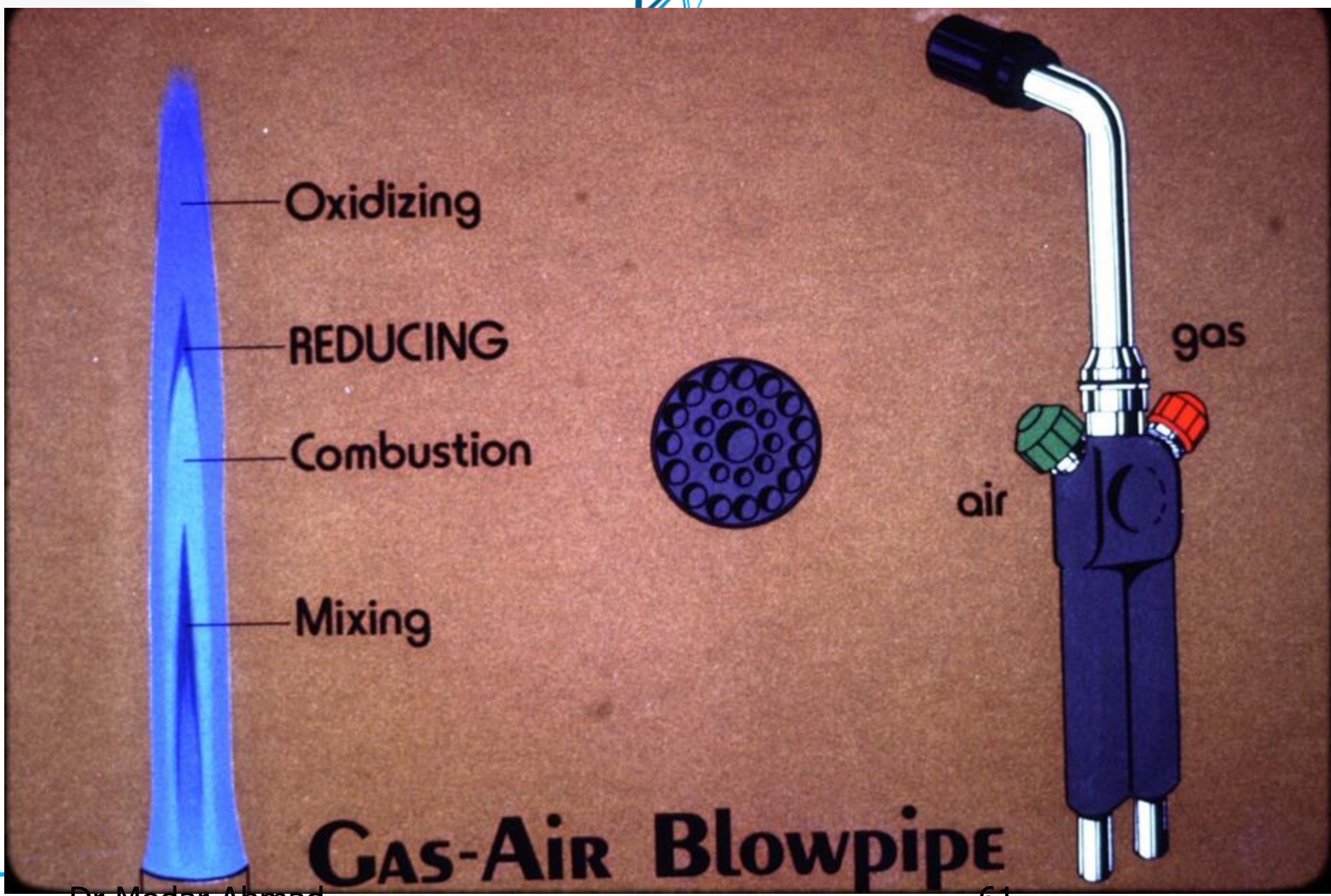




Place crucible in
cradle & be sure
there is enough room
for casting ring

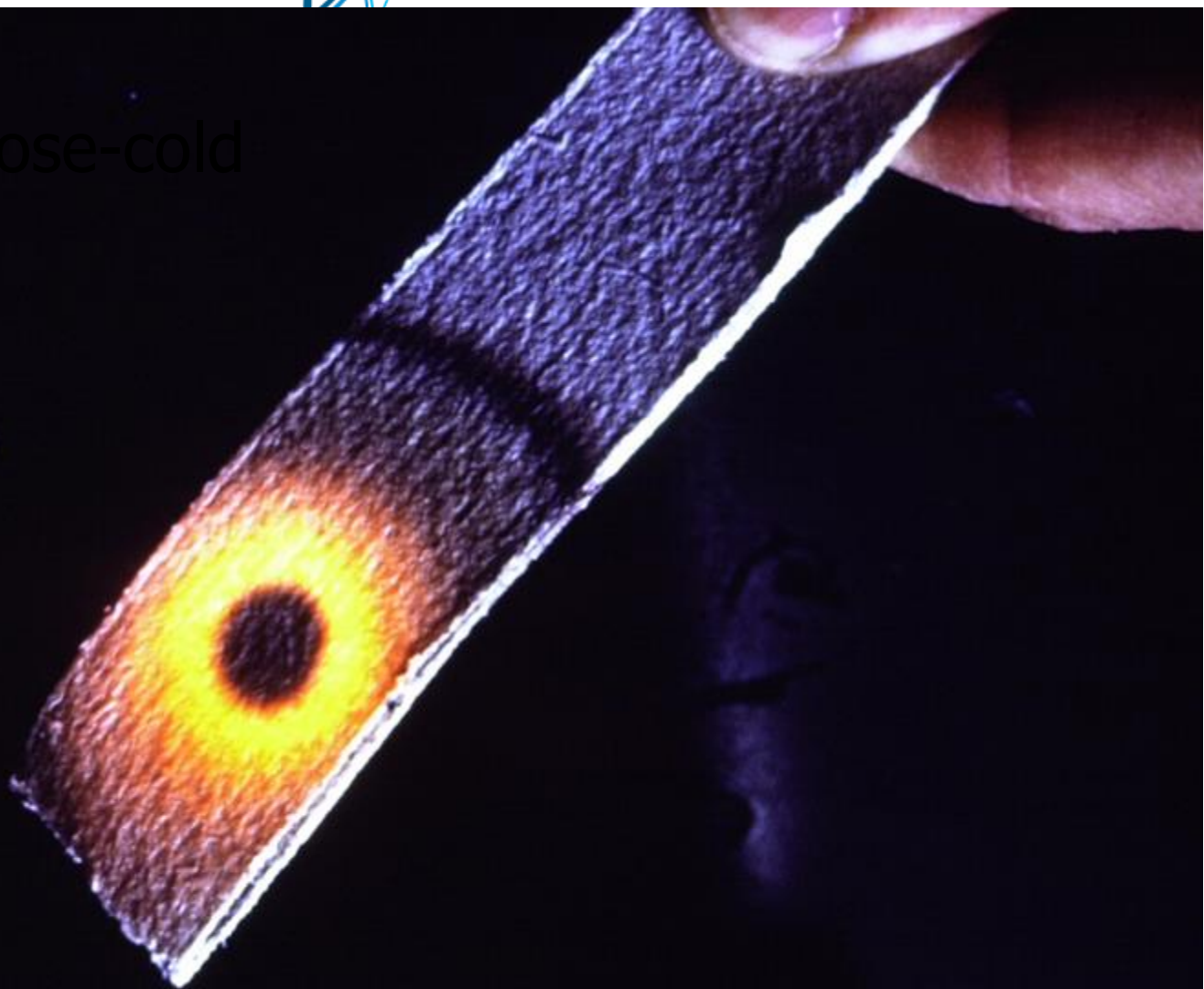




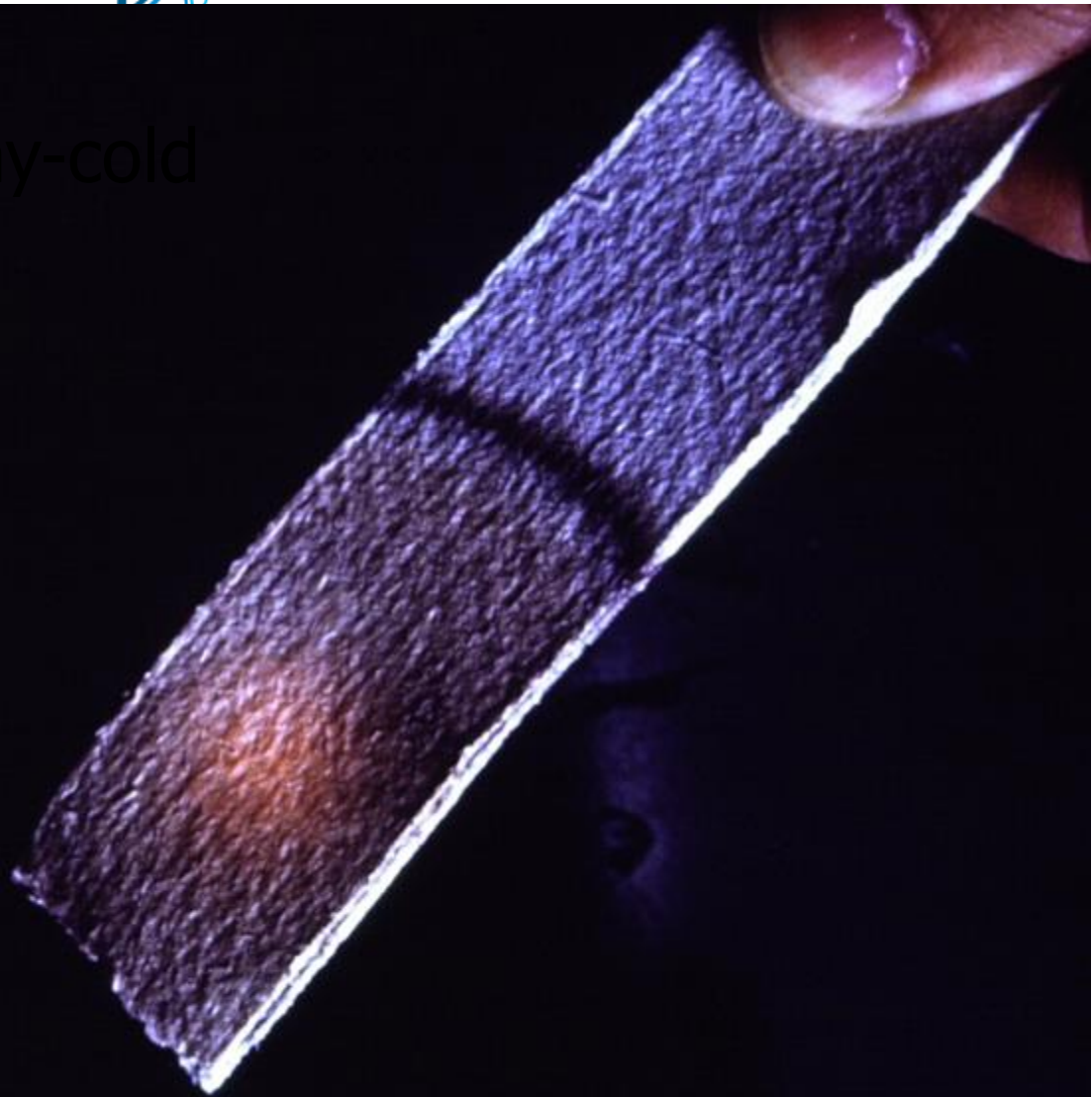


