

PCC 146.02

Laser Hands-on Course



UCSF

University of California
San Francisco

advancing health worldwide™

ANY LASER can be used for
Soft Tissue Surgery

Today, we have diode lasers, which
you'll remember interact best with
blood or tissue pigment and NOT
with healthy tooth structure

All lasers are
END CUTTING

Remember that can't really go sideways; you must penetrate into the tissue, lift up and then move over.

If you have coagulum built up on a fiber or tip, it can become a hot tip as lasing proceeds, and that could cause unwanted thermal damage.

SAFETY

- Ensure that you have the correct safety glasses.
- You, the patient, and your assistant must wear safety glasses
- Post the DANGER sign at the edge of your cubicle. It informs everyone that safety glasses must be worn 'inside' of the sign
- Use high volume suction

Assembling the laser

- Plug in power
- Insert key (and interlock)
- Check optic fiber connection
- Put barriers on laser panel and handpiece
- Plug in/release cover on foot control
- Place tip on handpiece
- Test fire—low power, safety glasses, use dark print surface or articulating paper
- Then select your power for the procedure

Dis-assembling the laser

- Unplug power, coil up cable.
- Remove key (and interlock) and put in container.
- Remove tip and put in 'sharps' container
- Unplug or close foot control (coil up cable)
- Remove barriers, wipe down laser.
- Wipe down glasses, put back in cases

My Favorite DIODE settings

- 1.0 W continuous for cutting
- 0.6 W continuous for sulcular management
- 1.0 W defocused for hemostasis

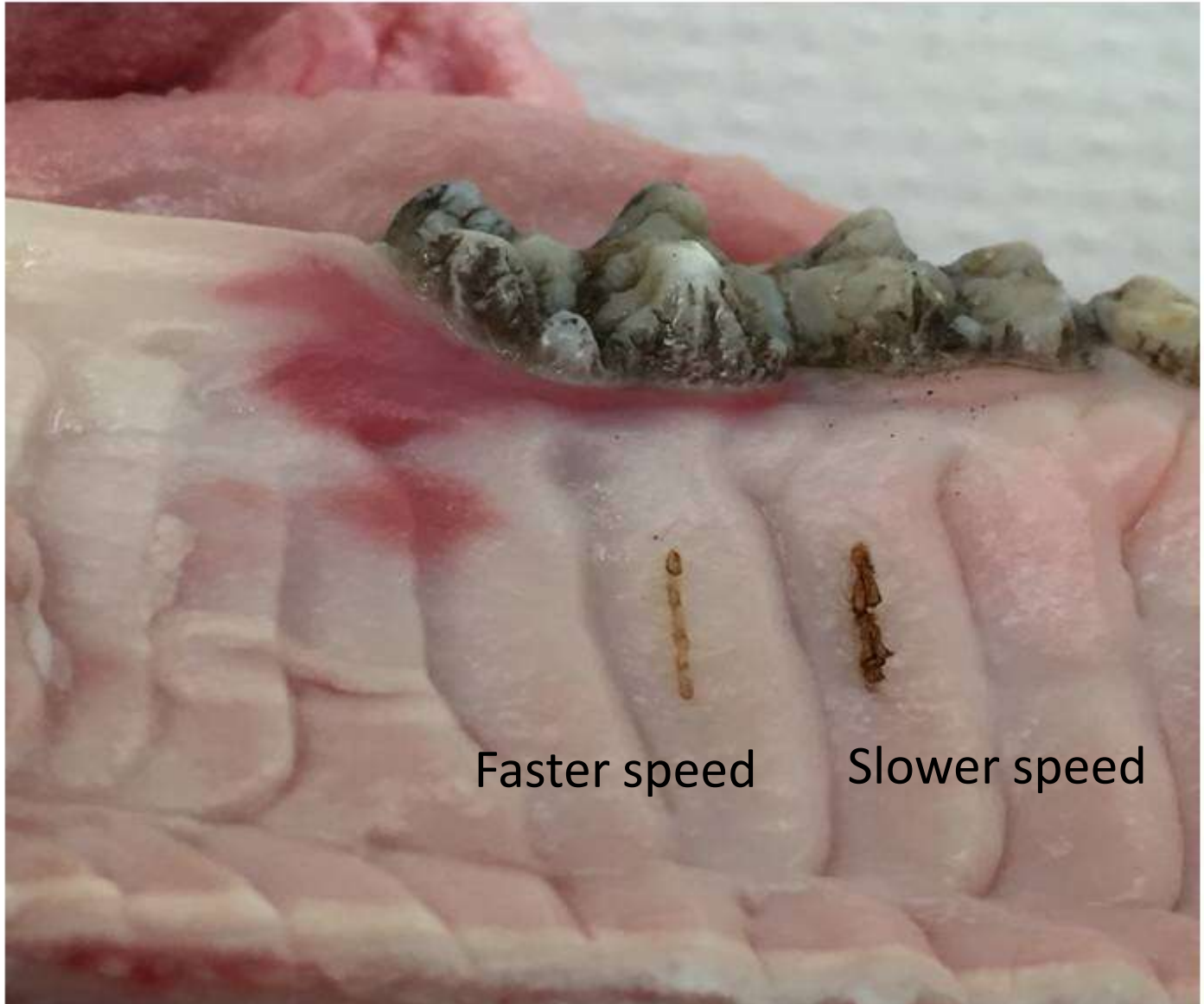
FOUR SOFT TISSUE

Procedures for hands-on:

- Excisions—"ectomies"
- Crown lengthening (soft tissue)
- Tissue retraction—troughing
- Coagulation/disinfection

First, practice an **INCISION**

- Gently contact the tissue—don't be a slasher!
- Allow 'some' time for the tissue temperature to reach 100 degrees C.
- Hand speed is important—you'll have to observe how quickly to cut!



Faster speed

Slower speed

EXCISIONS--“ECTOMIES”

- Grasp or stabilize target tissue
- Begin lasing at base, while pulling the lesion away from the laser
- Remember to clean the tip frequently
- After excision, perform hemostasis if necessary.

