

WEBINAR

Ultrasound-Guided Brachial Plexus Blocks: Techniques from the Expert!

May 2022



Your Host



Shelley Guenther, CRGS, CRCS

Clinical Marketing Manager

Is Ultrasound-Guidance Standard of Care?



*“...the use of ultrasound
hastens the onset of sensory
and (less so) motor block,
often decreases performance
time, and results in fewer
needle passes.”*



Neal JM, Brull R, Horn JL, Liu SS, McCartney CJ, Perlas A, Salinas FV, Tsui BC. The Second American Society of Regional Anesthesia and Pain Medicine Evidence-Based Medicine Assessment of Ultrasound-Guided Regional Anesthesia: Executive Summary. Reg Anesth Pain Med. 2016 Mar-Apr;41(2):181-94. doi: 10.1097/AAP.0000000000000331. PMID: 26695878. Source: <https://pubmed.ncbi.nlm.nih.gov/26695878/>

Are We Safe?

“USG nerve block is a safe and efficient procedure, yielding a low complication rate

Froeba G, Seyfried TF. Ultrasound-guided regional anesthesia: are we safe? *Minerva Anesthesiol.* 2022 Mar;88(3):110-111. doi: 10.23736/S0375-9393.22.16465-5. PMID: 35315626.



Safety of USG Blocks for Outpatient Hand Surgeries



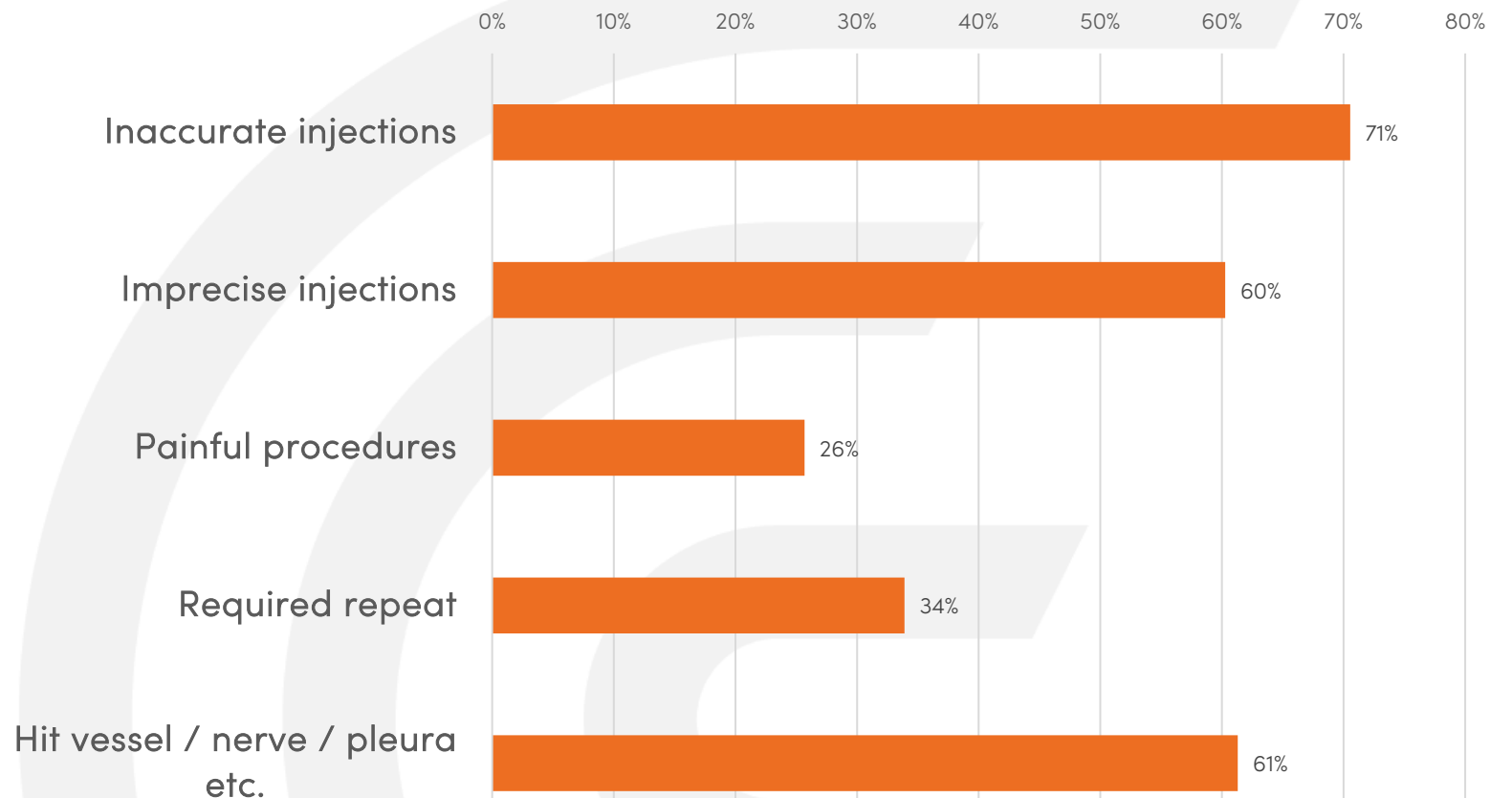
“USG nerve block is a safe and efficient procedure, yielding a low complication rate”

