

Apr12 2024 Rural POCUS Rounds

Hand and wrist ultrasound

Getting a grip on anatomy and treatment options

Presented by Dr. Francois Louw

Entheomed |

Bill Nelems Pain & Research Centre

Your friendly neighbourhood pain doc:

Dr. W Francois Louw

- CCFP(EM), FCFP, MBCChB(Pret), DA(SA), ECFMG, Adv. Dipl Pain Mgt CAPM (Interventional Pain Management)
- GP Anesthetist, ER Physician, Pain Physician
- Associate Professor, UBC Dept. of Family Practice
- Past President, Canadian Association of Orthopaedic Medicine



Bill Nelems Pain & Research Centre



- Multidisciplinary MD clinic (7 specialties)
- 22 000 pt. visits/yr
- Integrated with UBCO Psychology,
- R/ships with PT, YMCA, Interior Health, Thrive Health- multiple research projects

LAND ACKNOWLEDGMENT

We acknowledge that we work on the traditional, ancestral and unceded territory of the Skwxwú7mesh (Squamish), x^wməθkwəy'əm (Musqueam), and Səl'ilwətaʔ/Selilwitulh (Tsleil-Waututh) Nations.



UBC CPD
Medicine
CONTINUING
PROFESSIONAL
DEVELOPMENT

Presenter Disclosures

Relationships with commercial interests:

Speaker fees: Medisca

Advisor: Cicatrix Labs, EntheoMed

Mitigation of Bias

Relationships do not affect my choices in developing content.

Financial relationships are unrelated to presentation.

Learning objectives /"agenda for the day":

1. Review the common conditions causing hand and wrist pain and dysfunction
2. Demonstrate clinical and ultrasound examination of hand and wrist structures
3. Discuss ultrasound guided injection approaches and injectants

Interventional Pain Management:

What you
can do ?

Supplies/Tray

Topical benzocaine 20%/ lidocaine 0,5 %
spray

Decreases pain with injection 😊

Tray:

Needles:

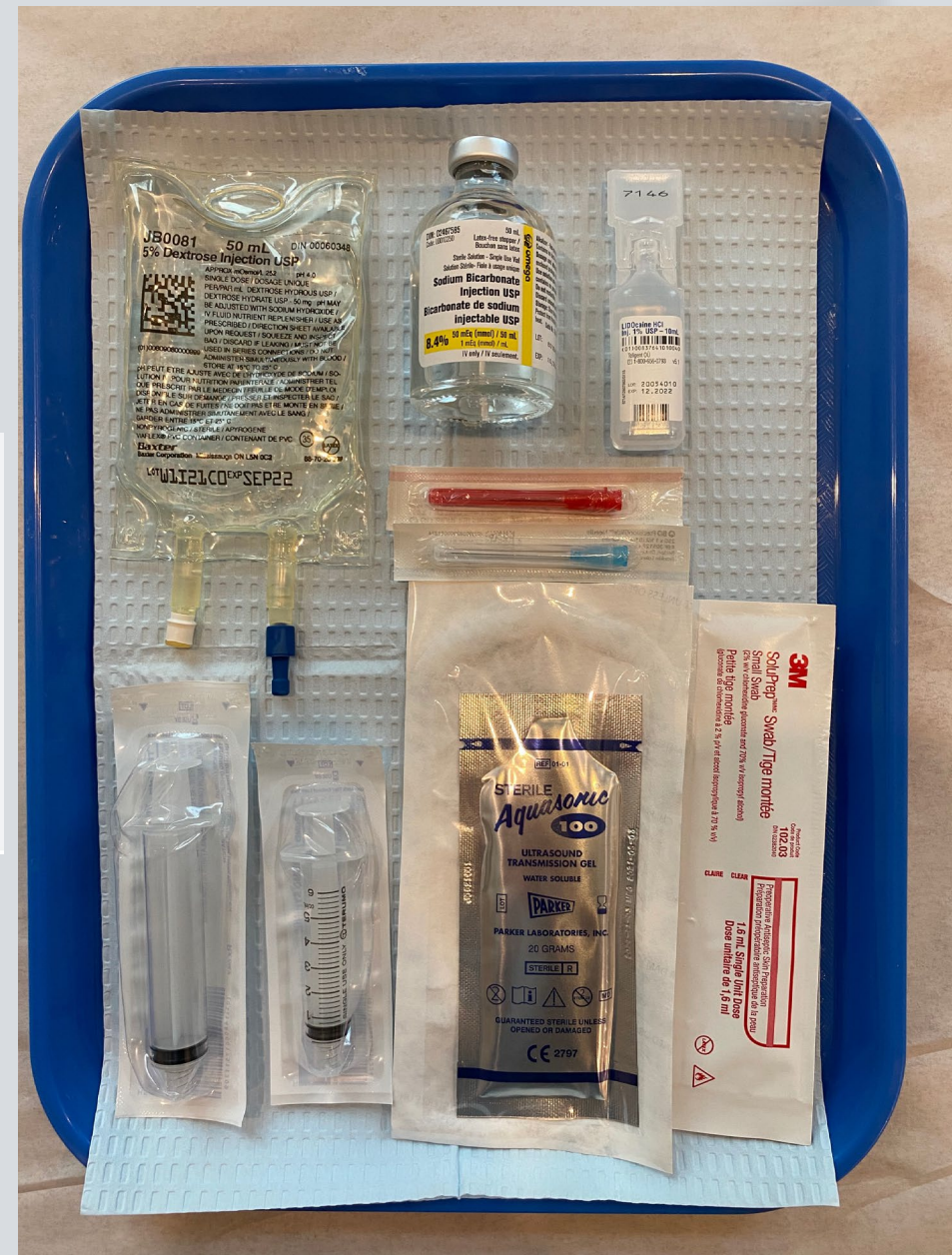
25G 1.5 inch,

27G 1 1/4 inch or 1/2 inch

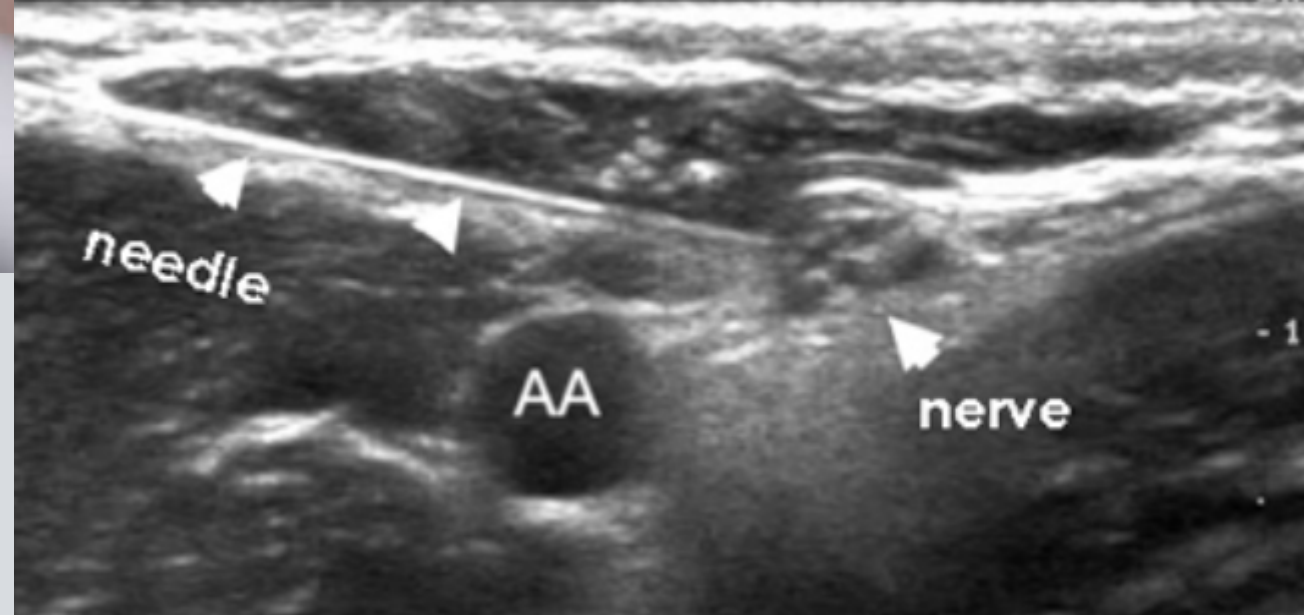


Injectants:

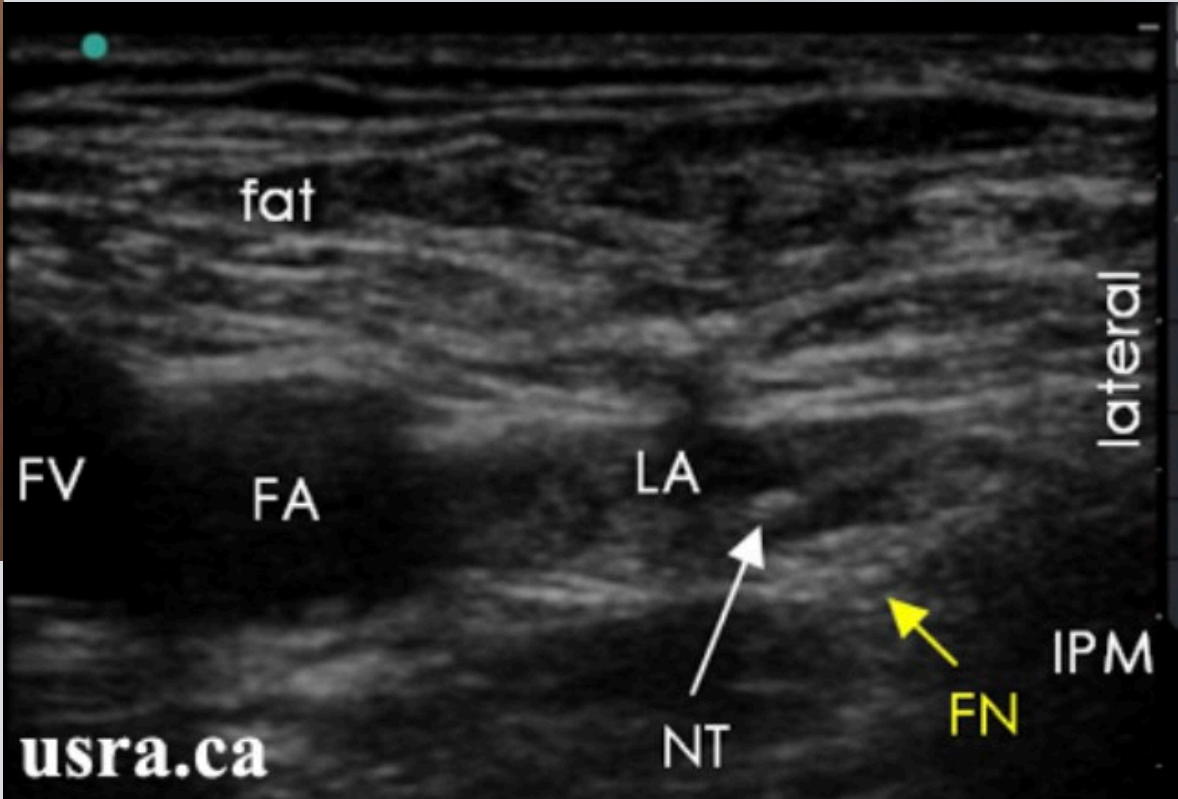
1. Dextrose Prolotherapy (15%)
2. C/steroids: Kenalog / Dexamethasone
3. PRP
4. Viscosupplementation (Durolane, Synvics)



Some concepts:
In-plane:

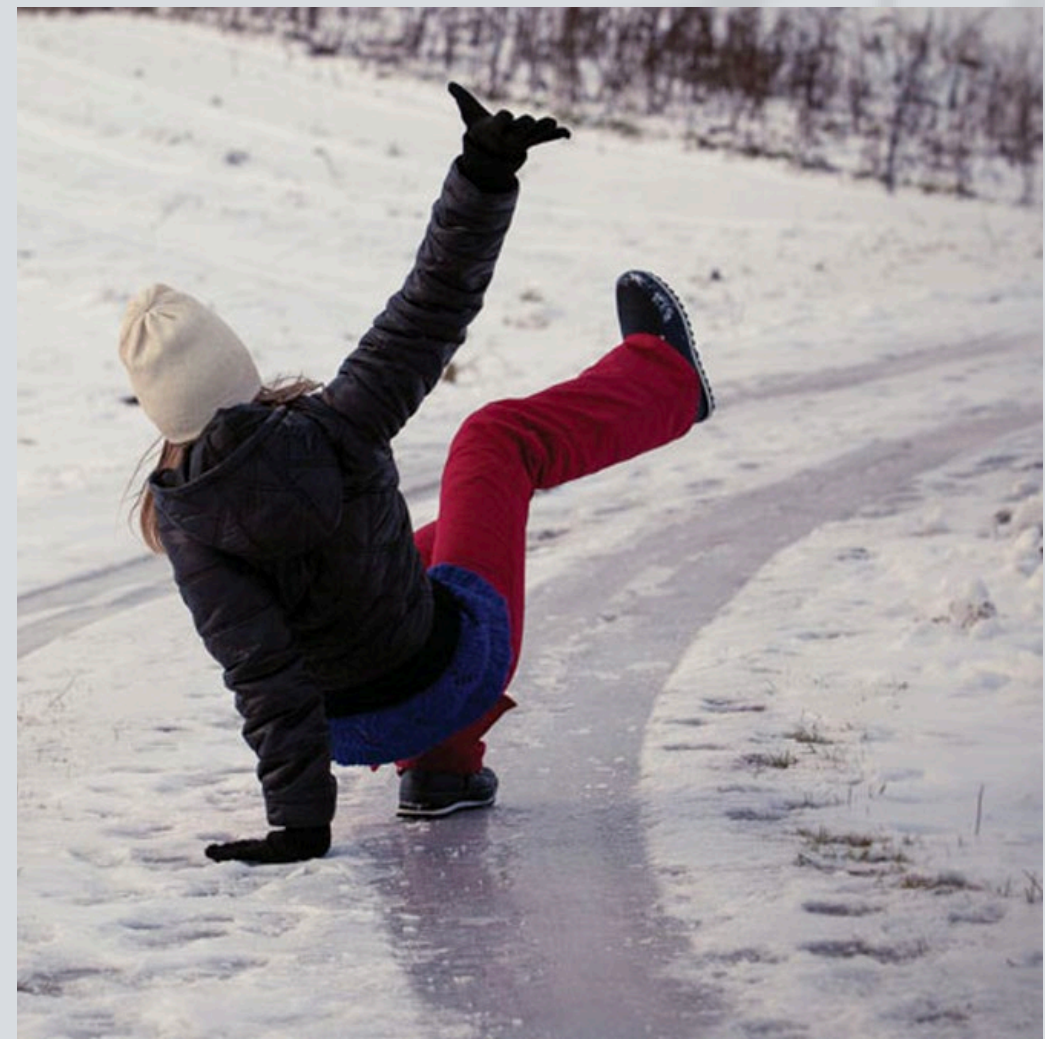


Out of plane:



Case Study “Kate”

- 28 year old woman
- FOOSH injury 2 years ago, multiple Rx's,
- no relief
- C/o pain over the DRUJ as well as Radiocarpal joint / Scapholunate interval
- “Deep achy pain”, unable to do push-ups, pain with pronation and supination, and especially wrist extension