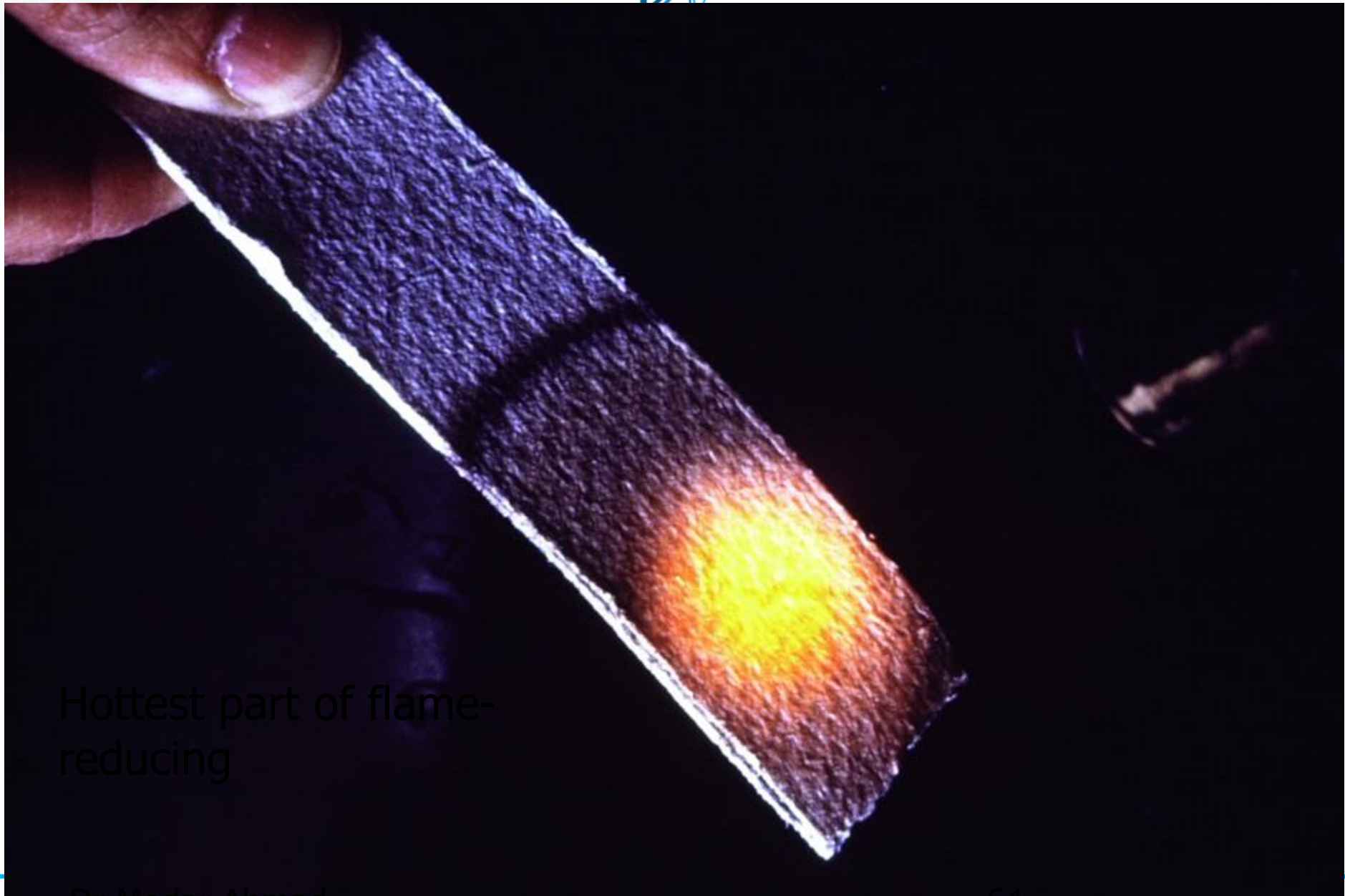
GAS-AIR Blowpipe

Flame is too close-cold



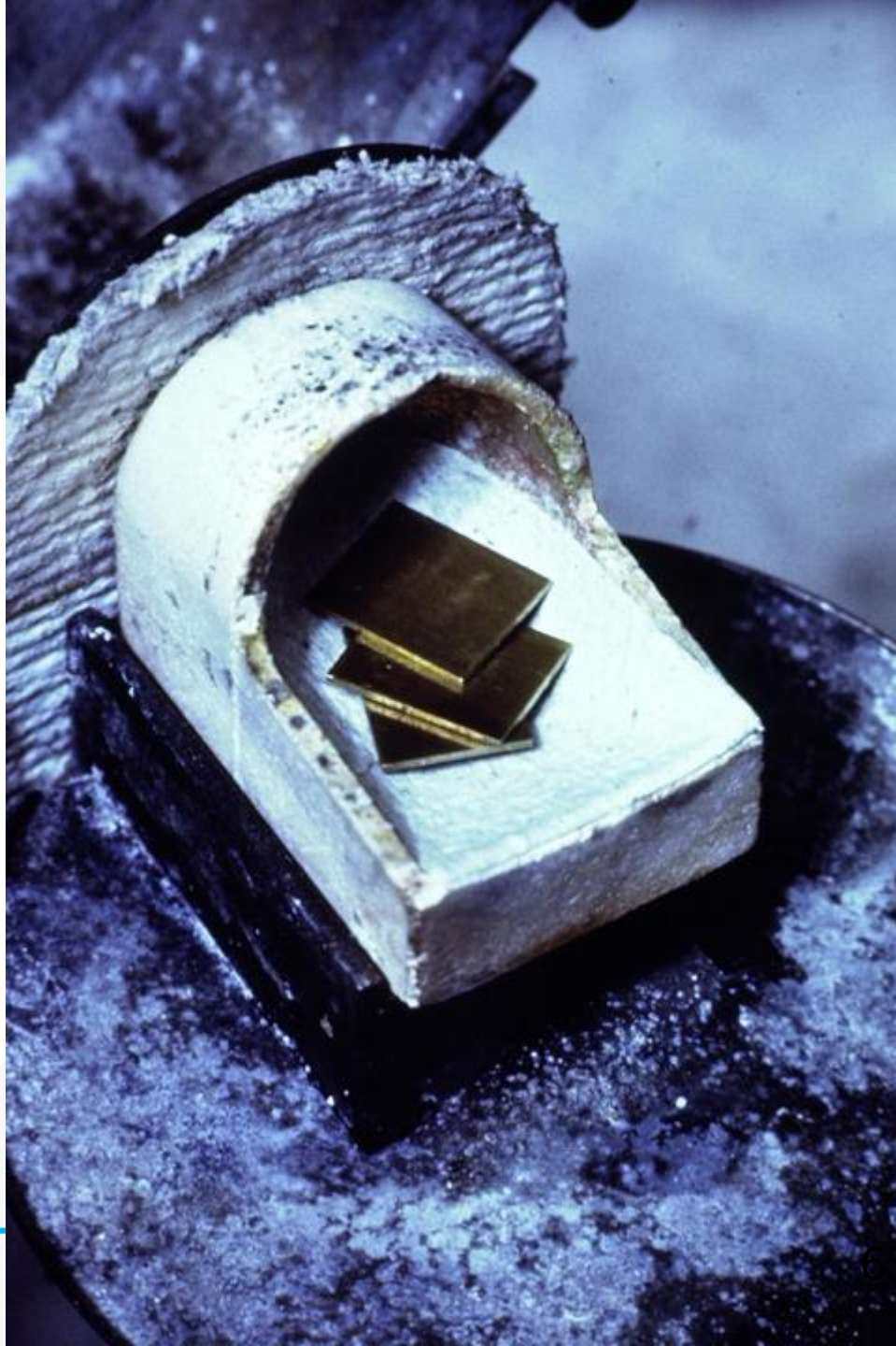
Flame is too far away-cold





Hottest part of flame-reducing

Place gold in
crucible-
either new
or "pickled"
sprue plus
new gold



A photograph showing a Bunsen burner with a bright, reducing flame. The flame is directed at a crucible containing several small, rectangular gold bars. The crucible is held by a pair of tongs. The background is dark, and the overall scene is illuminated by the light from the burner.