Voskeridjian AC, Calem D, Rivlin M, Beredjiklian PK, Wang ML. An Evaluation of Complications Following Ultrasound-Guided Regional Block Anesthesia in Outpatient Hand Surgery. *Hand (N Y)*. 2021 Mar;16(2):183-187. doi: 10.1177/1558944719851207. Epub 2019 Jun 10. PMID: 31179730; PMCID: PMC8041414.



Poll

What do you see as the risks and limitations to blind injections for anesthesiologist?



Your Expert Guest Speaker



Gregory Hickman, M.D.

*Medical Director and Anesthesia Director,
Andrews Institute Ambulatory Surgery Center
Founder, BlockJocks.com*

Brachial Plexus Blocks for Upper Extremity Surgery

Gregory V. Hickman, M.D.

Medical Director/Anesthesia Director

Andrews Institute ASC

Gulf Breeze, FL

Co-founder Blockjocks.com



Gregory V. Hickman, M.D.

- Private Practice
- 1990 UAB first Acute Pain Service
- 1992 HealthSouth – AL Sports Medicine & Orthopedic Center
- 2007 Andrews Institute (Medical/Anes. Director)
- 2011 Co-founder BlockJocks.com
- 2006 USRA

Upper Extremity - Three blocks

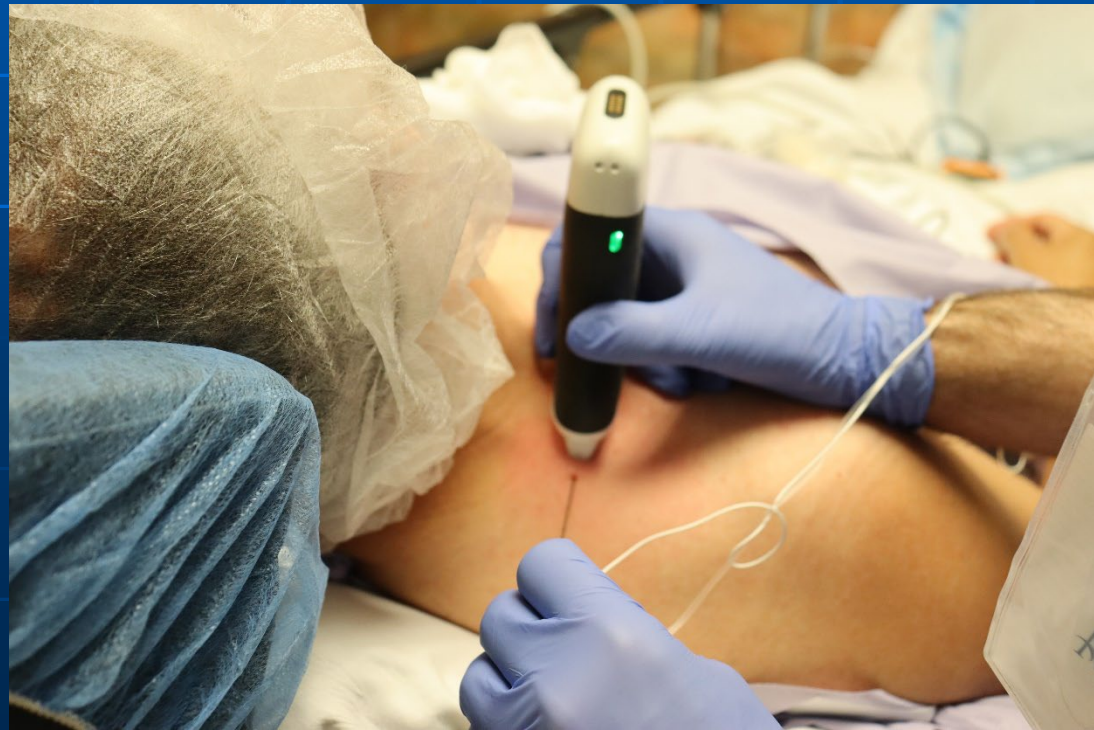
- Supraclavicular block
 - Infraclavicular block
 - Axillary block
-
- Interscalene block - NO