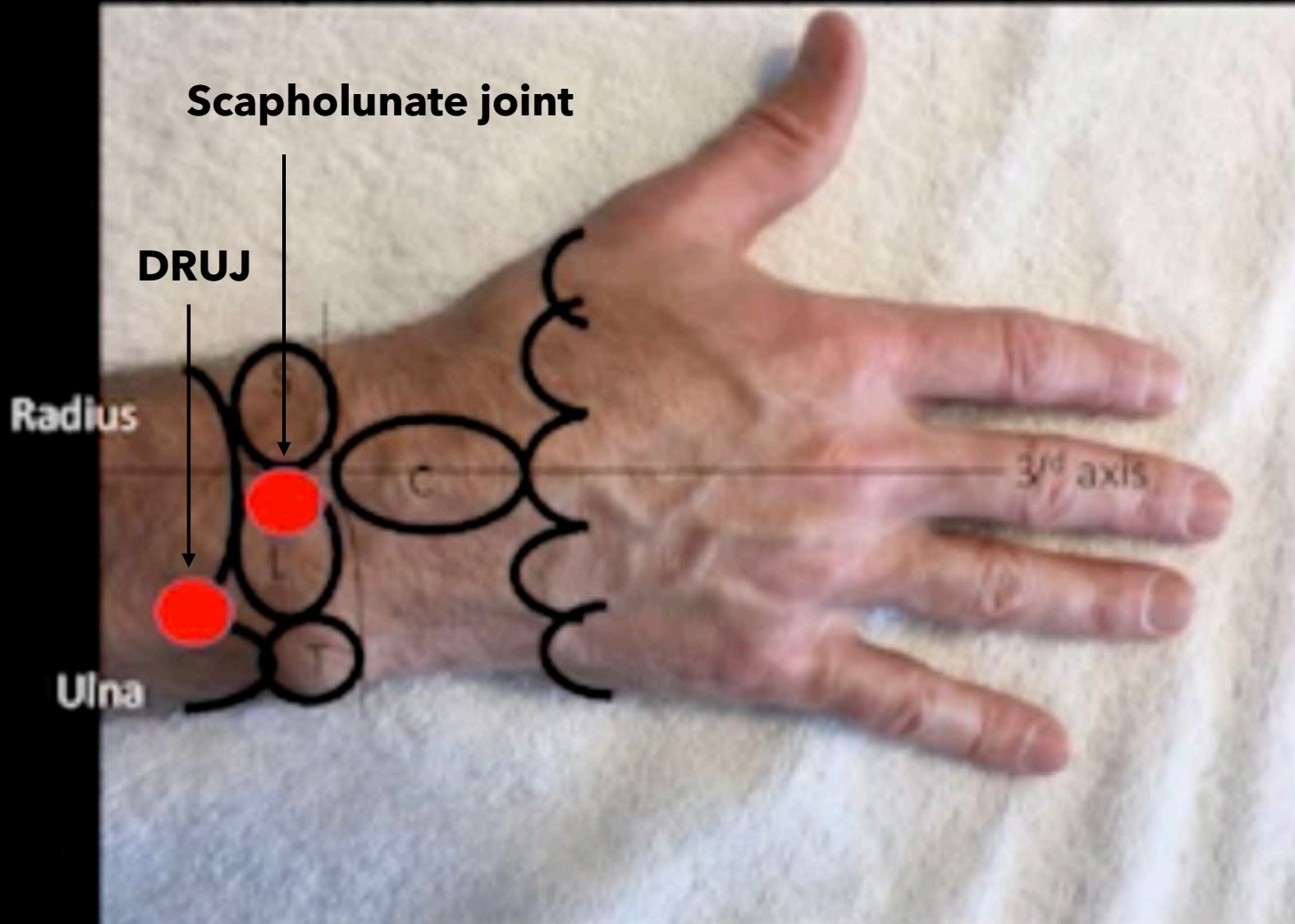


Home Undo



Models **Skeletal** Connective T. Muscular Arterial

Dorsal Wrist Marking



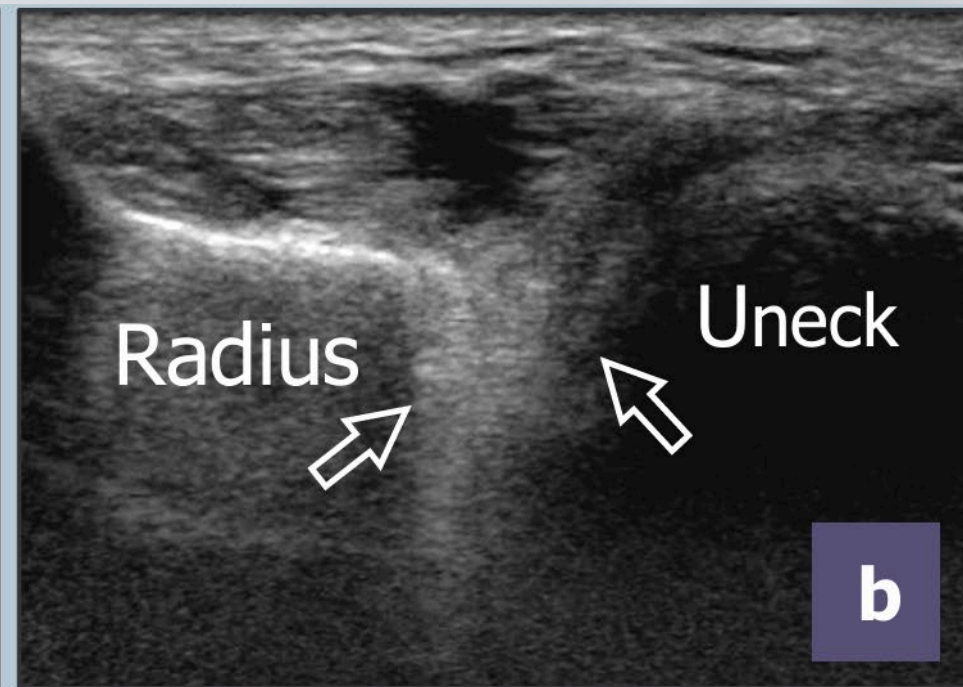
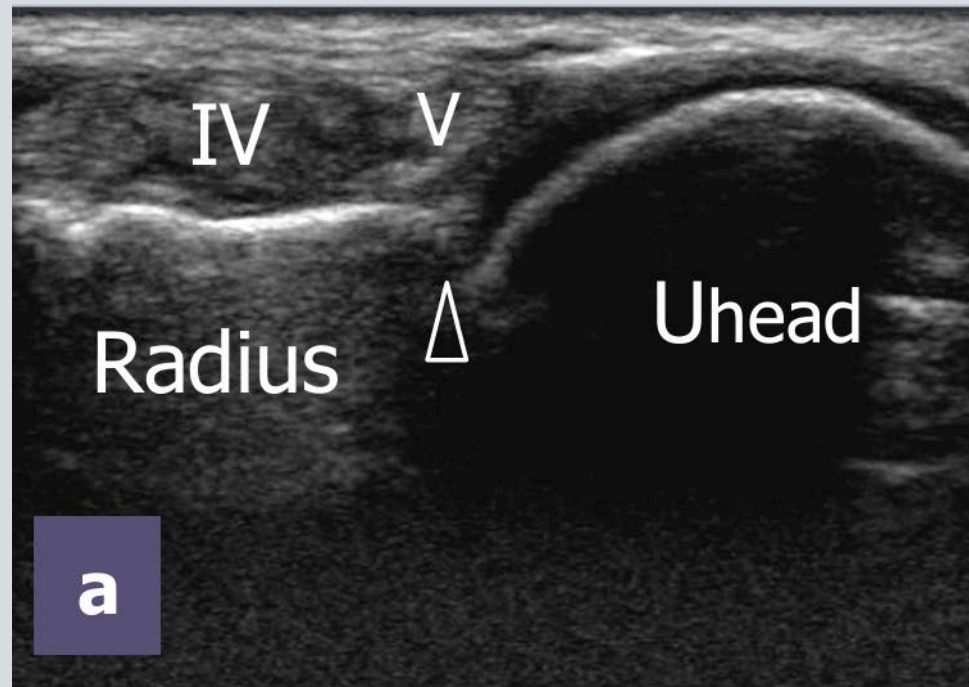
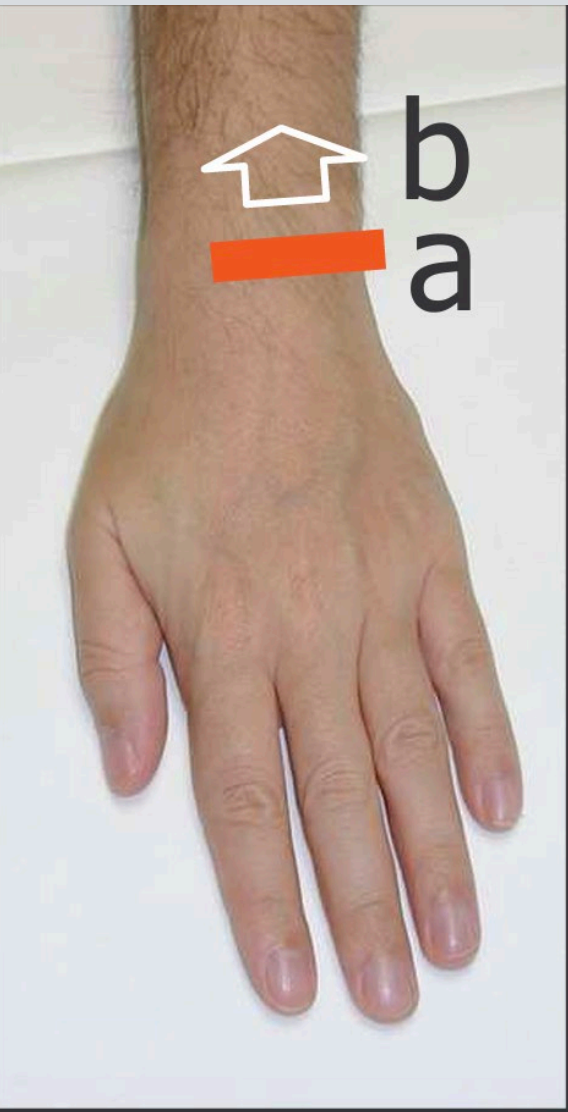
Orientation:

S: Scaphoid

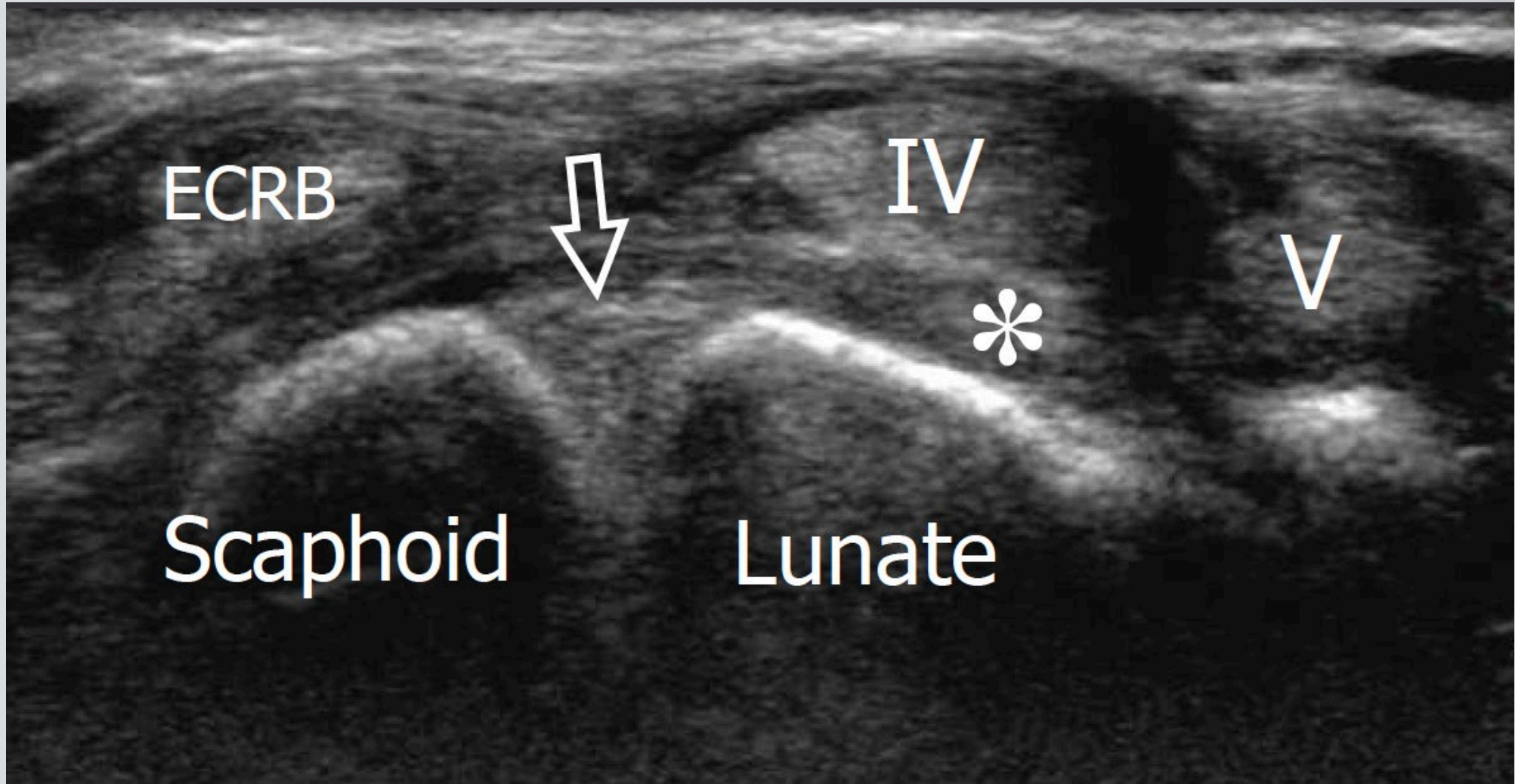
L: Lunate

T: Triquetrum

C: Capitate

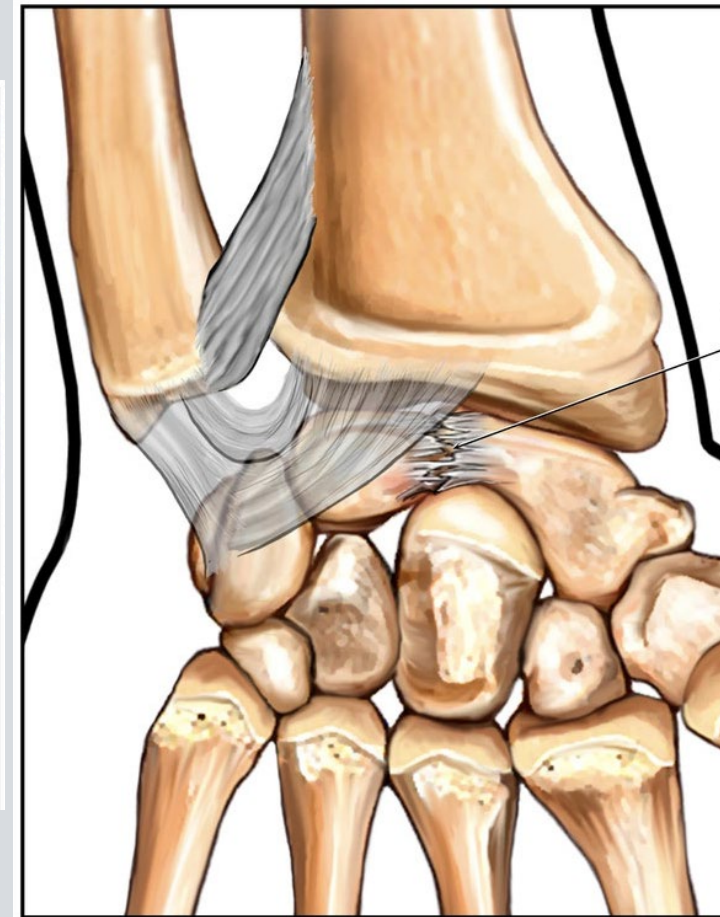
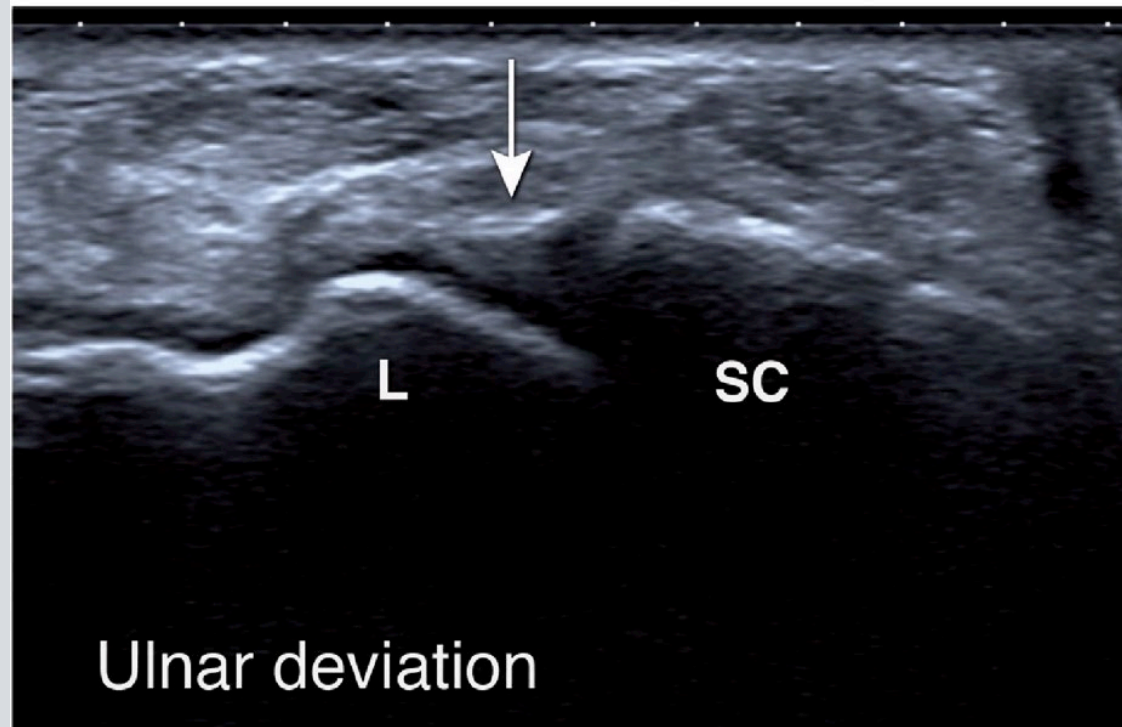