Let the laser do the work—
it's not a scapel!!



EXCISIONS--“ECTOMIES”

- Remember to clean the tip frequently
- After excision, perform hemostasis if necessary.

Inspect the tip frequently and wipe off debris. You may have to re-cleave the bare fiber.













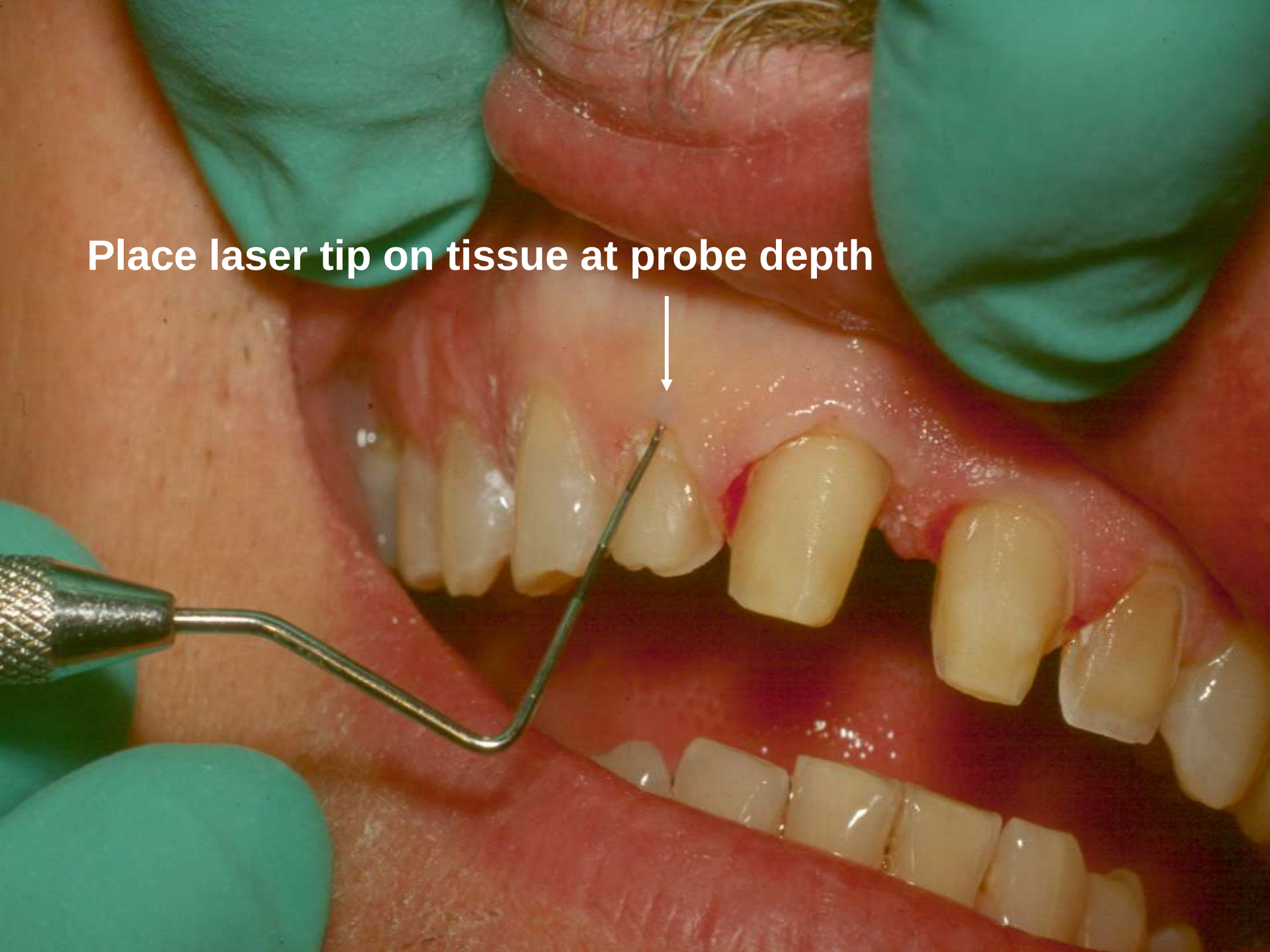
14 days post-op

CROWN LENGTHENING,
Soft tissue

Soft tissue crown lengthening

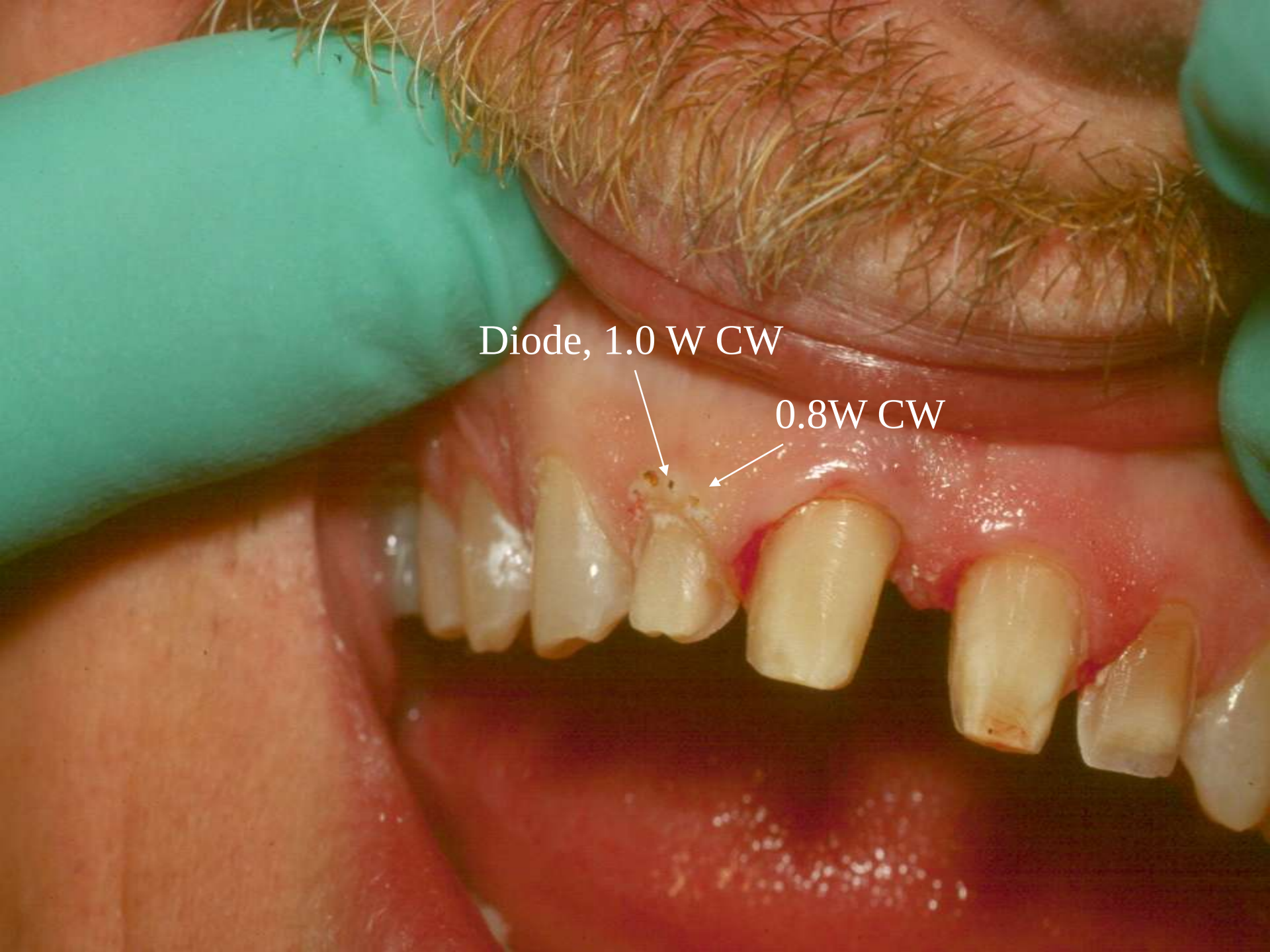
- Determine biological width
- Outline the design—“connect the dots”
- Gently “paint” the tissue surface, removing a layer at a time.