Melt gold with
reducing flame

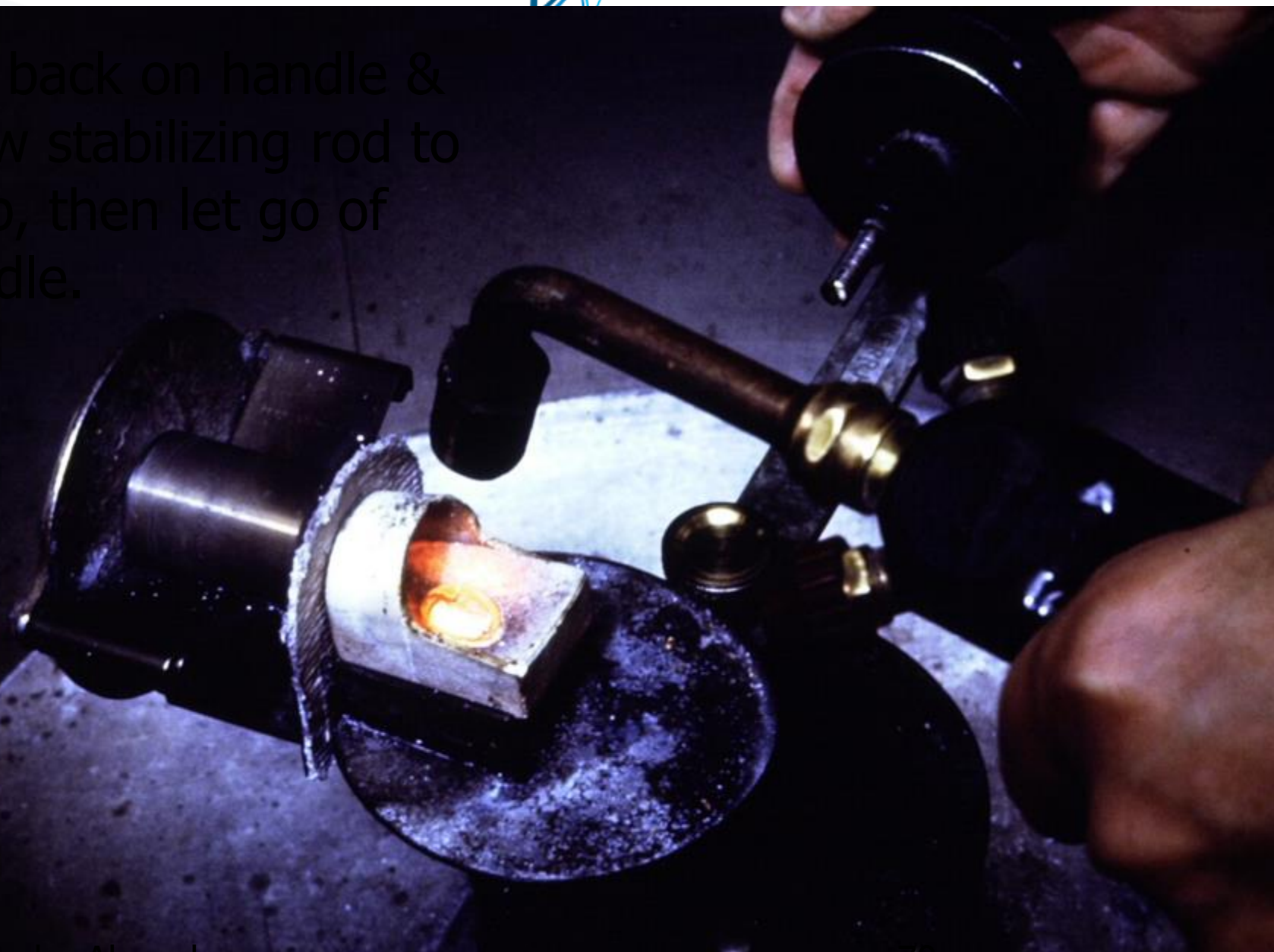







Place ring in
cradle while
keeping gold
molten-open end
toward gold

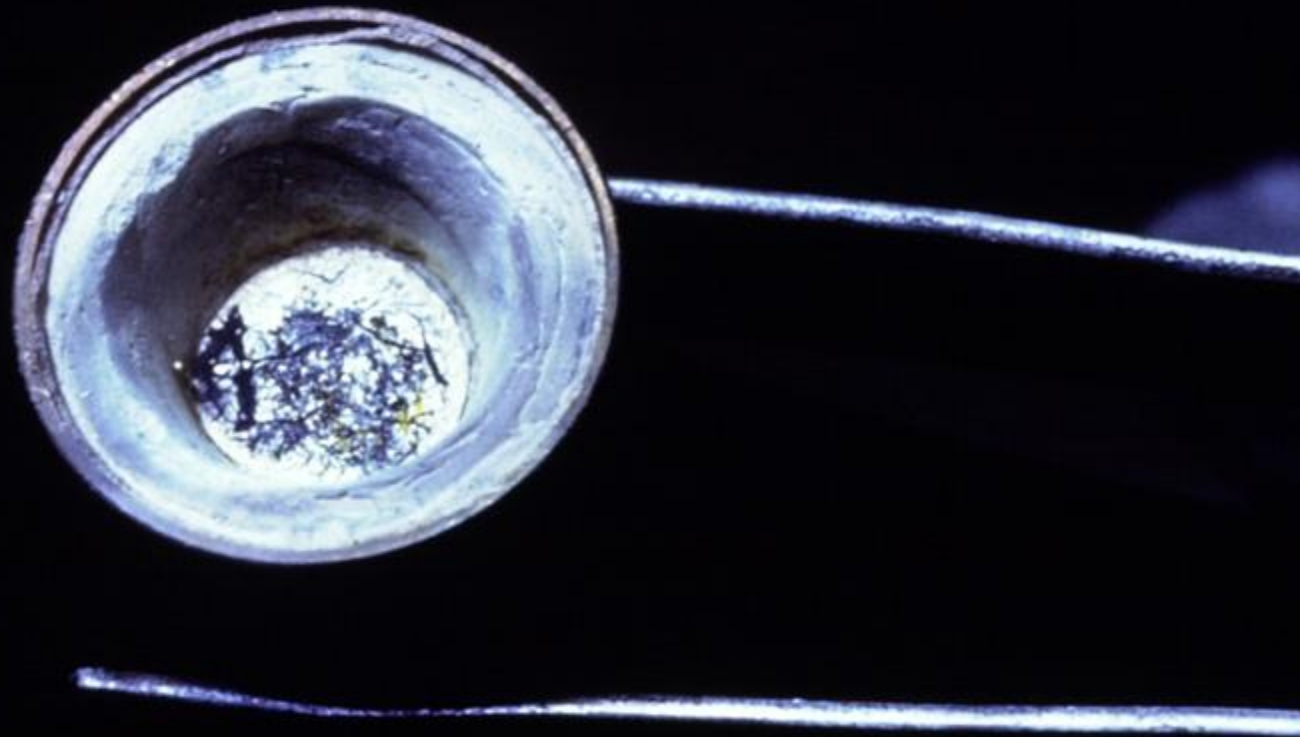
Pull back on handle &
allow stabilizing rod to
drop, then let go of
handle.