2. Then: Slide down to see the **Scapholunate joint and ligaments:**

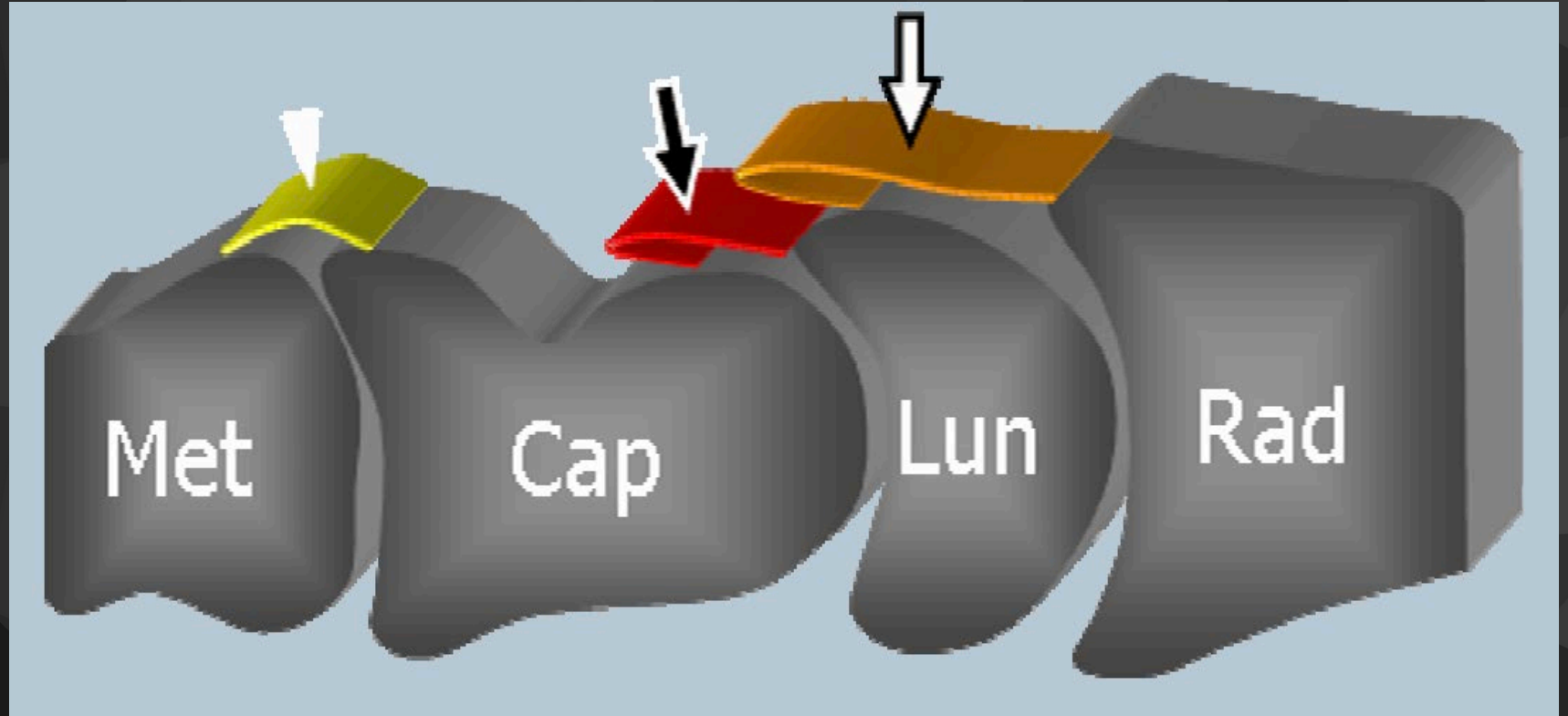
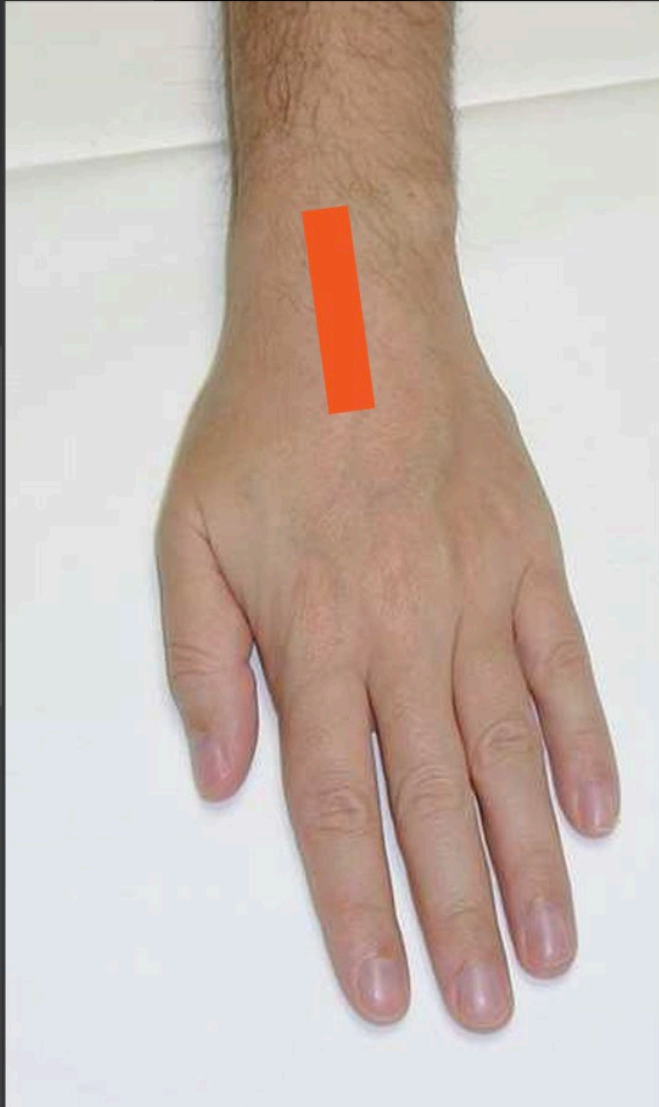


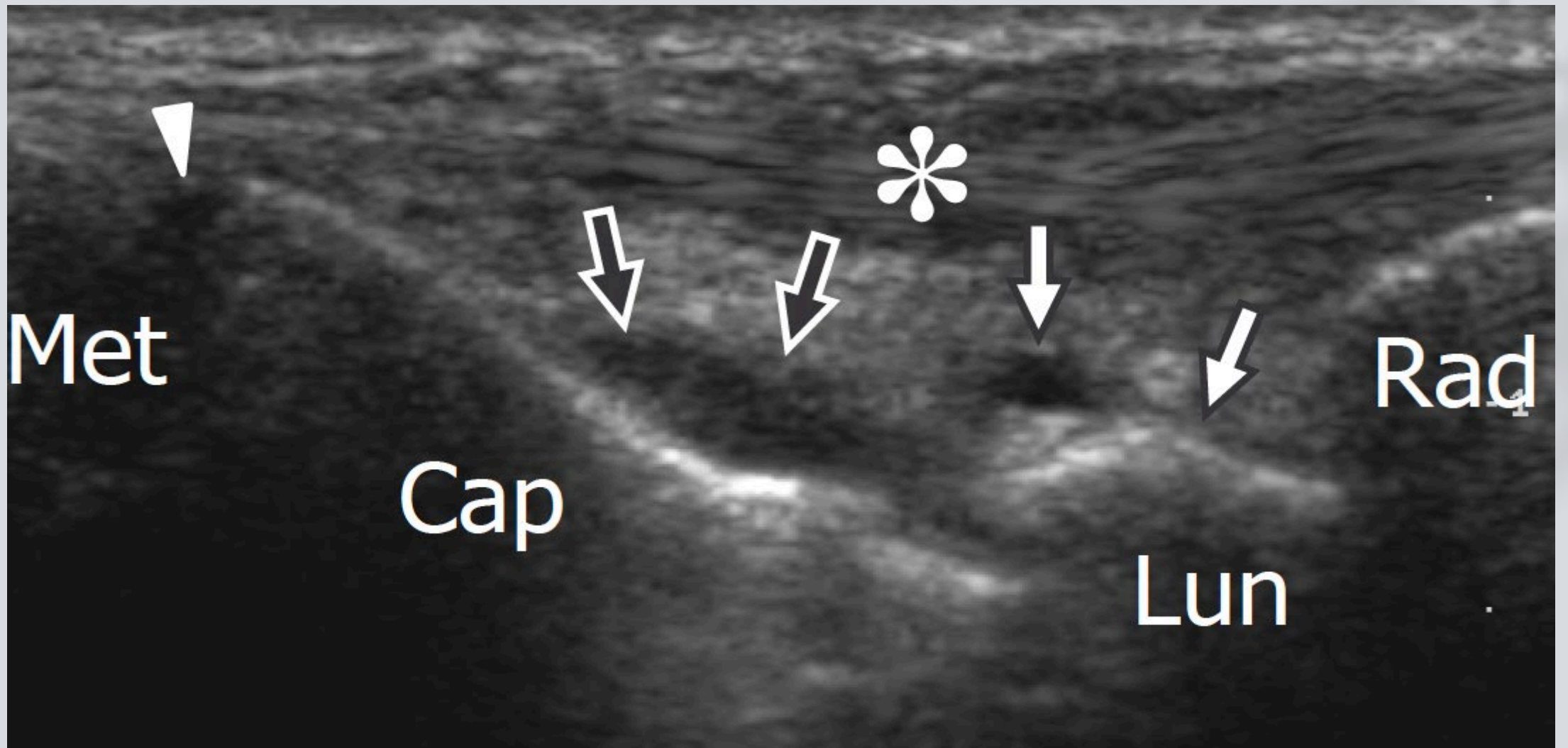
Scapholunate ligament: N view (Check for stability with clenched fist view)

Dorsal wrist: Scapholunate Ligament



3. Now, turn probe 90 degrees:
Radiocarpal and midcarpal joints



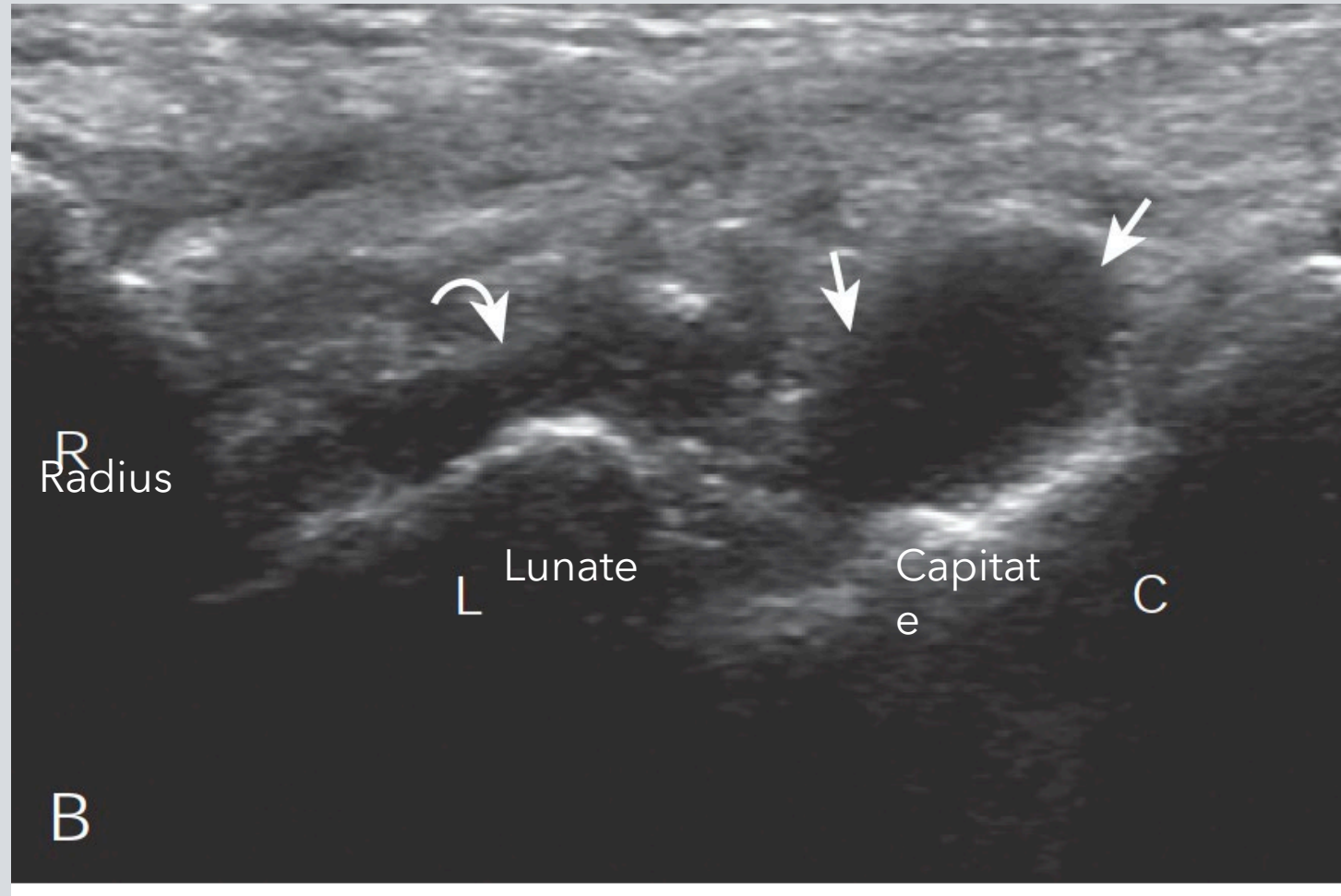


*Asterisk: IV compartment of the extensor tendons;
White arrows: dorsal recess of the [radiocarpal joint](#);
Black arrows: dorsal recess of the [midcarpal joint](#);
Rad, radius; Lun, lunate; Cap, capitate; Met, metacarpal*



Wrist joint injection
technique:
Note, padding
under wrist

Pathology:



Anechoic distention (arrows) of the midcarpal joint dorsal recess.

Note collapsed radiocarpal joint recess (curved arrow)

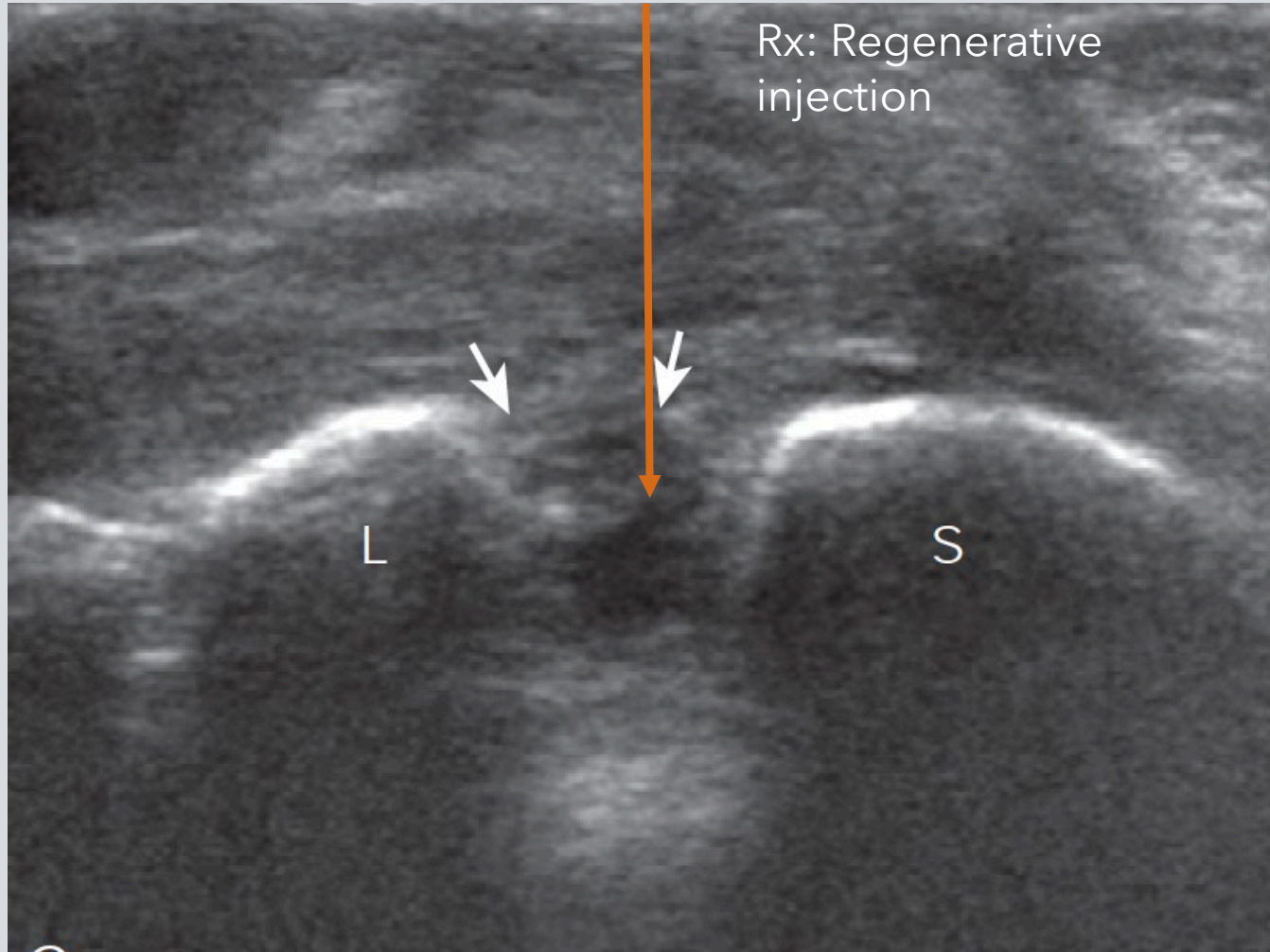
What and how to inject for wrist OA?