Place laser tip on tissue at probe depth



Diode, 1.0 W CW

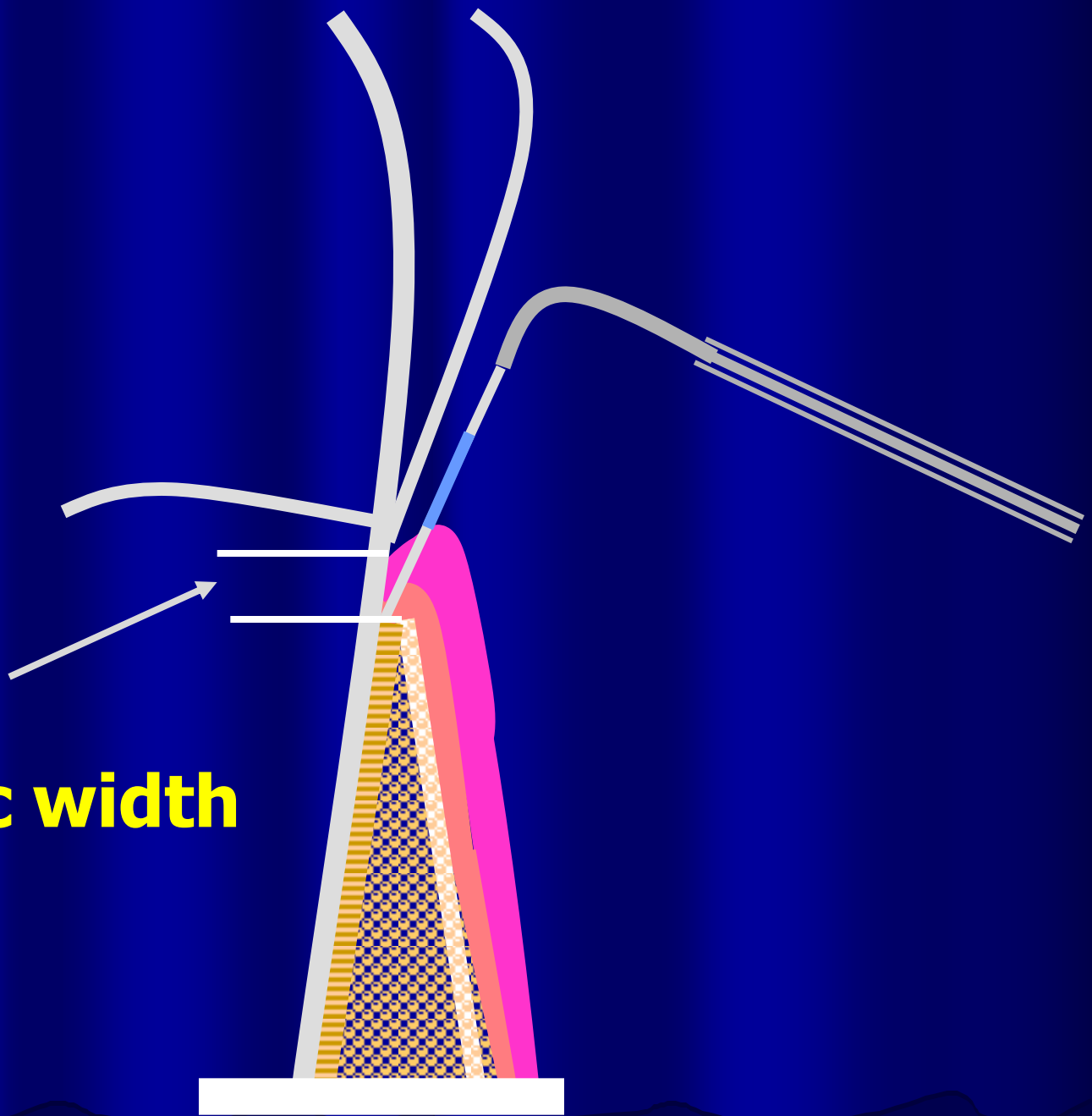
0.8W CW

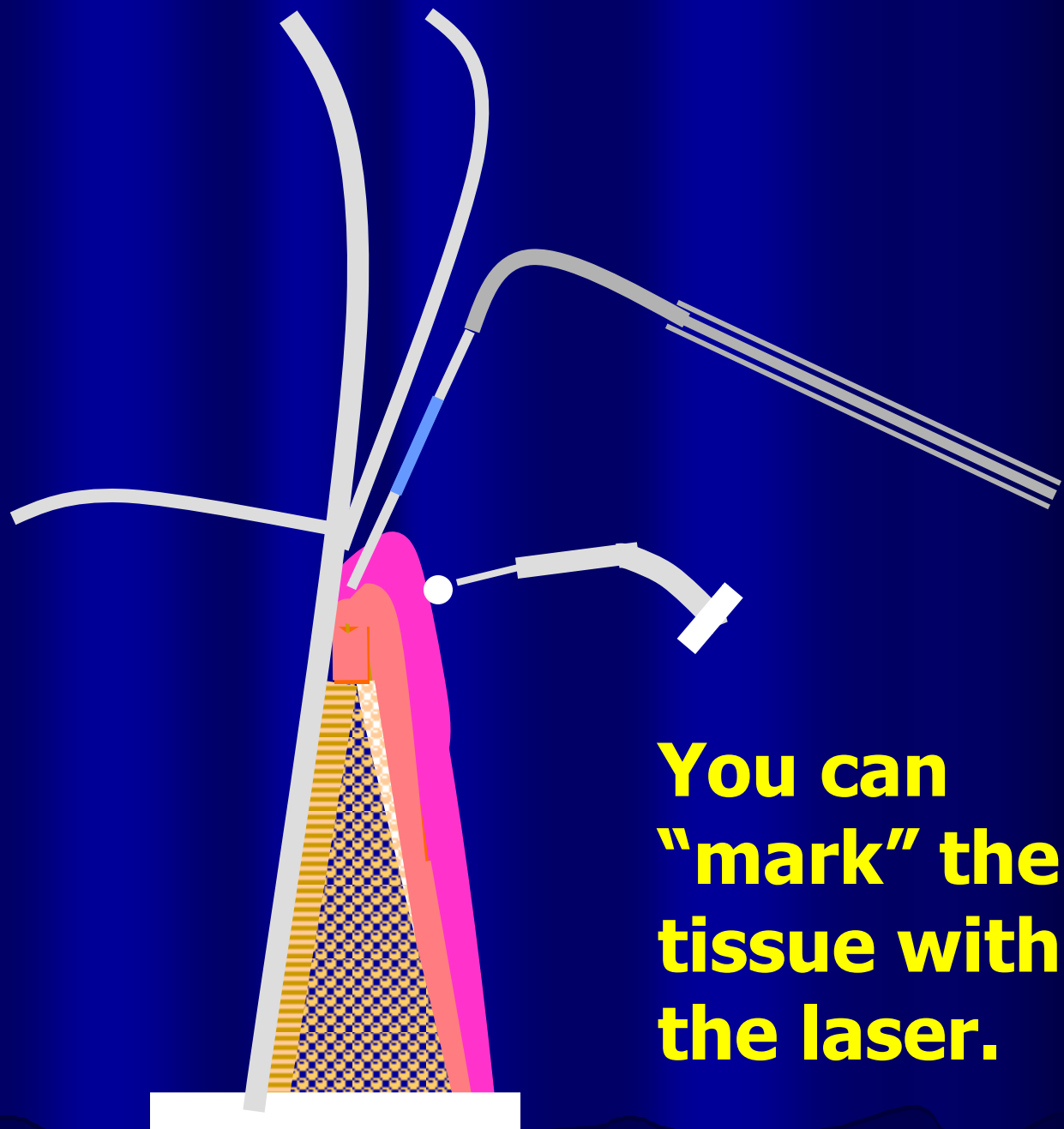


Bevel after incision