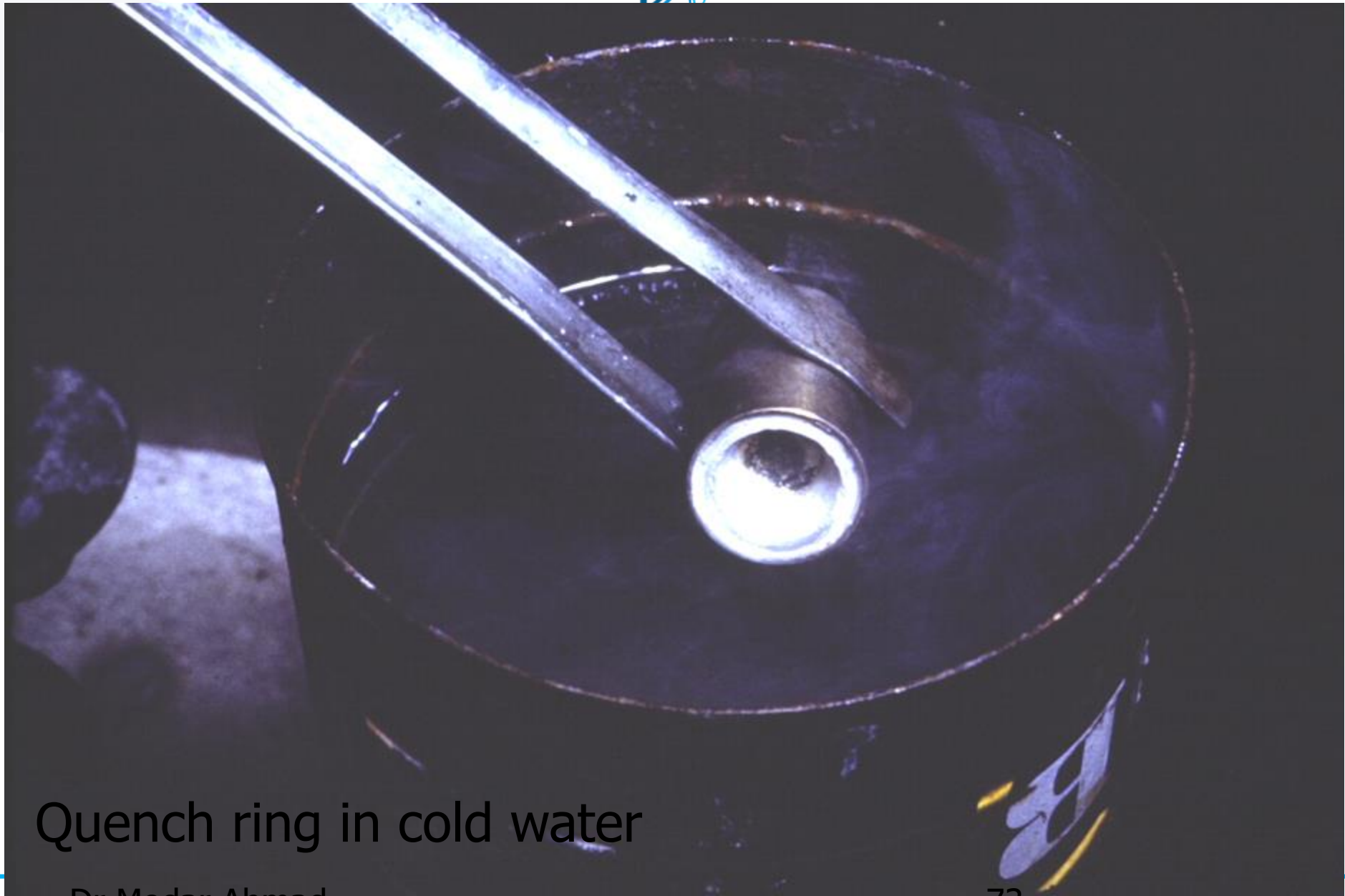


A close-up photograph showing a hand holding a black and brass torch. The torch's nozzle is positioned to cast a stream of bright, molten gold into a rotating metal ring mold. The mold is spinning, creating a blurred circular motion. The background is dark and out of focus.