Rx: Injectants:

1. Prolotherapy: 15% dextrose in 0,2% lidocaine
2. PRP (Leukocyte Rich (1 billion platelets / ml)
3. Kenalog 5-20 mg
4. Out of plane approach



Pathology:
Scapholunate ligament tear



Note widening of scapholunate interval with hypoechoic tear

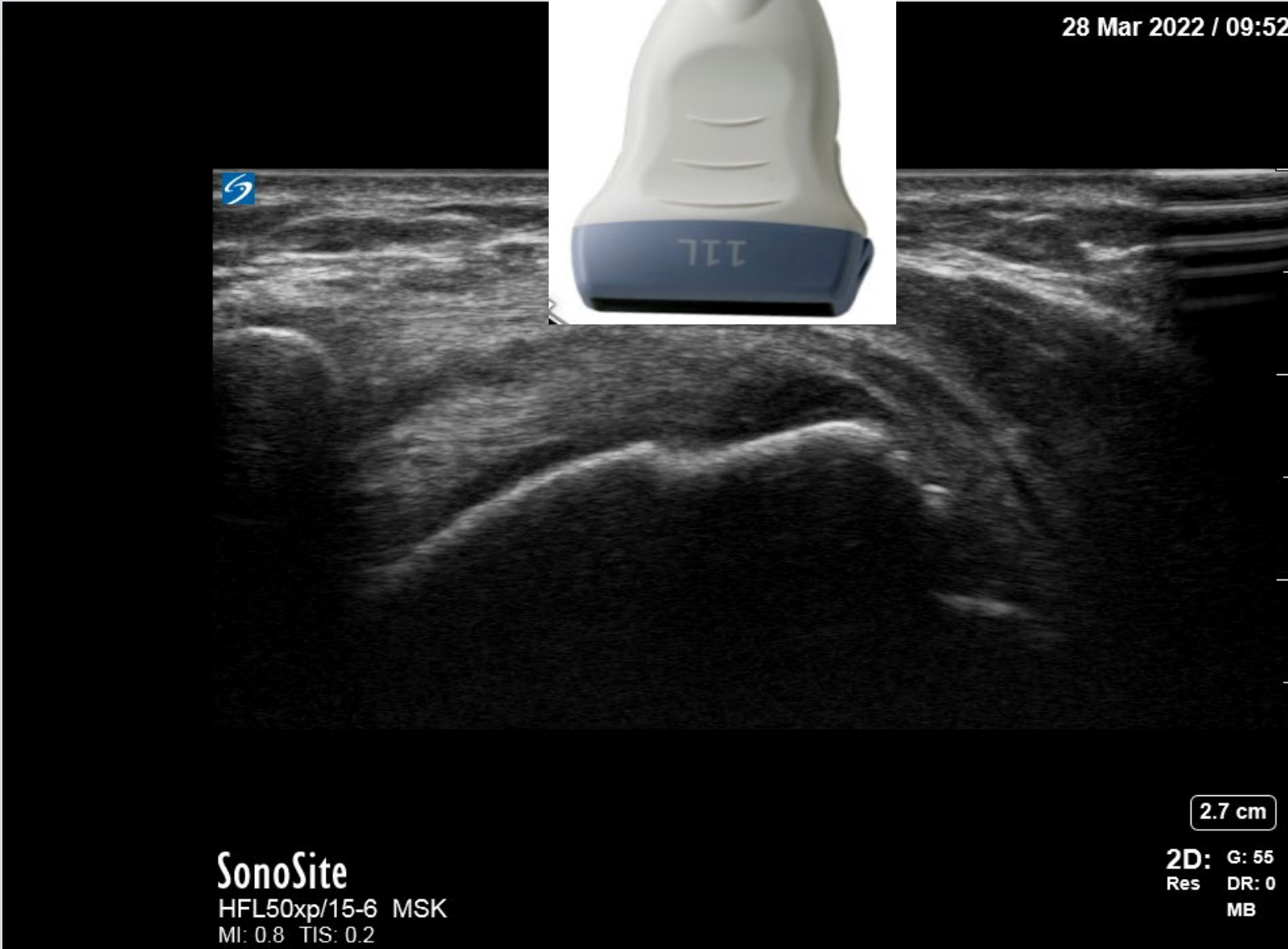
What and how to inject for SL disruption?

Rx: Injectants:

1. Prolotherapy: 15% dextrose in 0,2% lidocaine
2. PRP (Leukocyte Rich (1 billion platelets / ml)
3. Out of plane
4. Note- No c/steroids here!

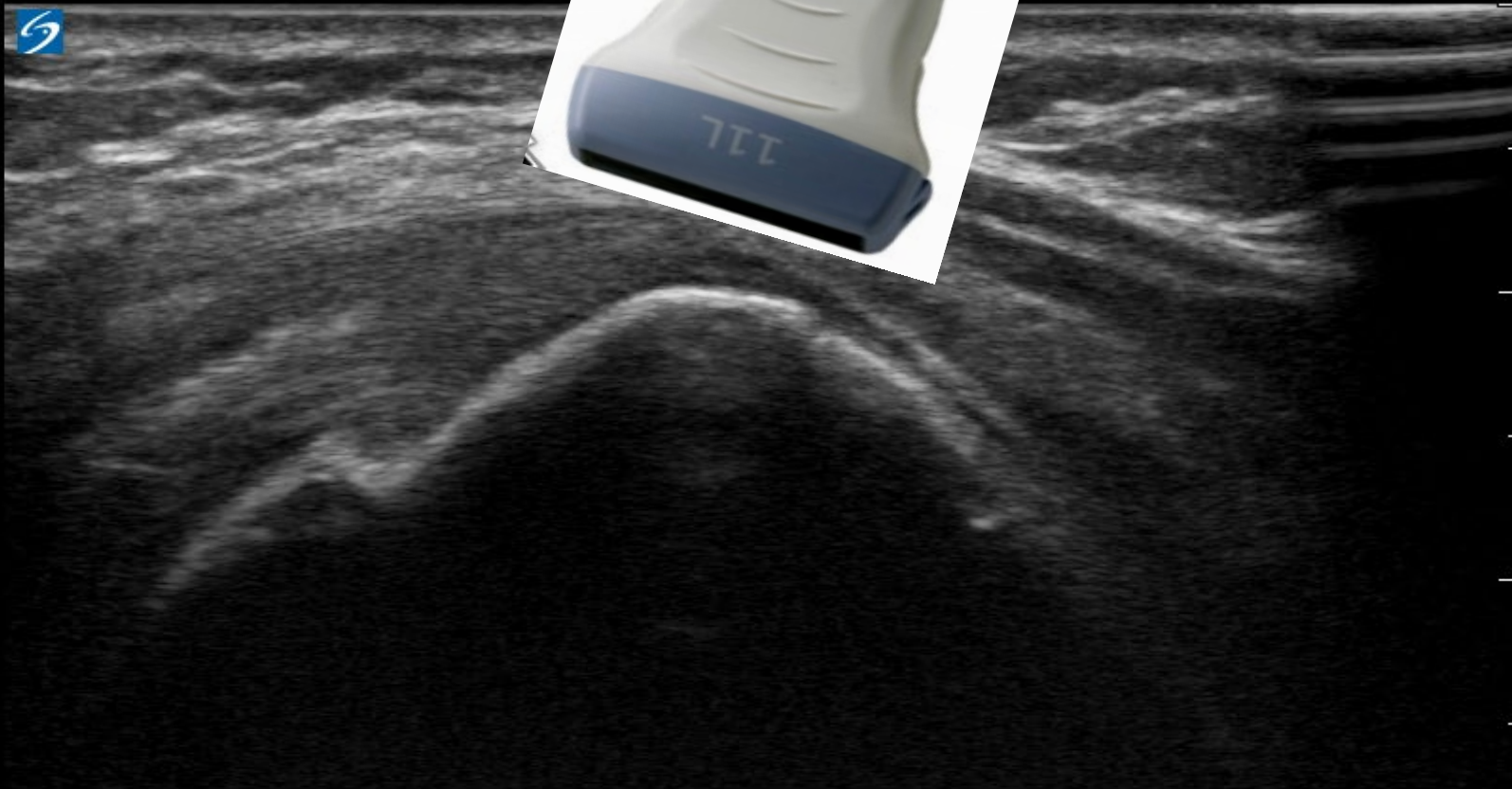


IMPORTANT ARTIFACT: ANISOTROPY



Refers to a darkening and loss of resolution of the image which occurs when the approach of the sound waves is less than perpendicular

28 Mar 2022 / 09:52



Fix:
Toe in!

2.7 cm

SonoSite
HFL50xp/15-6 MSK
MI: 0.8 TIS: 0.2

2D: G: 55
Res DR: 0
MB



Case Study : “Perry”

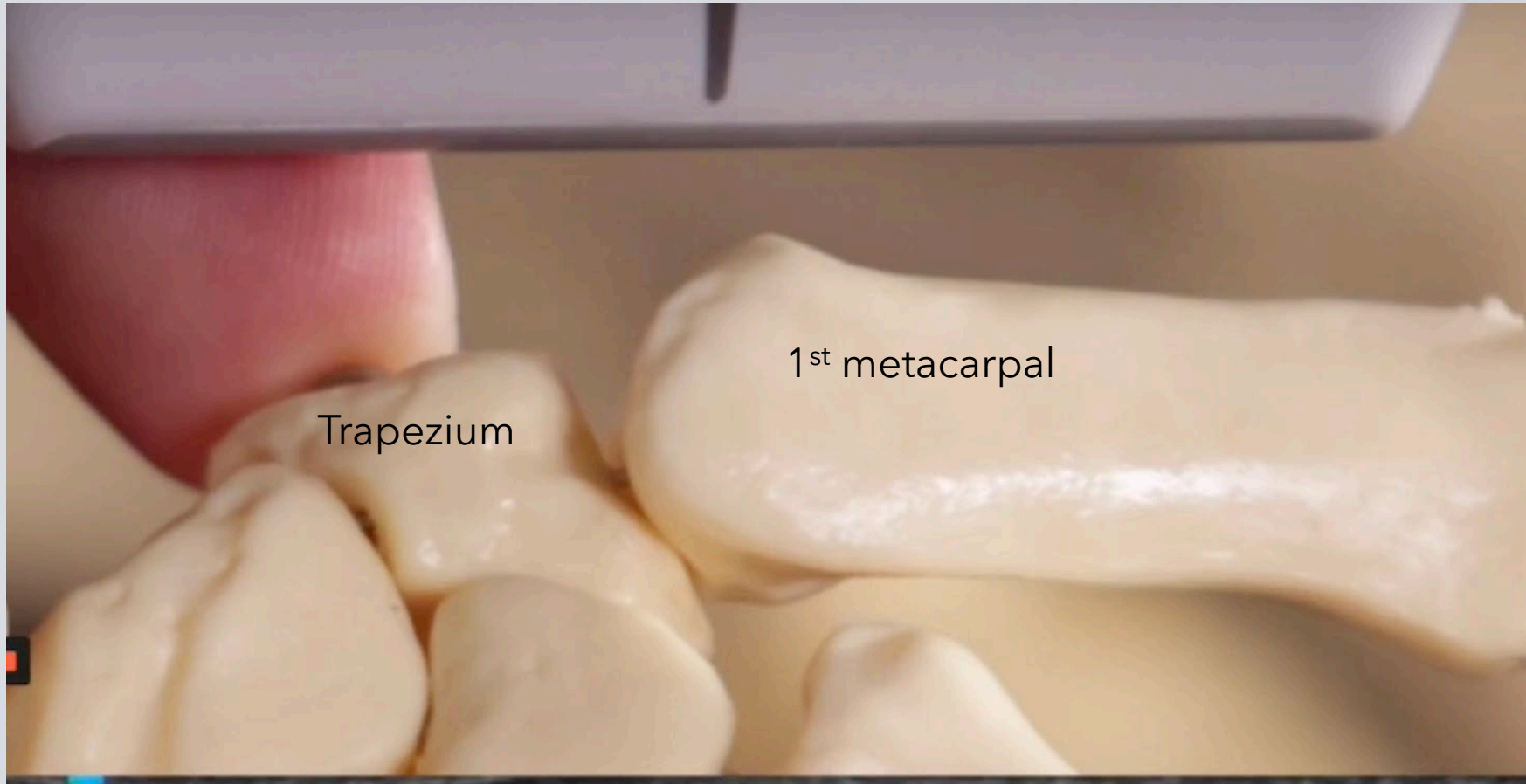
- 65 year old man
- Guitar player
- C/o pain over the CMC joint, unable to string his guitar/ grip any objects due to pain
- “Achy pain”, but sharp with certain movements
- “What can you do for me doc? Chromosome injection?”
- You request an XR:

XR: CMC joint OA (severe)

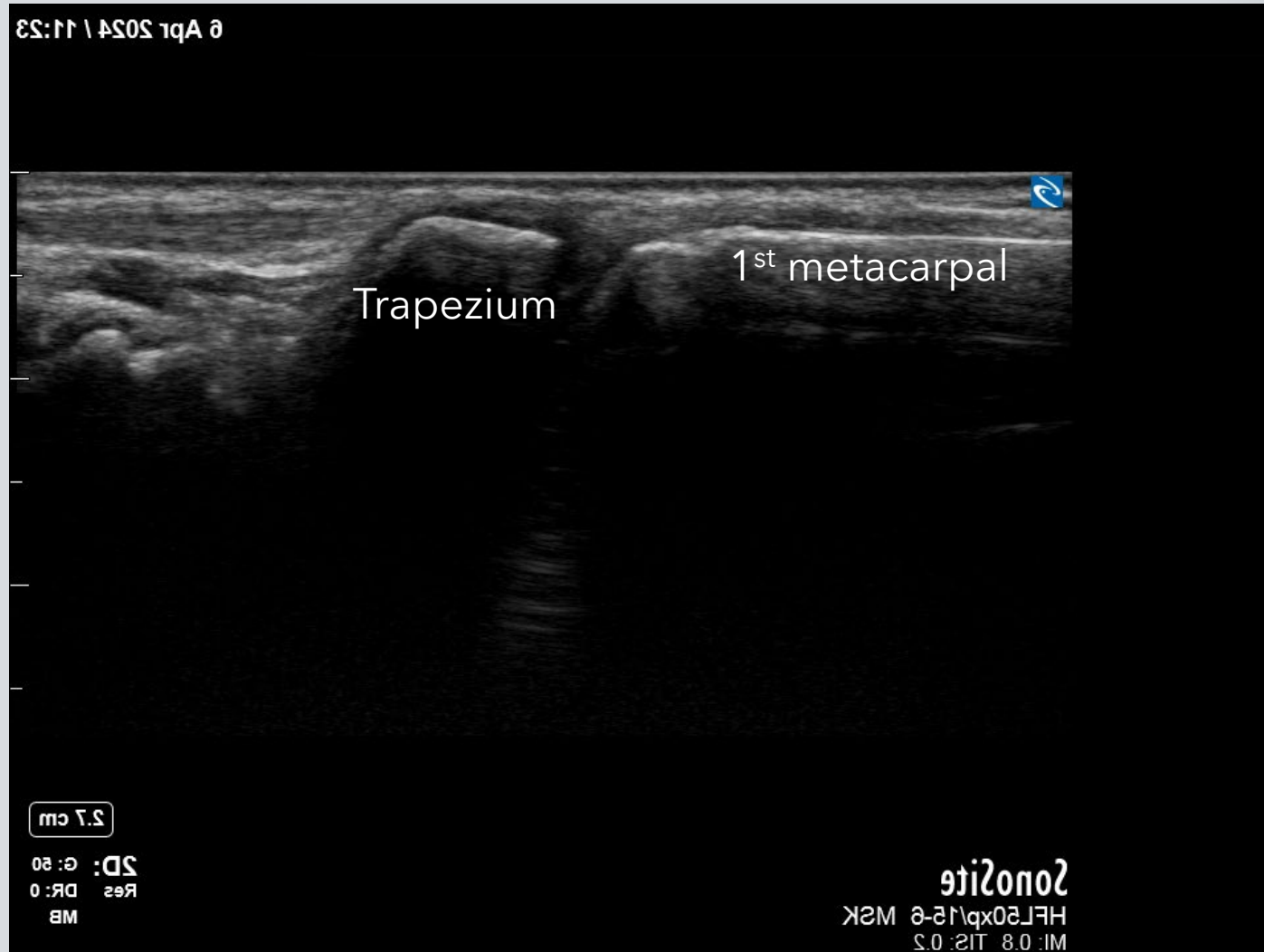


Figure A

4. CMC joint (Carpometacarpal joint)



CMC joint (Carpometacarpal joint) Ultrasound view: (N)





Radial
artery

What and how to inject for CMC joint OA?