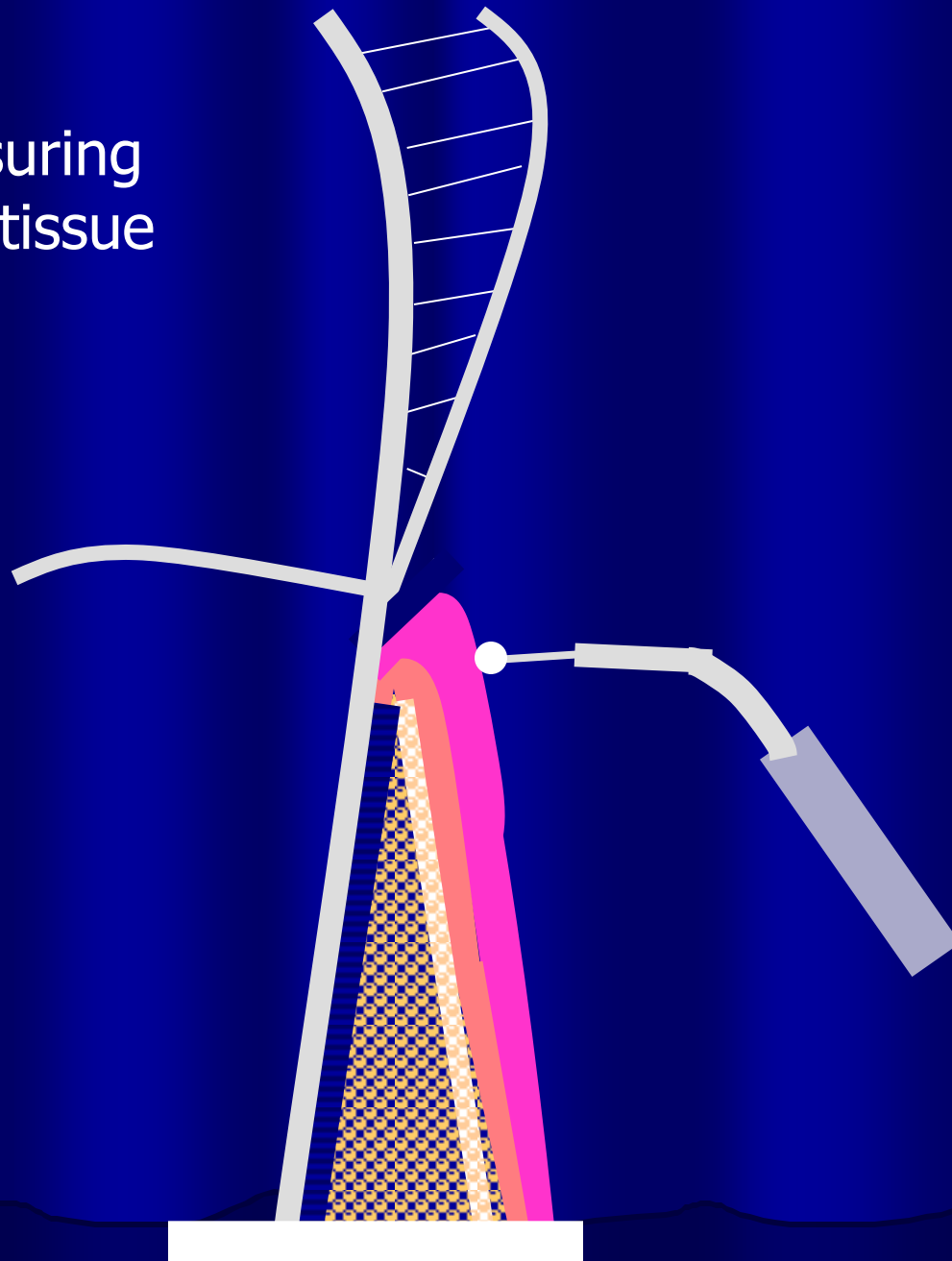
**~2mm
biologic width**



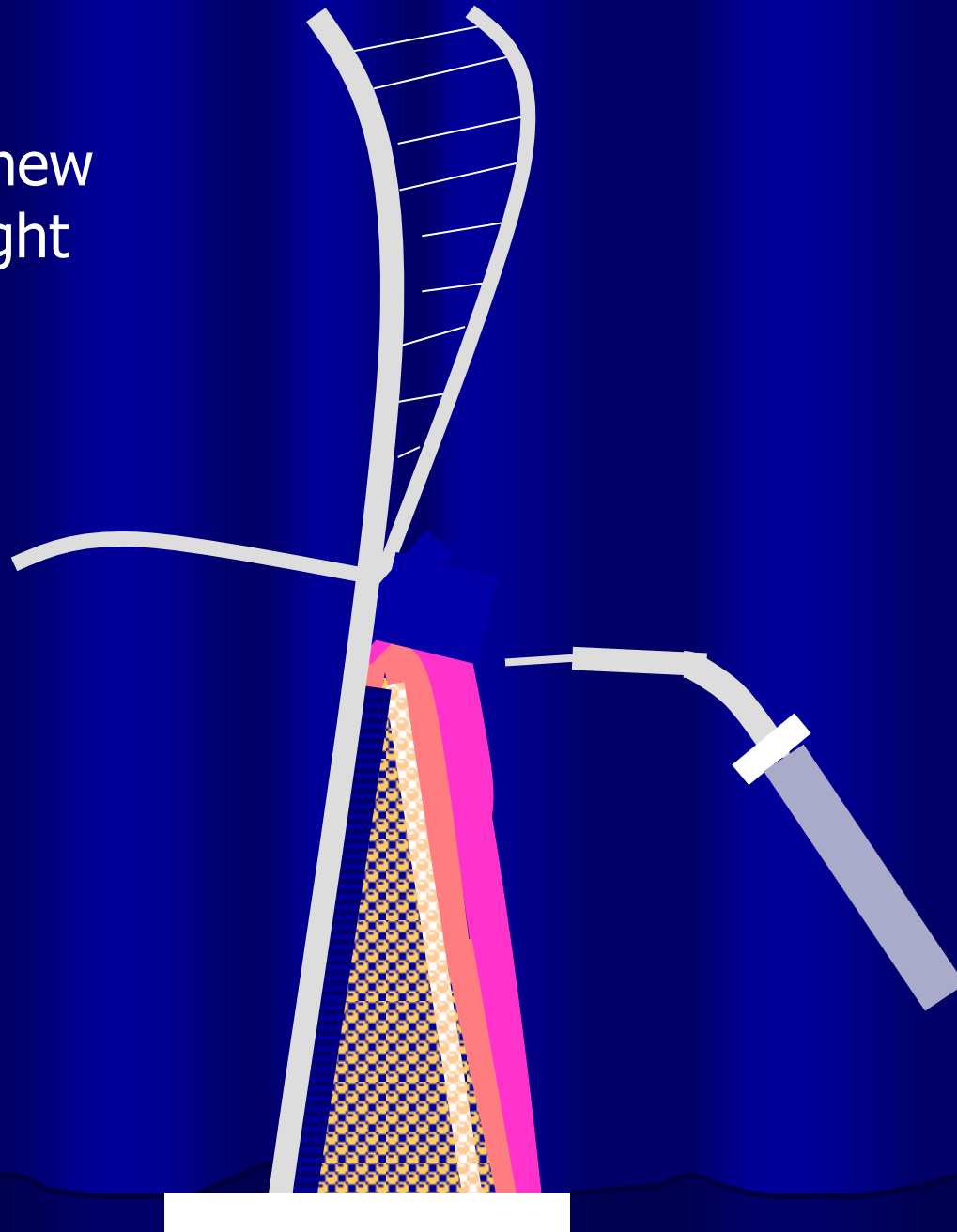


**You can
“mark” the
tissue with
the laser.**

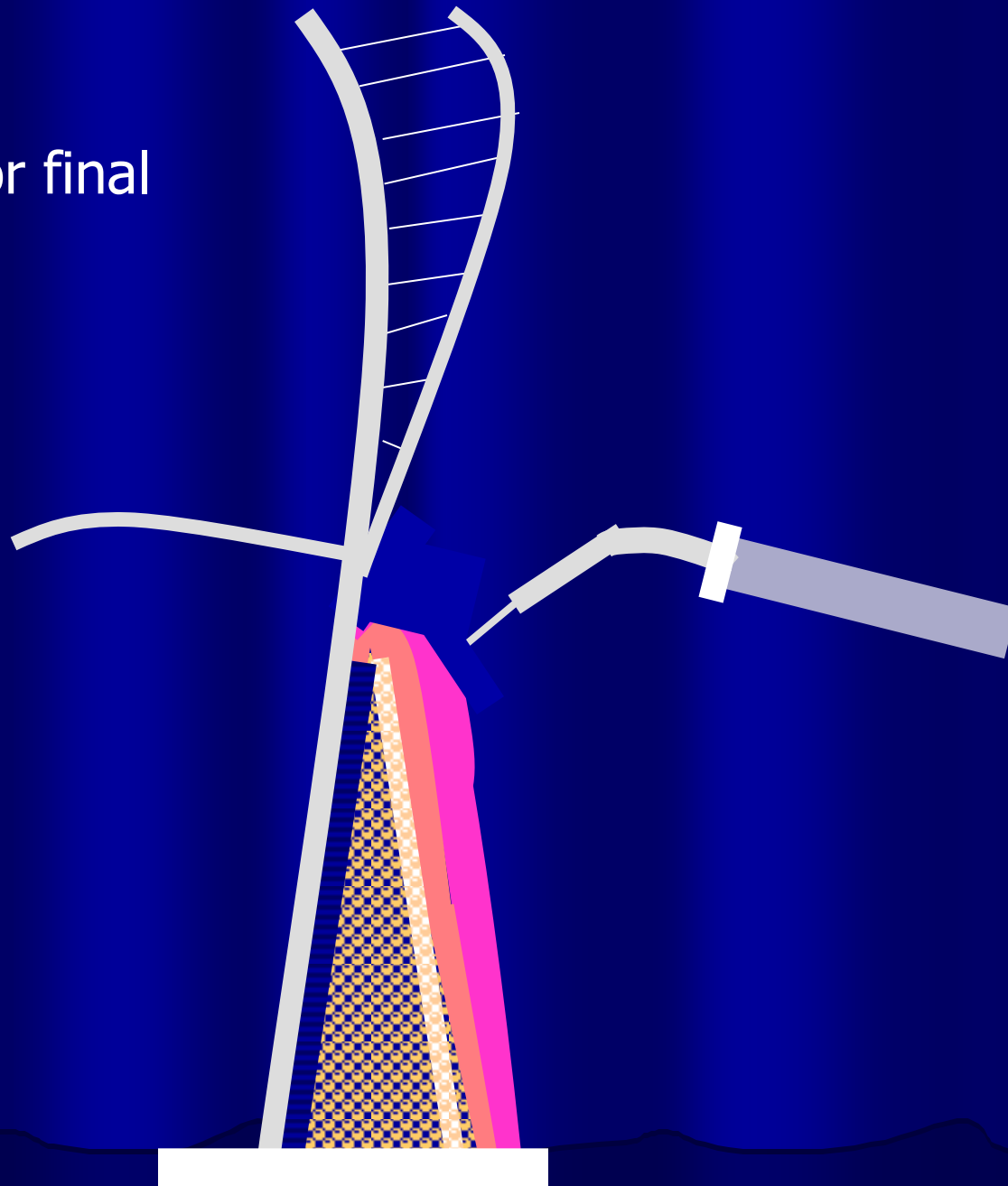
After measuring