Molten gold is spun into
the void in the casting ring

Allow to cool for one minute





Quench ring in cold water



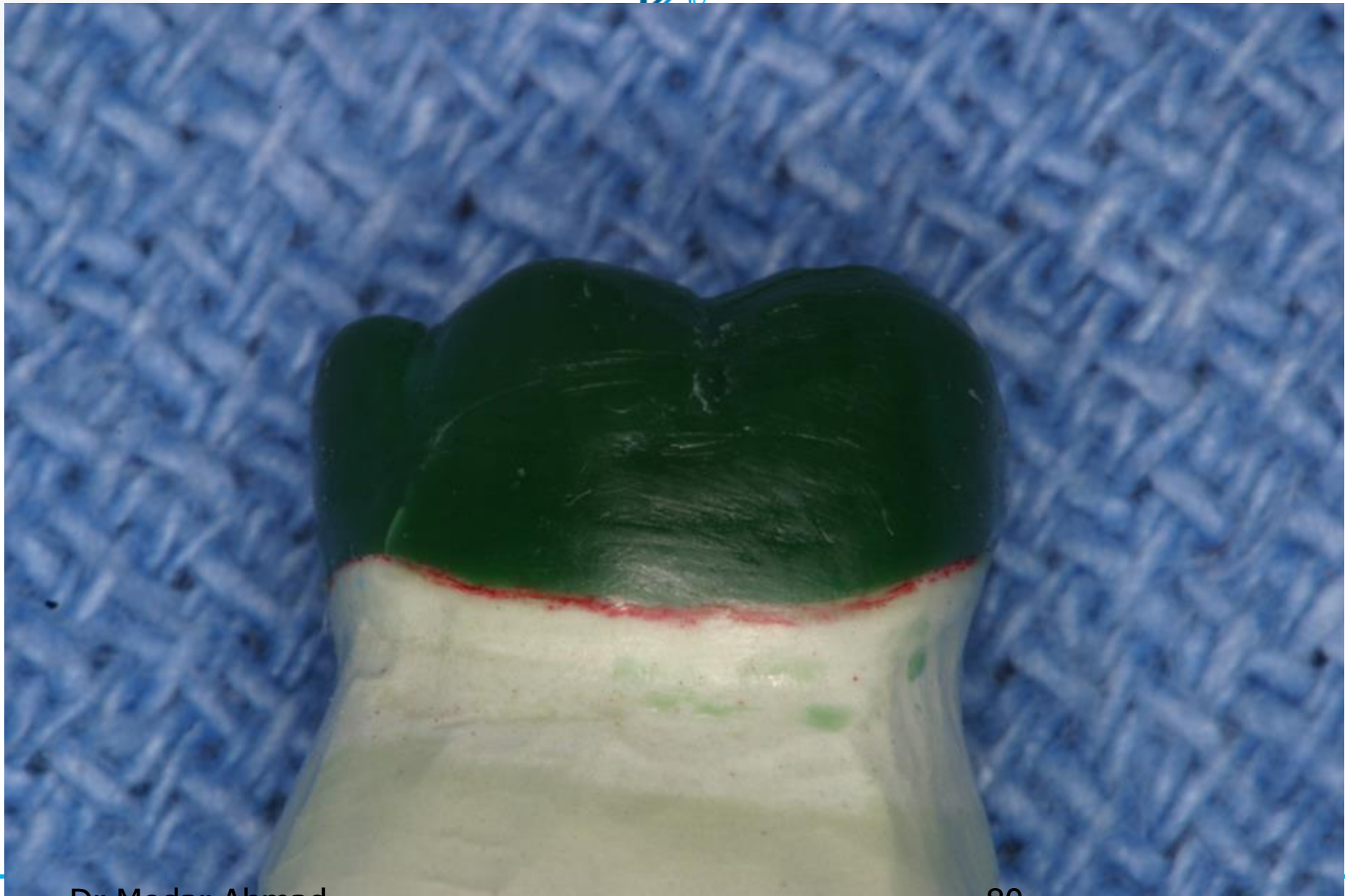






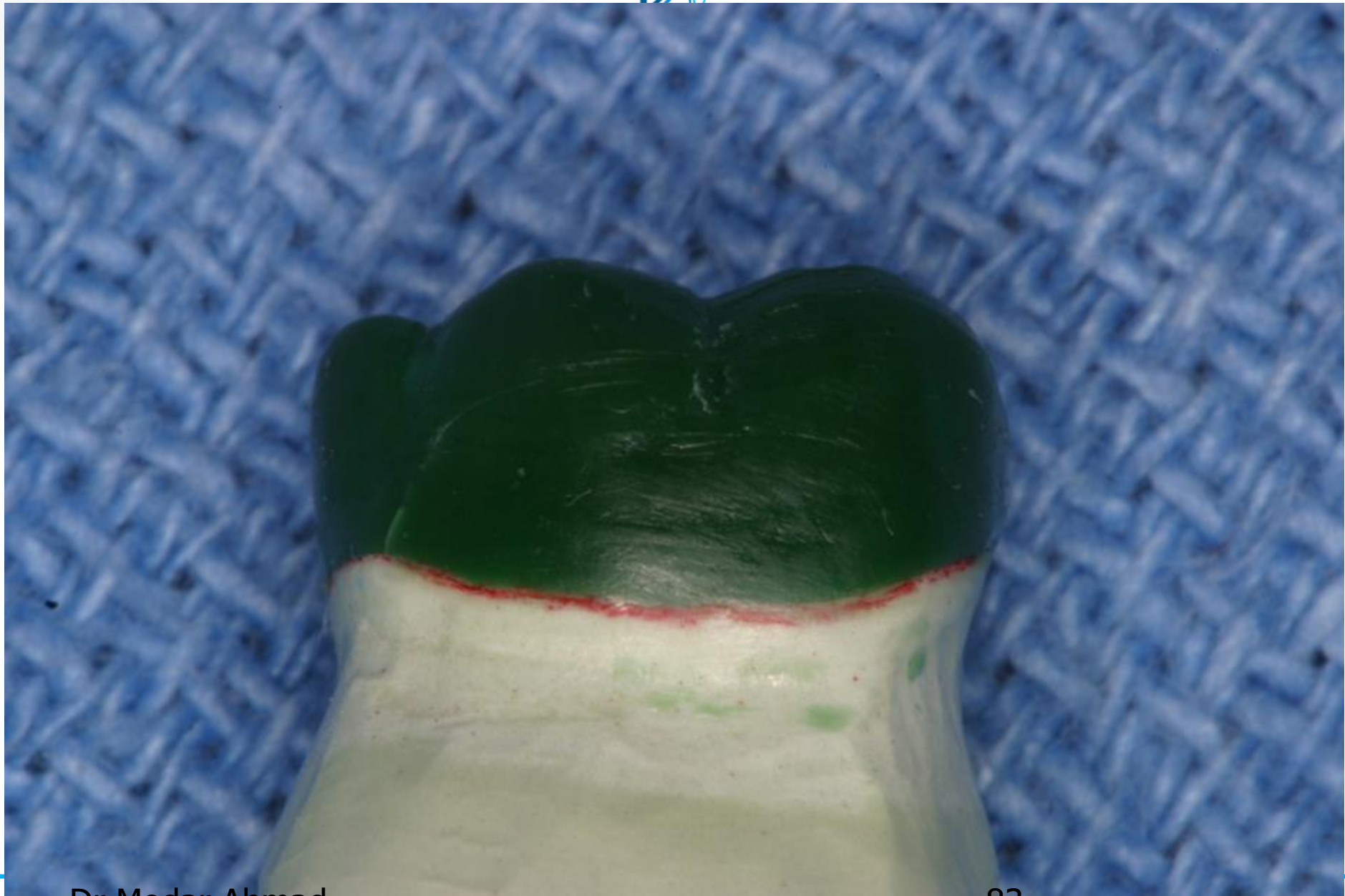
















Burnout & Casting

- Bench set ring for 1 hour
- Remove rubber sprue former
- Place in 600 degree oven for 1/2 hour
- Place in 1100 degree oven for 1 hour
- Melt gold and cast
- Quench in water after 1 minute

Thanks for Listening