Rx: Injectants:

1. Prolotherapy: 15% dextrose in 0,2% lidocaine
2. PRP (Leukocyte Rich (1 billion platelets / ml)
3. Kenalog 5-10 mg
4. Out of plane approach



5. Finger joints: MCP joint, PIP joint and DIP joint (mostly OA)





What and how to inject for finger (MCP/PIPJ/DIPJ OA?)

Rx: Injectants:

1. Prolotherapy: 15% dextrose in 0,2% lidocaine
2. PRP (Leukocyte Rich (1 billion platelets / ml)
3. Kenalog 5-10 mg
4. Out of plane approach



6. De Quervain's tenosynovitis: (Gamer's / texter's thumb)



- affects the abductor pollicis longus (APL) and the extensor pollicis brevis (EPB)
- Causes:
 - overuse of the thumb and wrist
 - pregnancy
 - RA
 - Common in 40s and 50s and affects more women than men.

THINGS I HATE

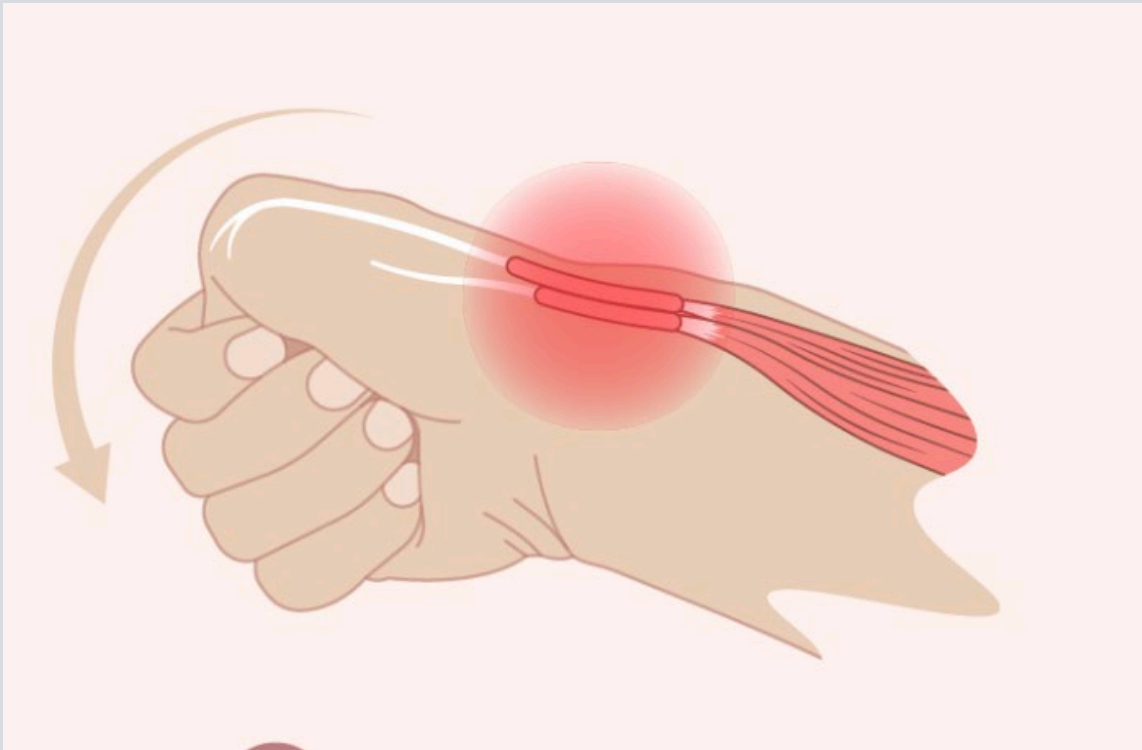
1. VANDALISM

2. IRONY

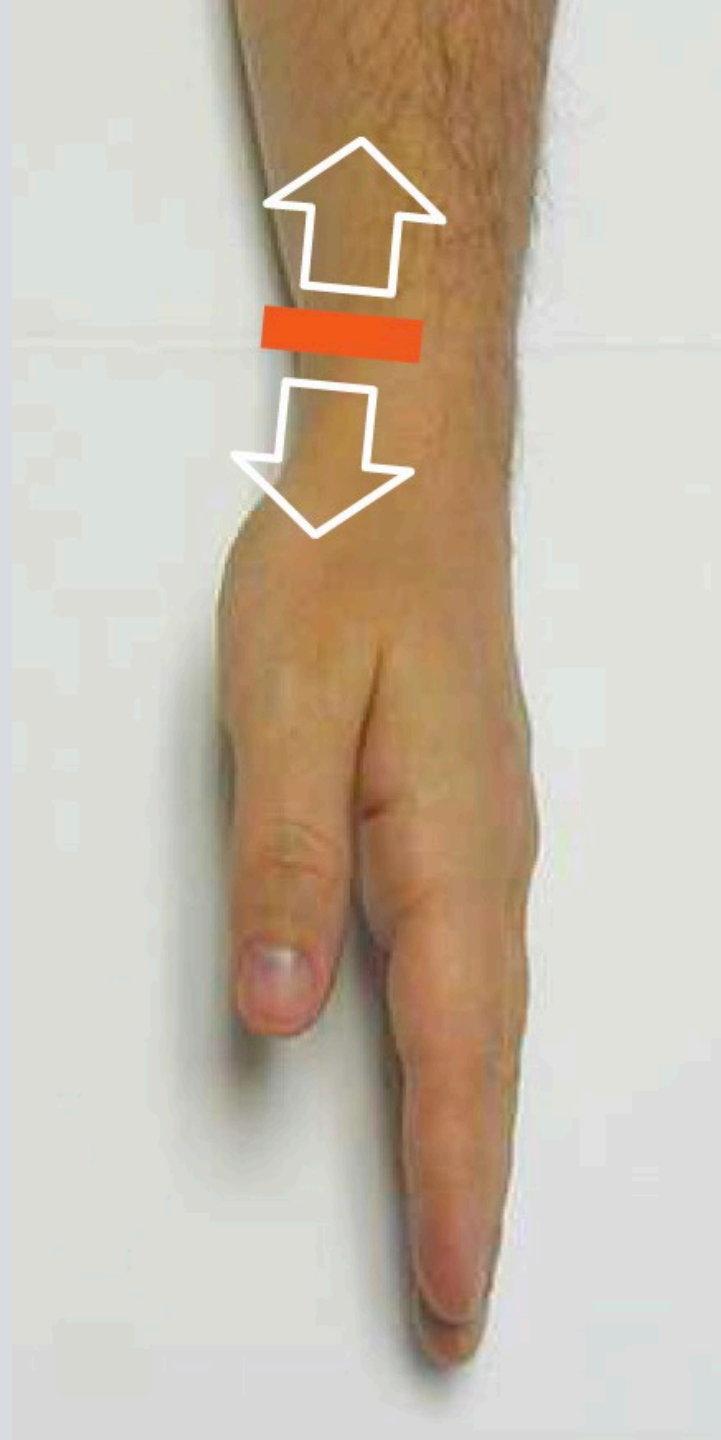
3. LISTS

De Quervain's tenosynovitis:

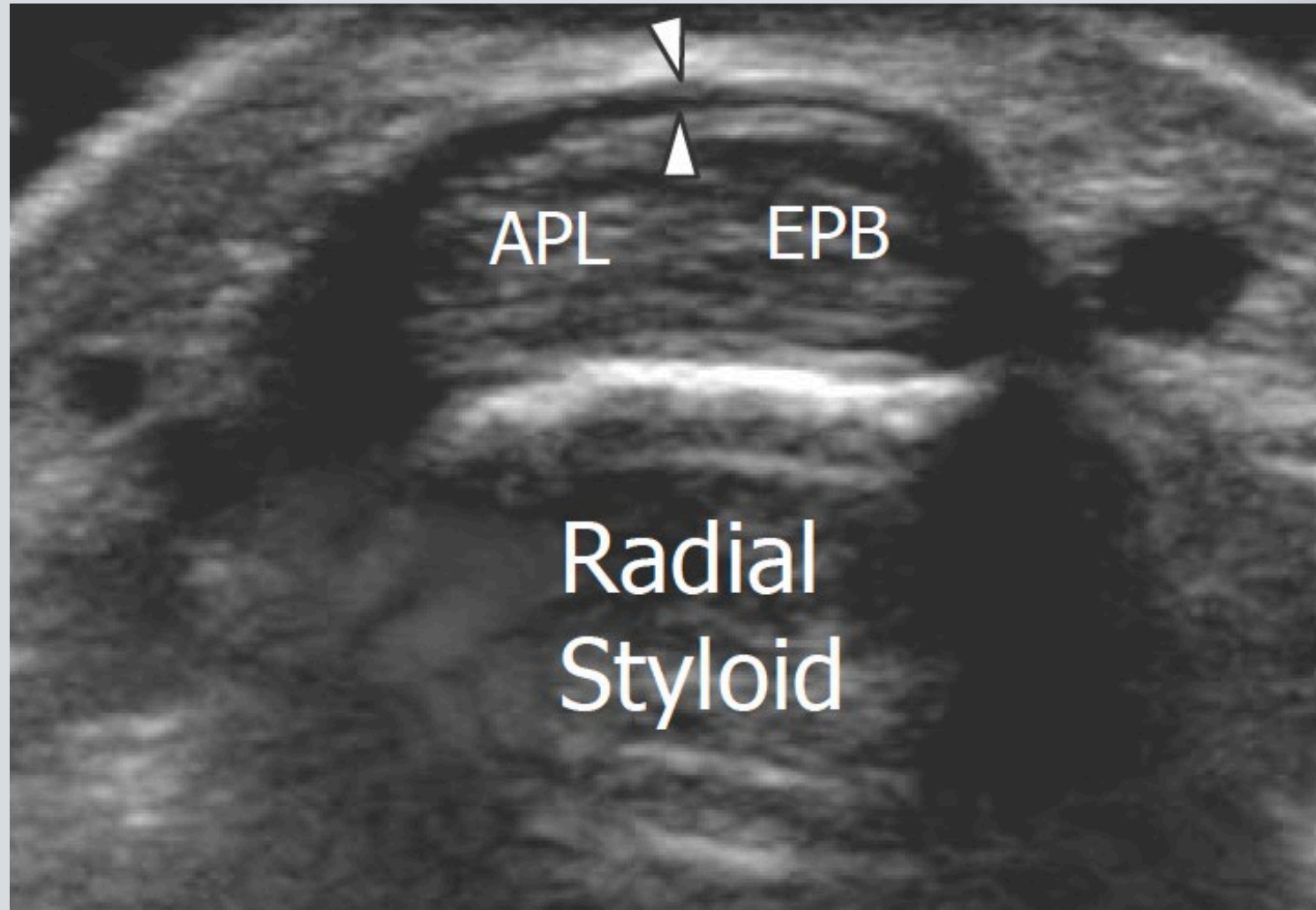
- Testing
- Finkelstein test:



Thumb inside of palm
Forceful ulnar deviation



De Quervain's tenosynovitis-
probe orientation (transverse)



* **Edematous tendon thickening** of APL and EPB at the level of the radial styloid (compare with the contralateral side)

* **Increased fluid** within the first extensor tendon compartment tendon sheath

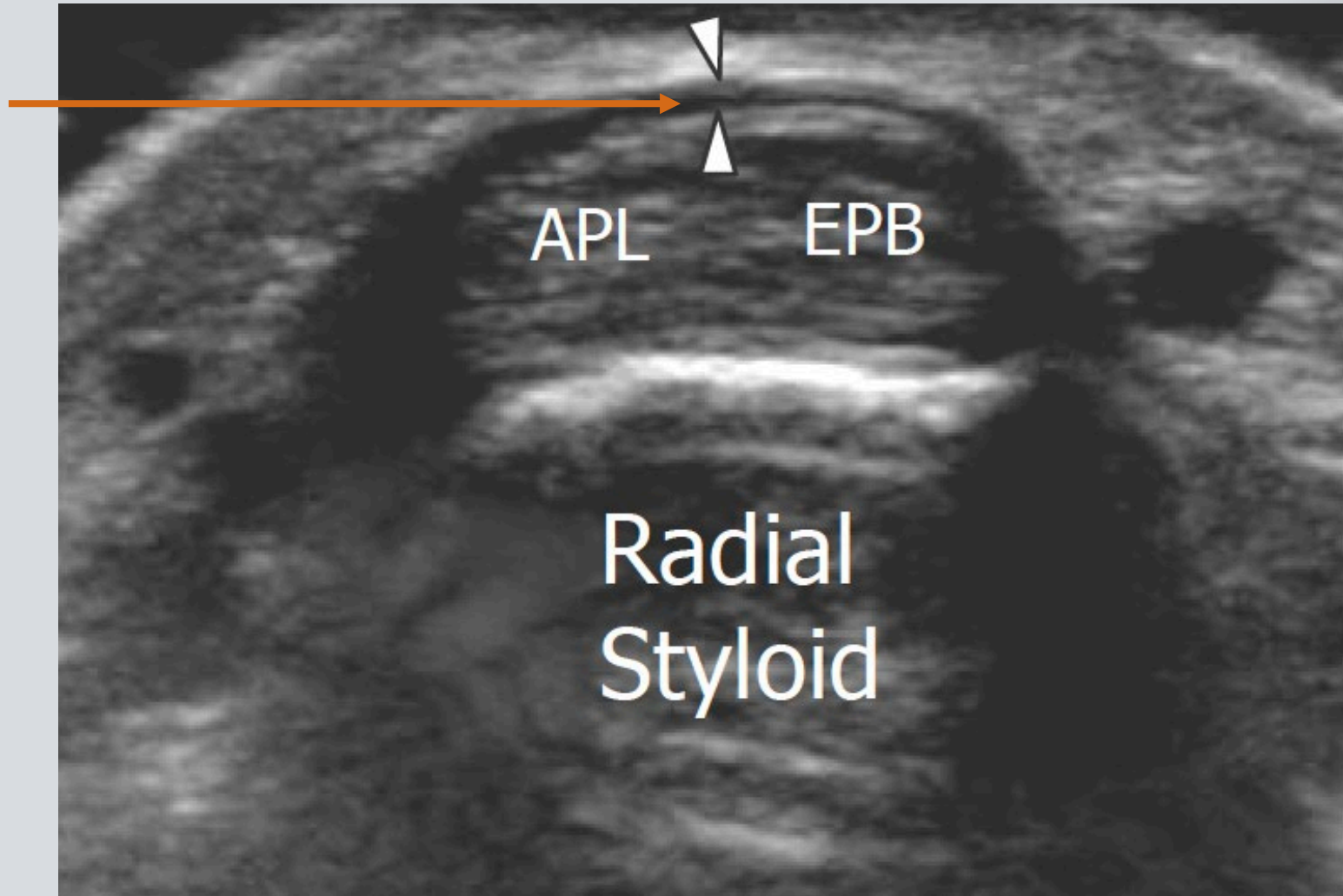
What and how to inject for De Quervain's?