BW, begin tissue
removal



Establish new
tissue height



“bevel” for final
contour



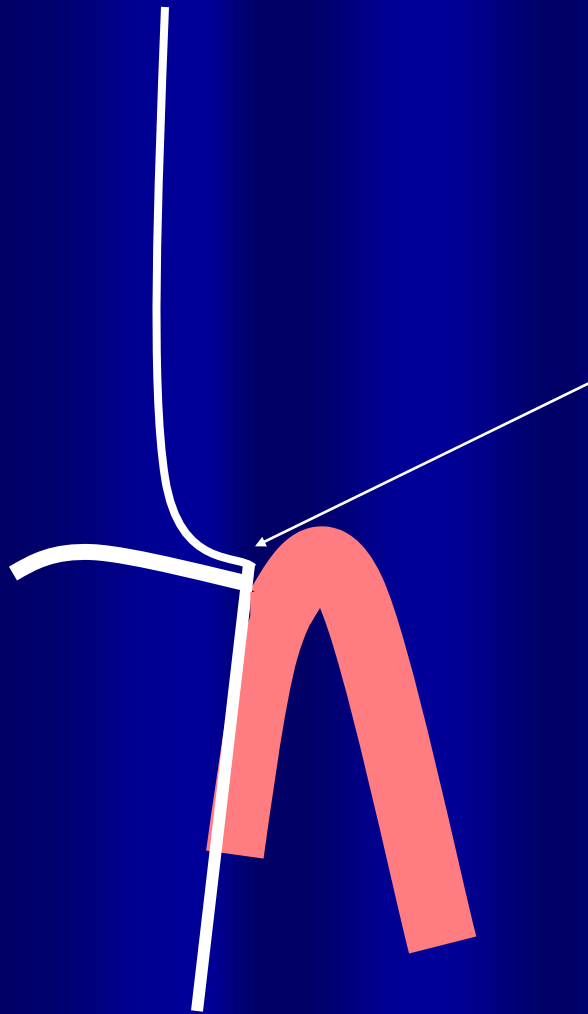
***TROUGHING or
TISSUE RETRACTION***

TROUGHING or TISSUE RETRACTION

- Contact the epithelial lining of the sulcus **VERY** gently; remove “extra” tissue, as well as coagulate fluid.
- Use low power, you’re not excising much tissue.
- Keep your tip clean.

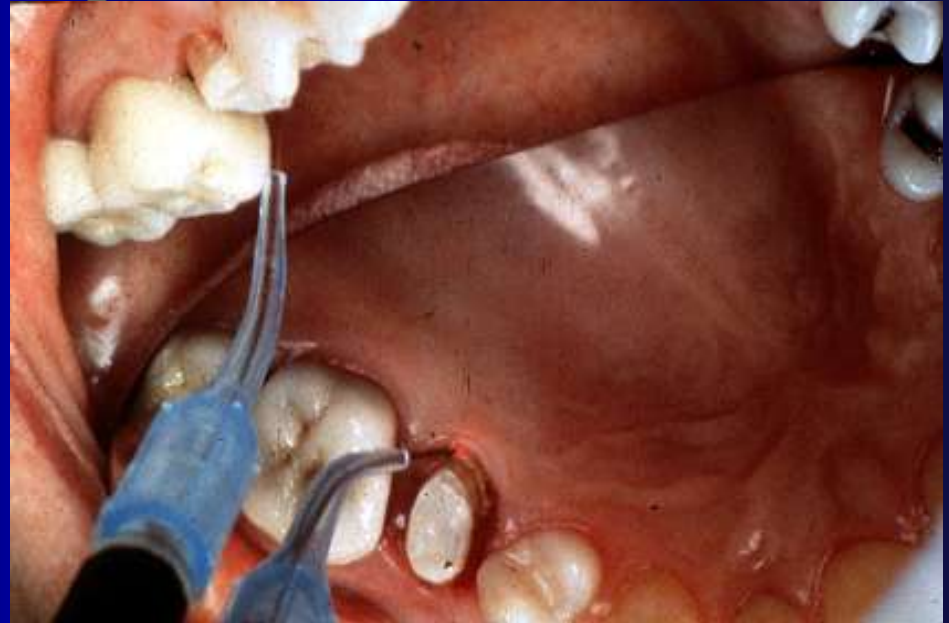
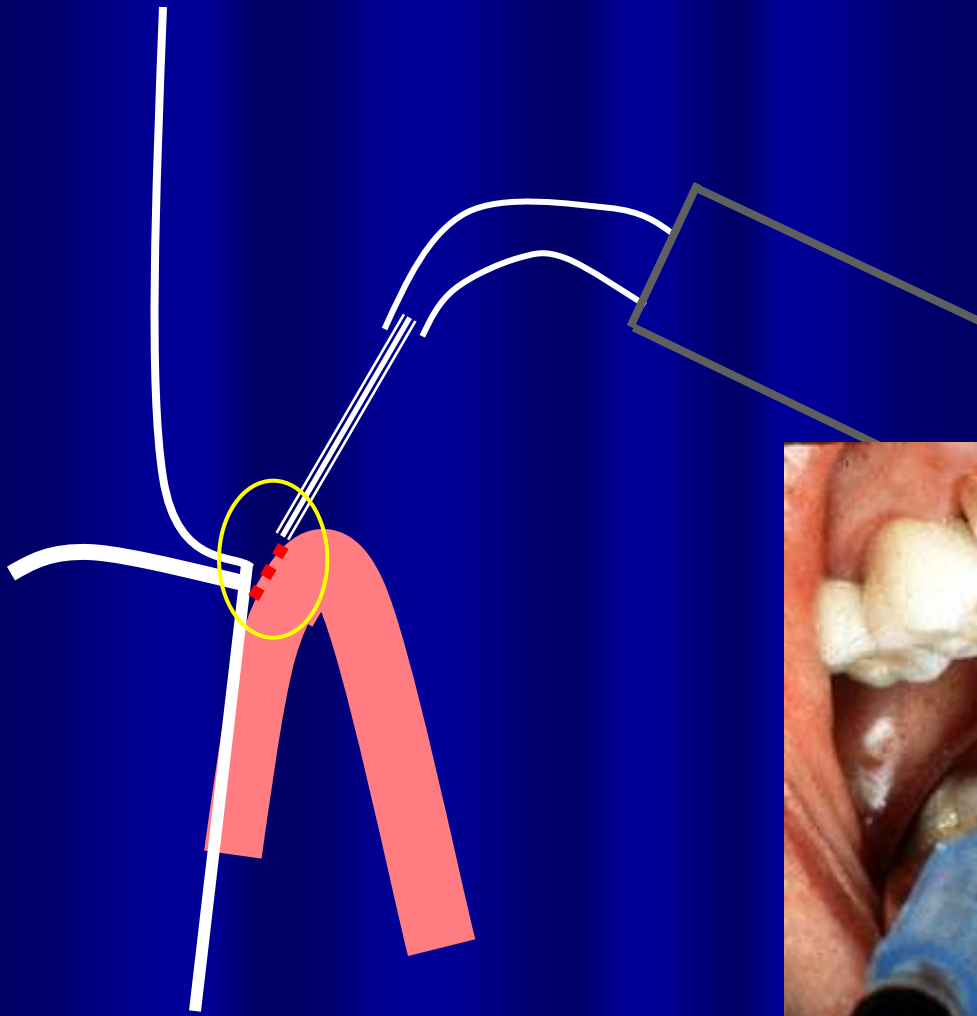
TROUGHING or TISSUE RETRACTION

- Make short arcs of a circle; DO NOT go circumferentially in one pass, you will just be incising the tissue.
- Be sure to keep your angle towards the soft tissue, especially if you are using Erbium