Rx: Injectants:

1. Kenalog 5-10 mg
2. Prolotherapy, PRP
3. In plane approach, probe transverse or long on tendons



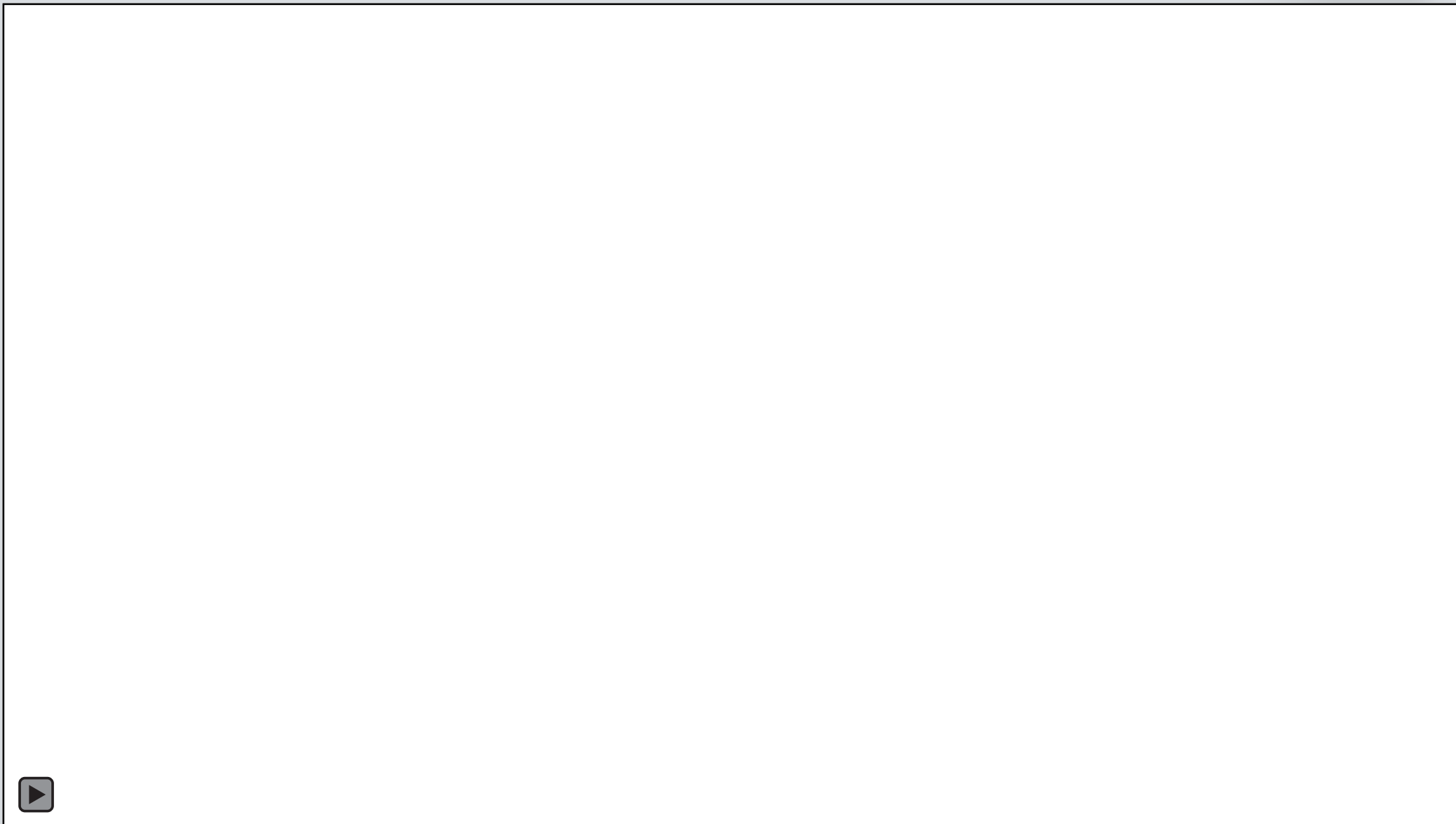
Needle
orientation-
In plane

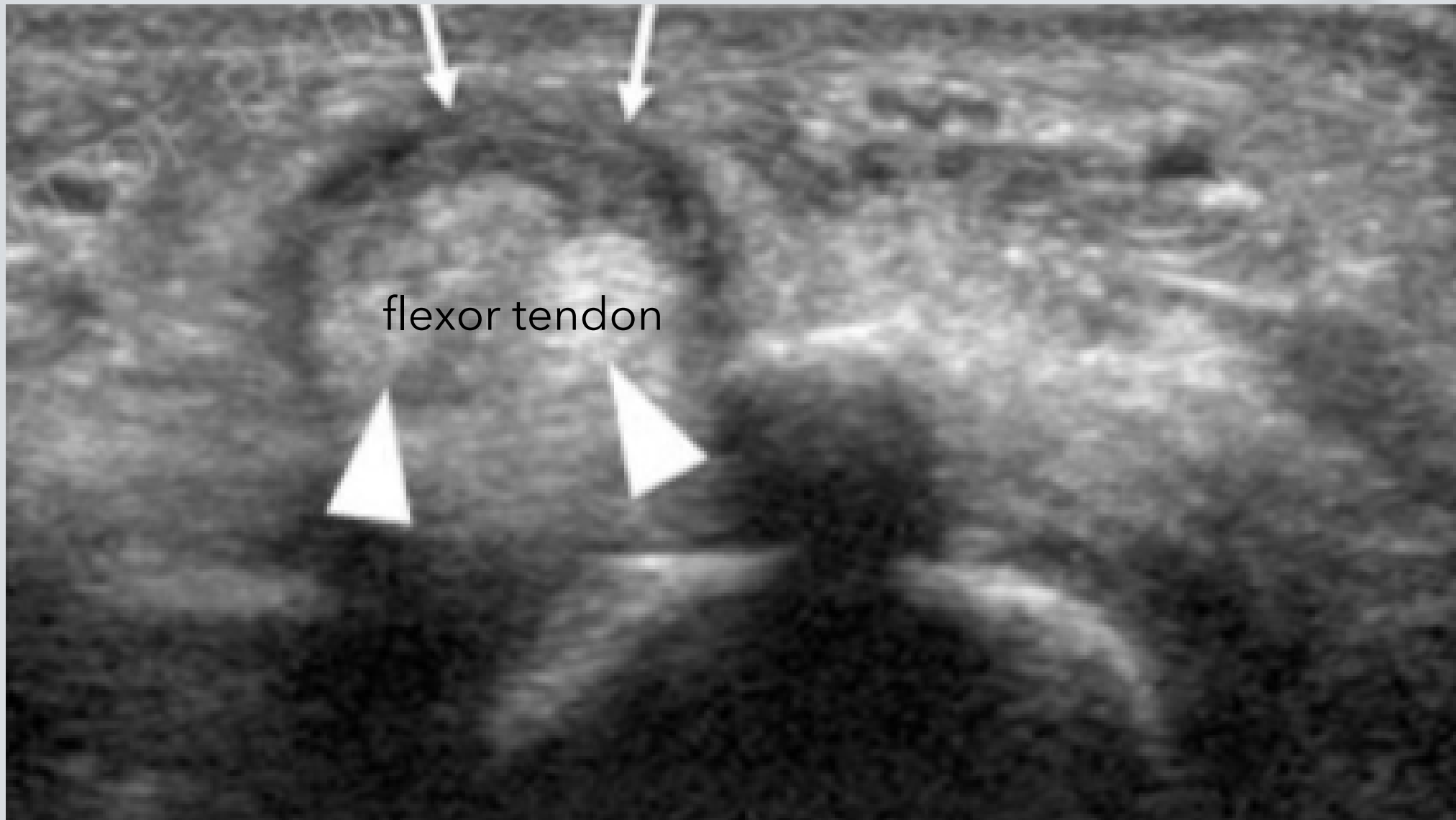


* **Edematous tendon thickening** of APL and EPB at the level of the radial styloid (compare with the contralateral side)

* **Increased fluid** within the first extensor tendon compartment tendon sheath

7. Trigger finger





Arrows pointing to thickened A1 pulley ("black hoodie")
overlying flexor tendons

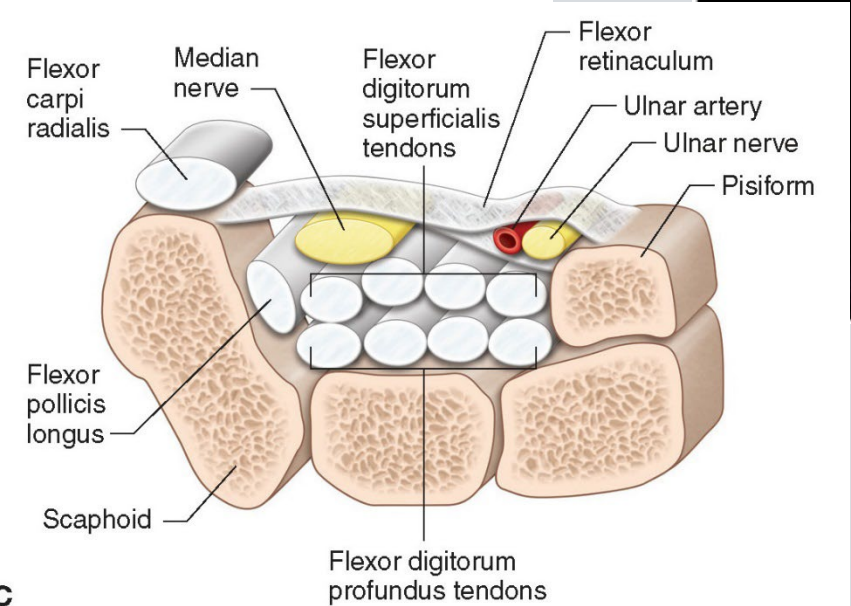
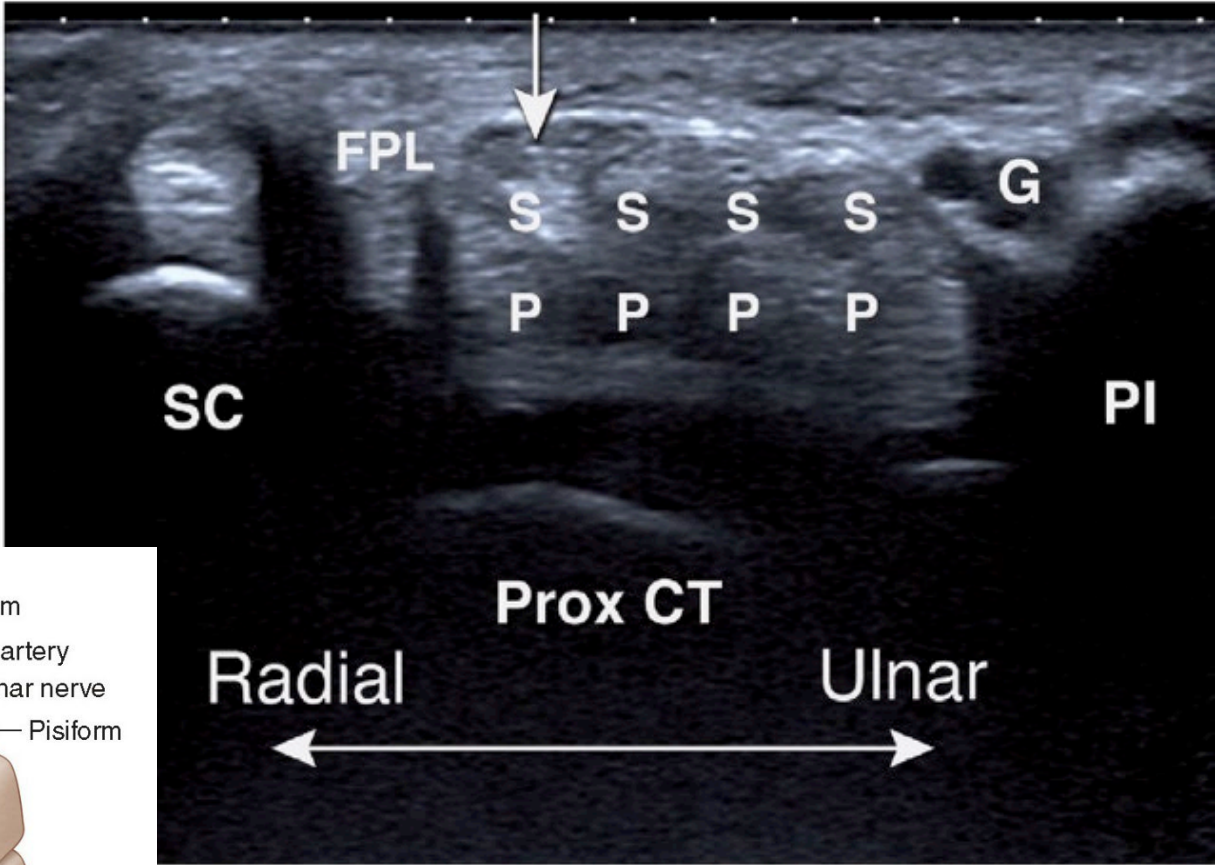


Rx: Injectants:

1. Lidocaine + steroid: (Kenalog 5-10 mg)
2. PRP
3. In plane approach, probe transverse

Injection into
flexor tendon
sheath - level
of A1 pulley

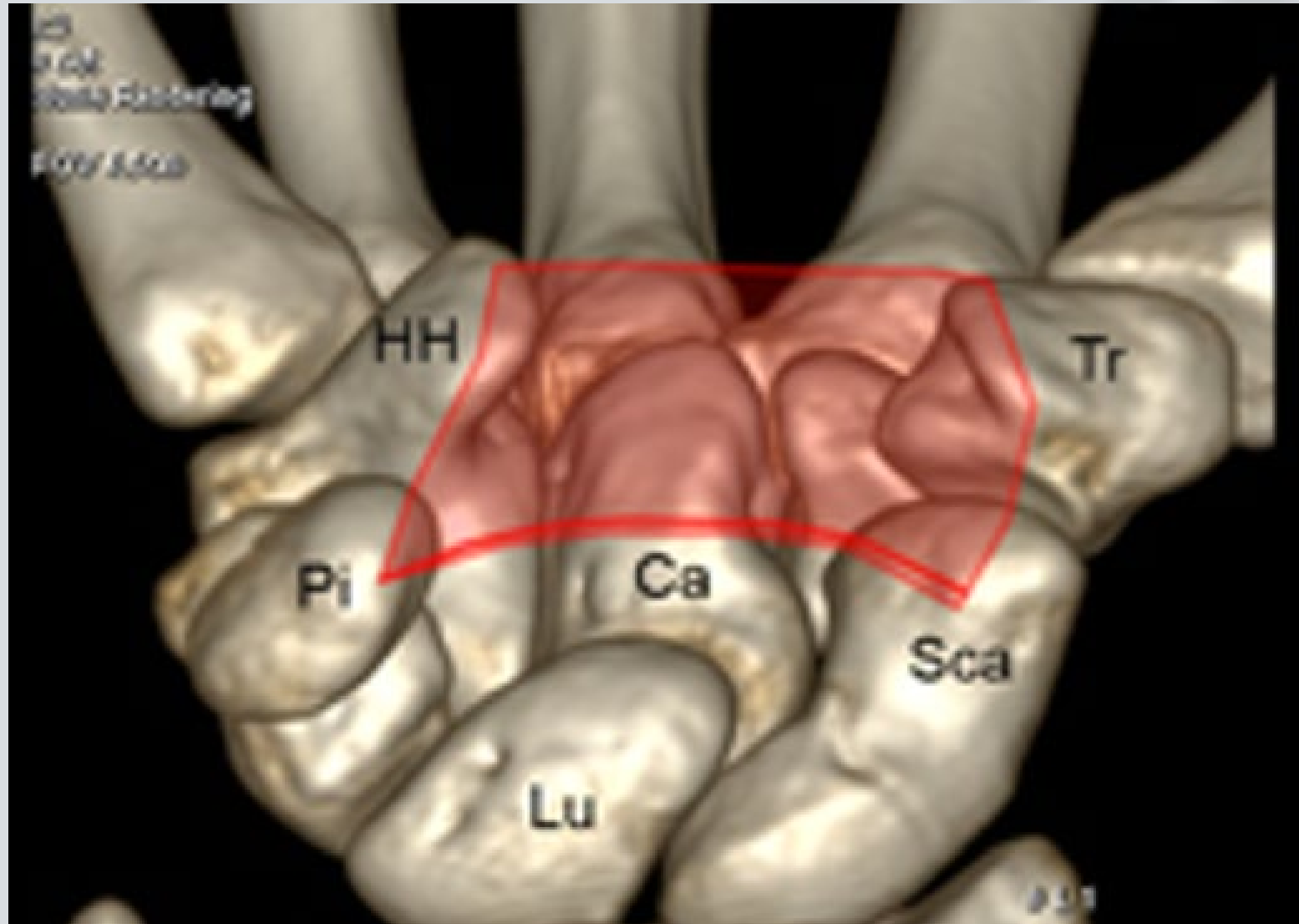
Ventral wrist



Credit: Dr. Paul Johnson

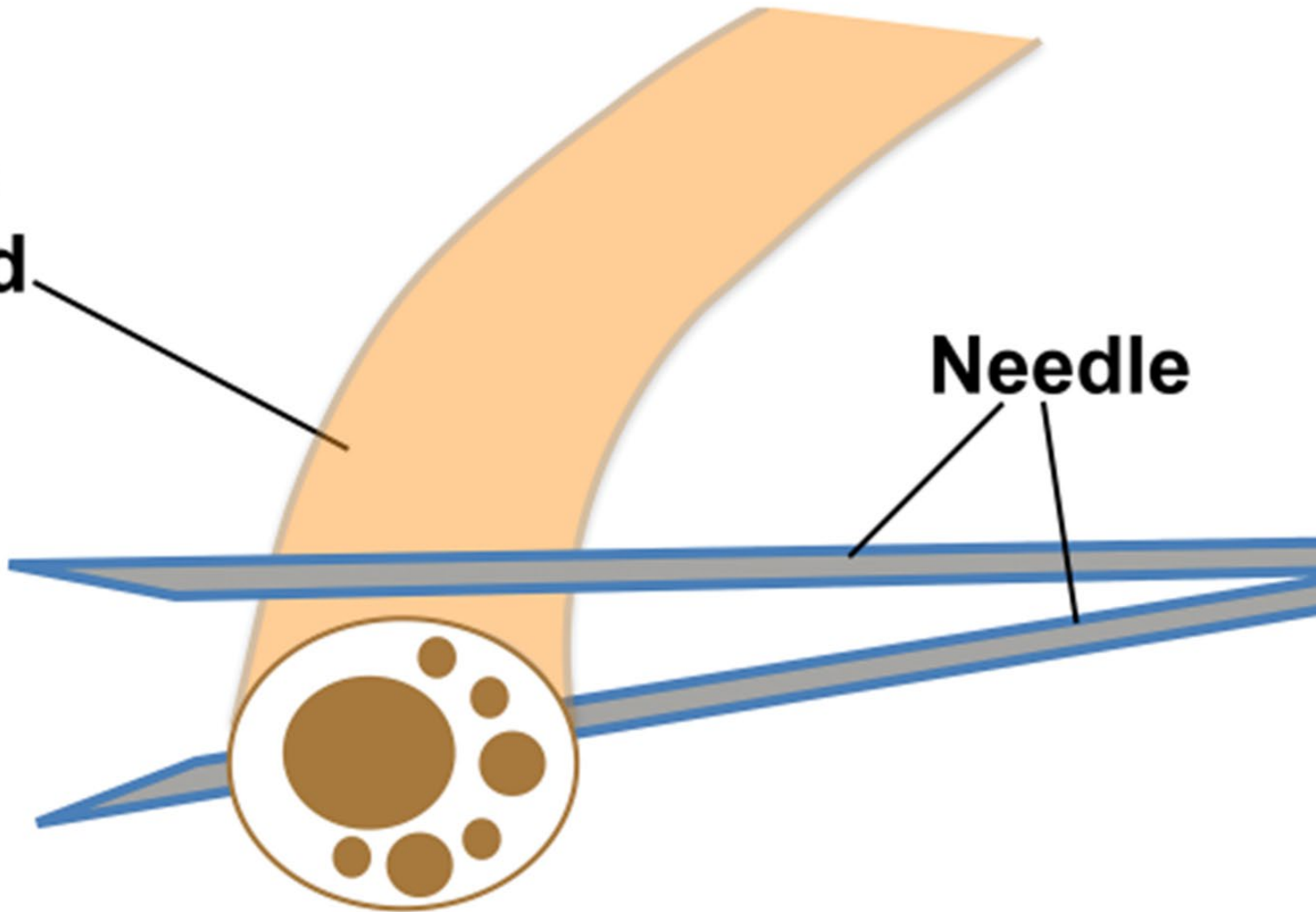
8. Carpal Tunnel Syndrome

- Median Nerve entrapment in the carpal tunnel
- (>90 % of median nerve entrapments)



**Nerve to
be treated**

Needle



Carpal Tunnel Transverse View

Note cranial probe tilt

Perpendicular nerve view

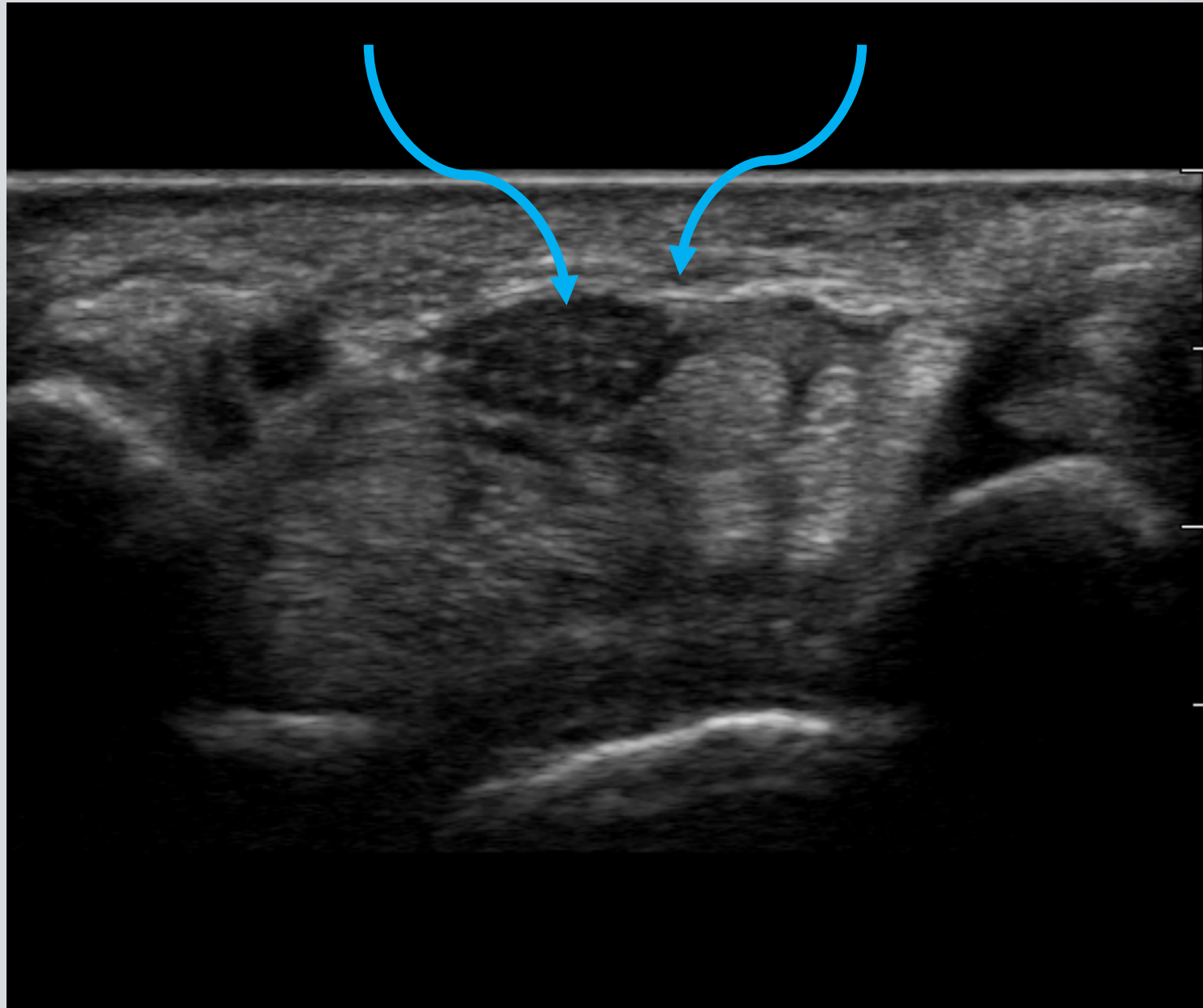


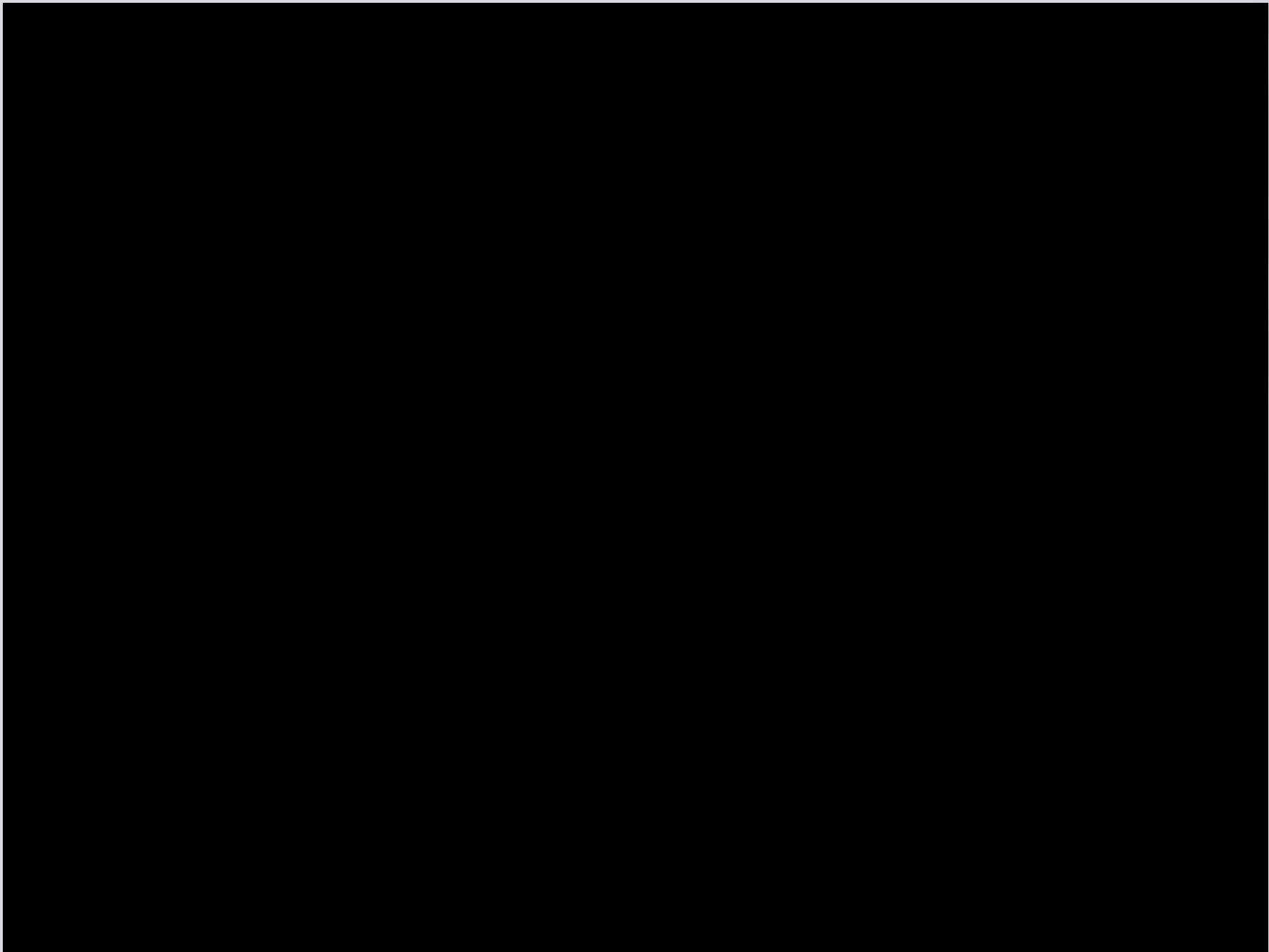


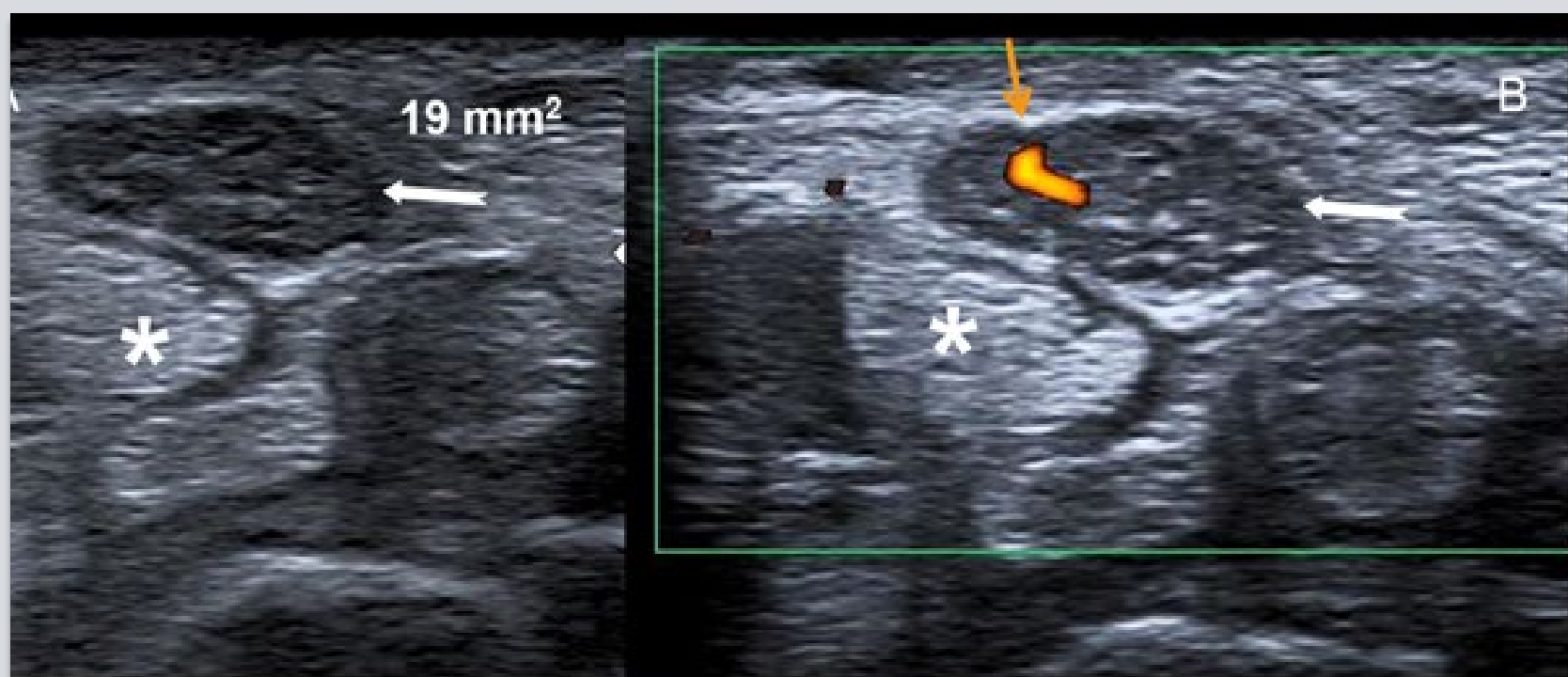
Median Nerve

Flexor retinaculum

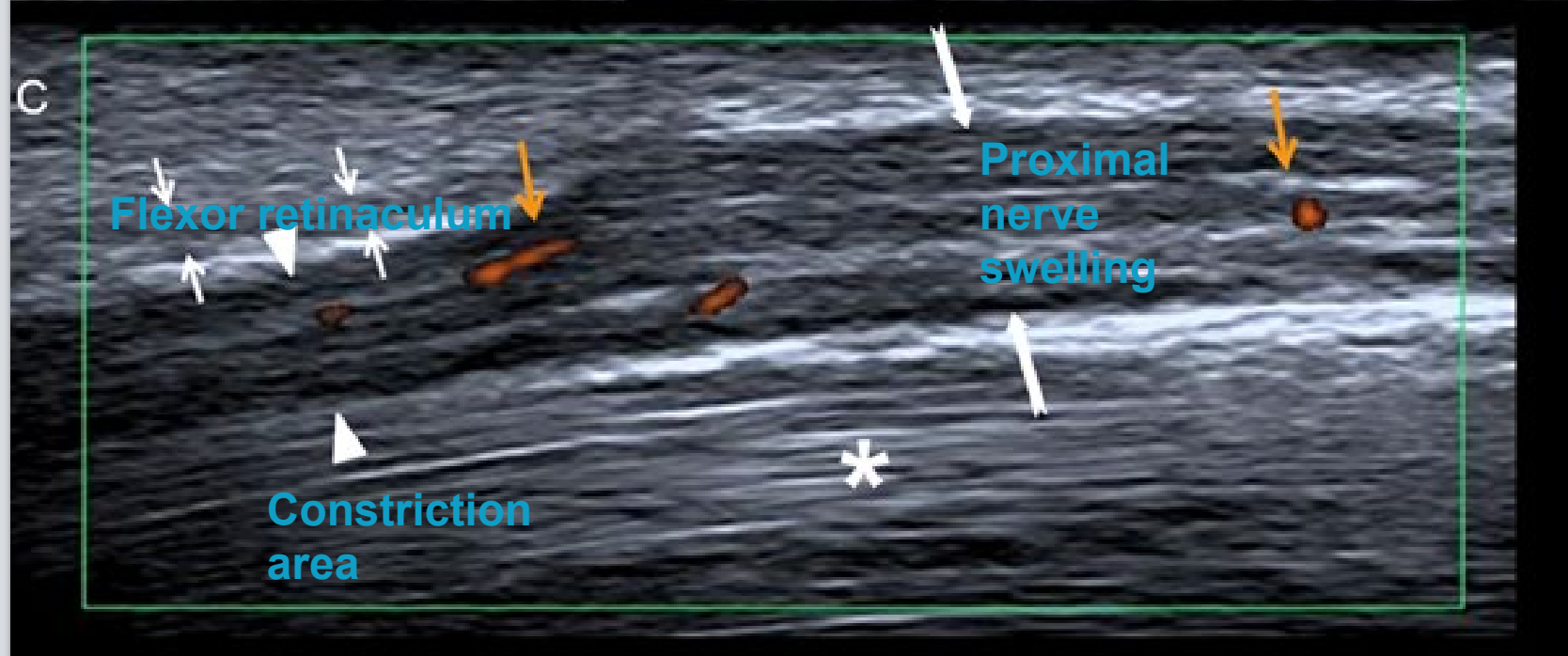
Hypoechoic structure with hyperechoic border