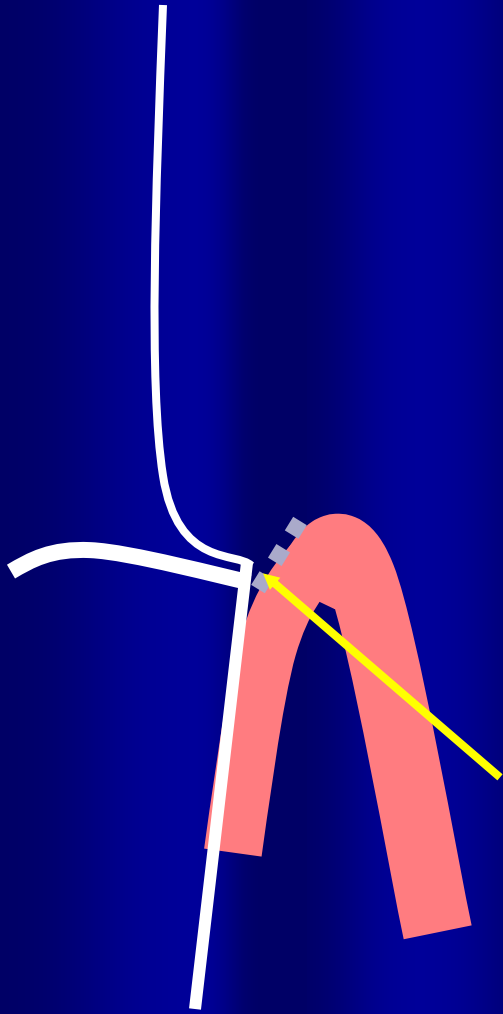


**Margin is
subgingival**





Start at the top of the sulcus and aim the fiber at the inner epithelial lining, not toward the tooth structure.



Now you've "exposed" your margin, achieved hemostasis, and you can take your impression!





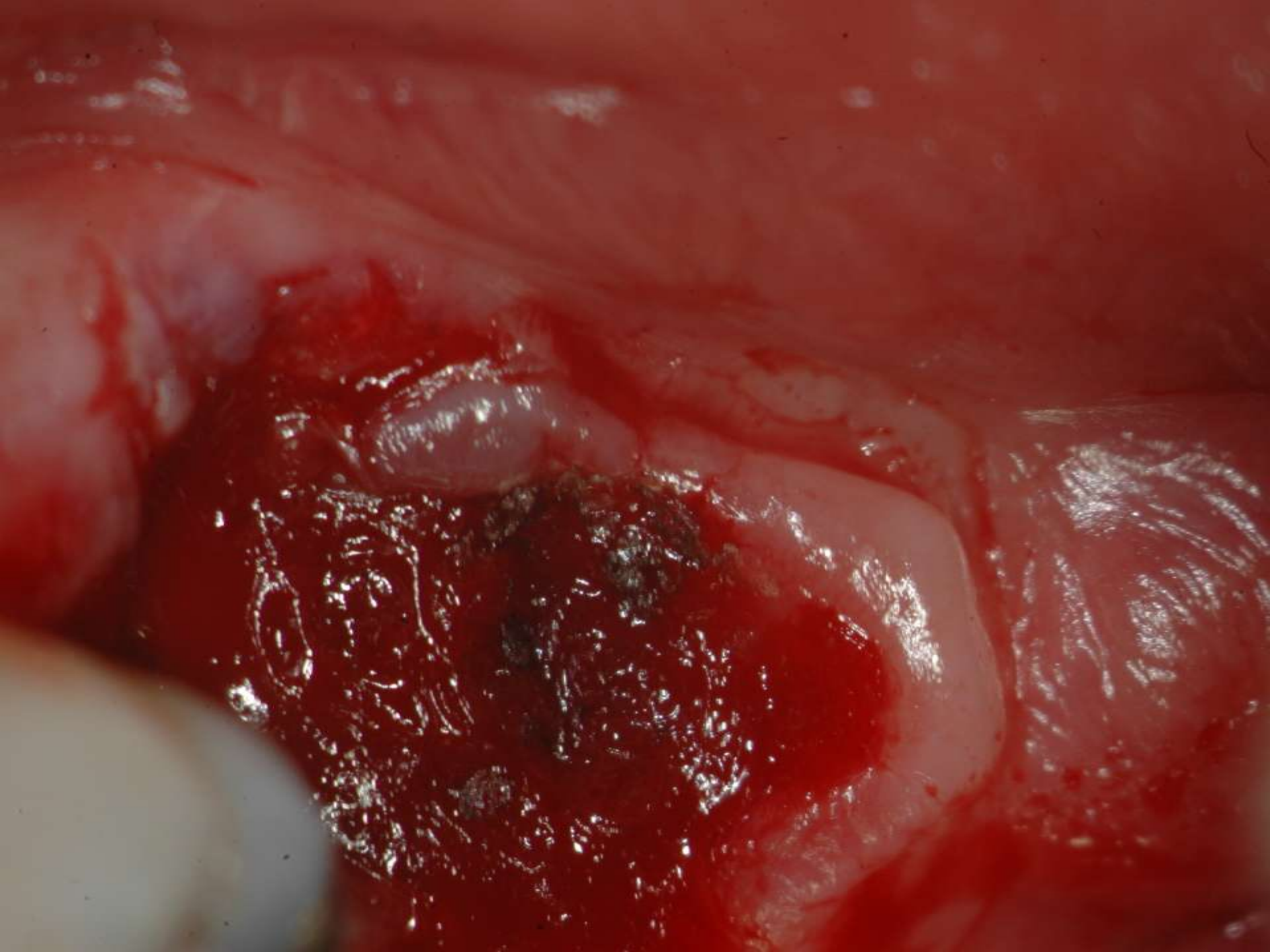
Great impression,
thanks to the laser!

Coagulation

- Remember that to achieve coagulation:
 - The tissue needs only to be about 60° C.
 - Some time is needed (continuous wave would be an advantage)
 - Do not 'disturb' the tissue—no incising!







AXIUM stuff

- Treatment planning and diagnostic codes (only for surgical procedures)
- For example, D4211 is a single tooth gingivectomy. Other codes are in the D7000 group.
- There is no procedure code for impression taking.

AXIUM stuff

- Chart notes must include:
 - Laser and wavelength: DIODE 810nm
 - Operating parameter(s): 1.0 W continuous, for example
 - Estimated total laser on time
 - Brief description of the procedure (you've already put the diagnosis in the Tx plan
 - Post op instructions

Hints to remember

- Use the minimum power necessary.
- Always visualize the finished contour.
- Always produce a smooth and even surface on both hard and soft tissues.
- MAKE SURE YOU HAVE THE PROPER SAFETY GLASSES



LET'S USE THE LASERS!