**Axial View:
median
nerve**



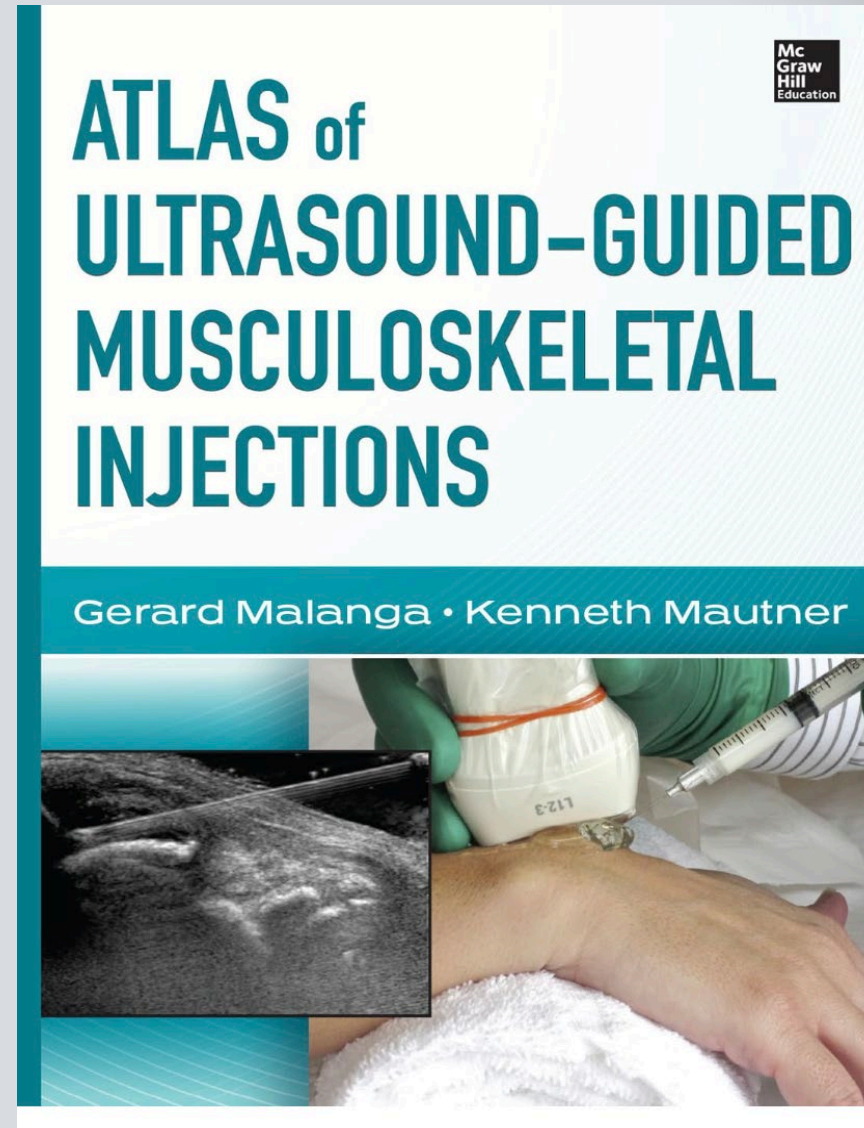
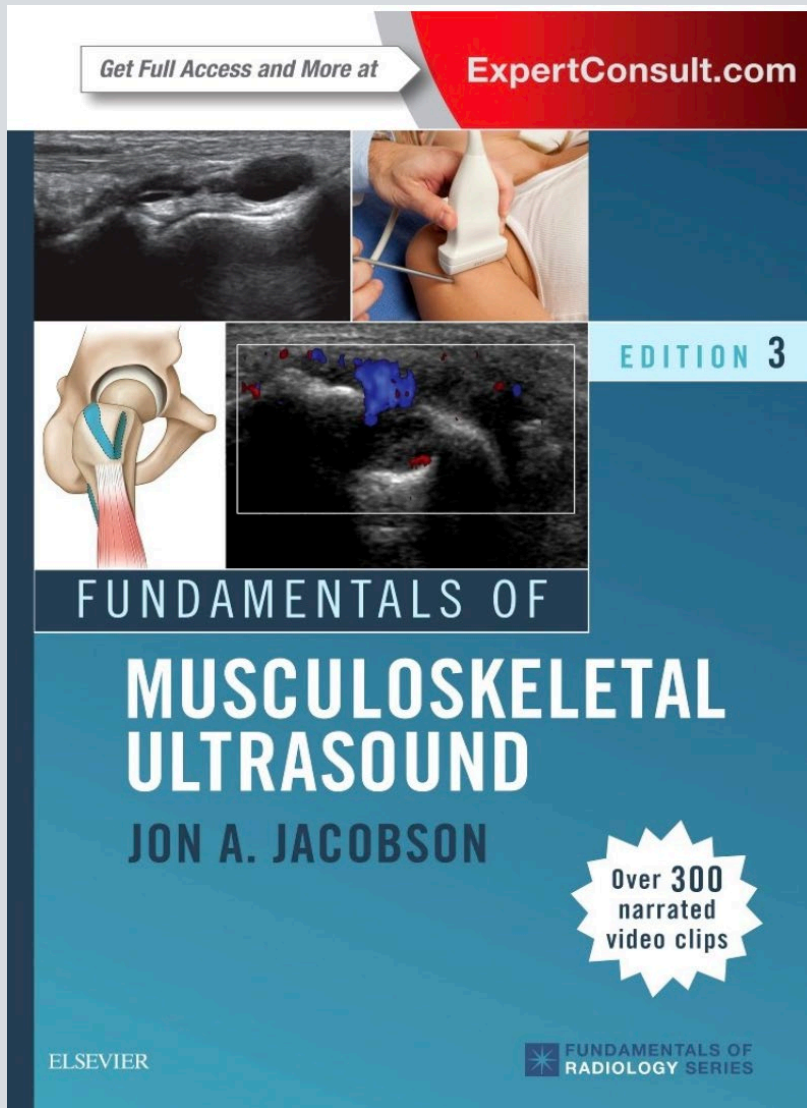
**Long Axis/
Sagittal View:
median nerve**

Hydrodissection:

Injectant: 20 mg Kenalog/triamcinolone+5 ml 0,2% lidocaine in D5W



Resources:



(Great) Sport Medicine US course:

- <https://sportmedicineultrasound.ca/>



The image is a screenshot of a website for "Sport Medicine Ultrasound Canada". The background is a photograph of a man in a blue polo shirt, likely an instructor, demonstrating an ultrasound procedure on a woman's arm. Other people are visible in the background, some looking at the demonstration. The website's navigation menu is at the top right, with links for "HOME", "LIVE", "ONLINE", "REGISTER", and "ABOUT". The logo for "SPORT MEDICINE ULTRASOUND CANADA" is in the top left. The main heading in the center reads "MSK Ultrasound Courses for Injections for Doctors". Below this, there is a blue button with the text "CALENDAR OF LIVE EVENTS".

SPORT MEDICINE
ULTRASOUND
CANADA

HOME LIVE ▼ ONLINE ▼ REGISTER ▼ ABOUT ▼

**MSK Ultrasound Courses
for Injections for Doctors**

CALENDAR OF LIVE EVENTS

Great Conference/workshops...



CANADIAN ASSOCIATION OF ORTHOPAEDIC MEDICINE
ASSOCIATION CANADIENNE DE MÉDECINE ORTHOPÉDIQUE

1. Cadaver lab workshop: U of C-
++ hands on learning

2. Annual conference:
24-26 October
Laurel Point Inn, Victoria
All invited!



A word on: corticosteroid injections:

Kenalog / Dexamethasone Indications:

- Severe OA (Grade 4)
- Gouty Arthritis
- Rheumatoid Arthritis
- ++ Bursitis

SE's: Skin atrophy, increased risk of infection, cartilage and ligament degradation, systemic effects et al



Summary

There is more to chronic pain care than injections

Interventional pain care is rewarding 😊

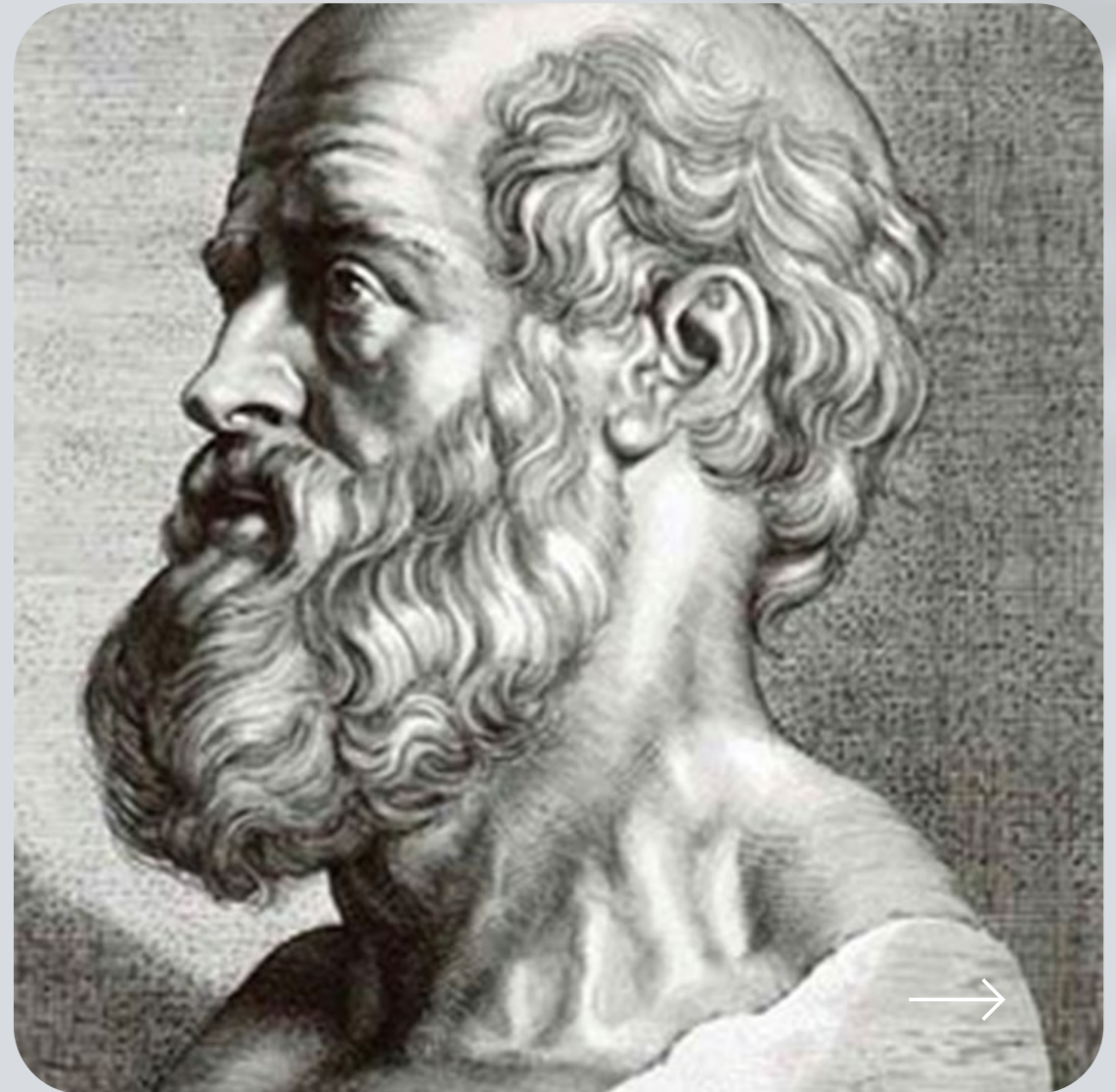
Care = Interdisciplinary (MD's, hand therapists, OT's, PT's, pharmacists etc.)

Keep up the good work! You are much needed

Hippocrates:
words of wisdom

Cure sometimes,
treat often,
comfort always.

Questions? doclouw@mail.ubc.ca





Thank
You!

Have some
fun along the
way!

Chanterelle
mushroom
foraging-
Revelstoke

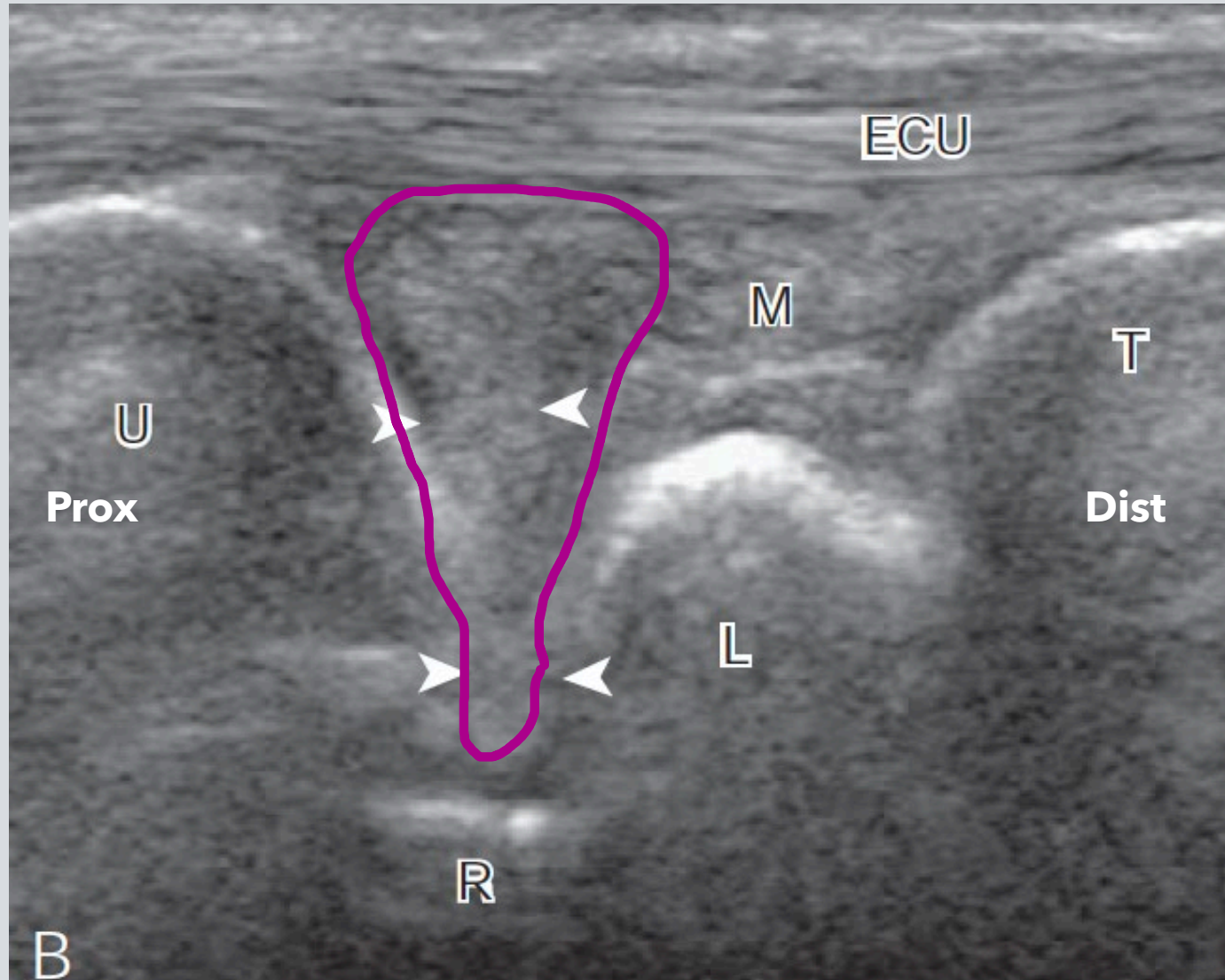
Bonus tracks:

TFCC:

Triangular
Fibrocartilage
complex



TFCC



ECU: Extensor Carpi Ulnaris
M: Meniscal homologue
U: Ulnar styloid

L: Lunate
T: Triquetrum

Bonus: Neuropathic pain cream

AMITRIPTYLINE 5%
KETAMINE 10%
LIDOCAINE 5%

*may consider adding ketoprofen 10% with significant inflammatory component

IN A TRANSDERMAL BASE
-APPLY QID PRN