Three blocks

- Ropivacaine 0.5% or Bupivacaine 0.5%
- Bupivacaine 0.25%
- Lidocaine 2%
- 20-30 ccs
- Dexamethasone 2-4mg Bupi/Ropi
- Epi +/-
- Nerve stimulator

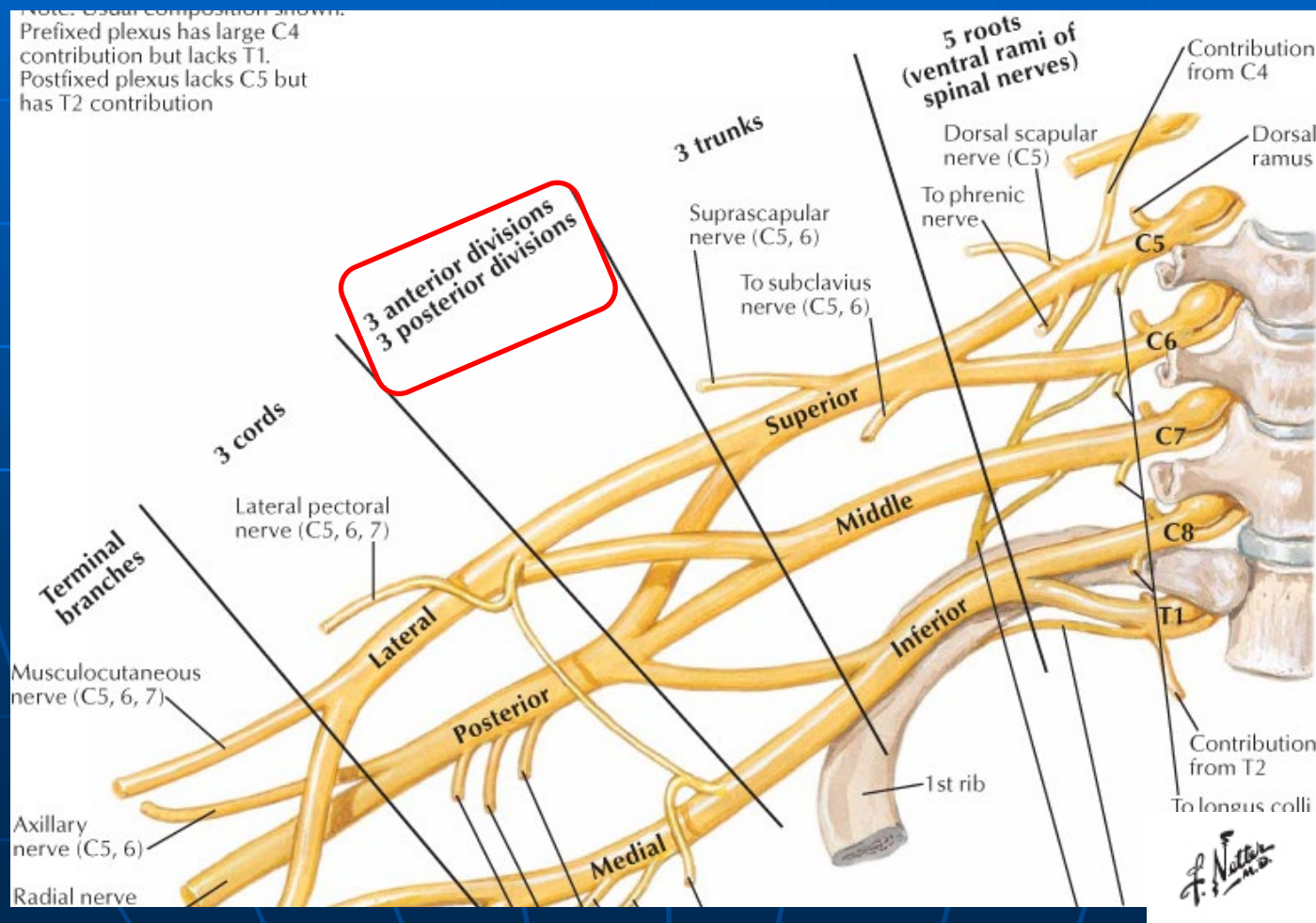
Supraclavicular Block

- “Spinal of the Arm”
- Provides rapid & highly effective anesthesia/analgesia for all upper extremity surgery
- Go to at Andrews

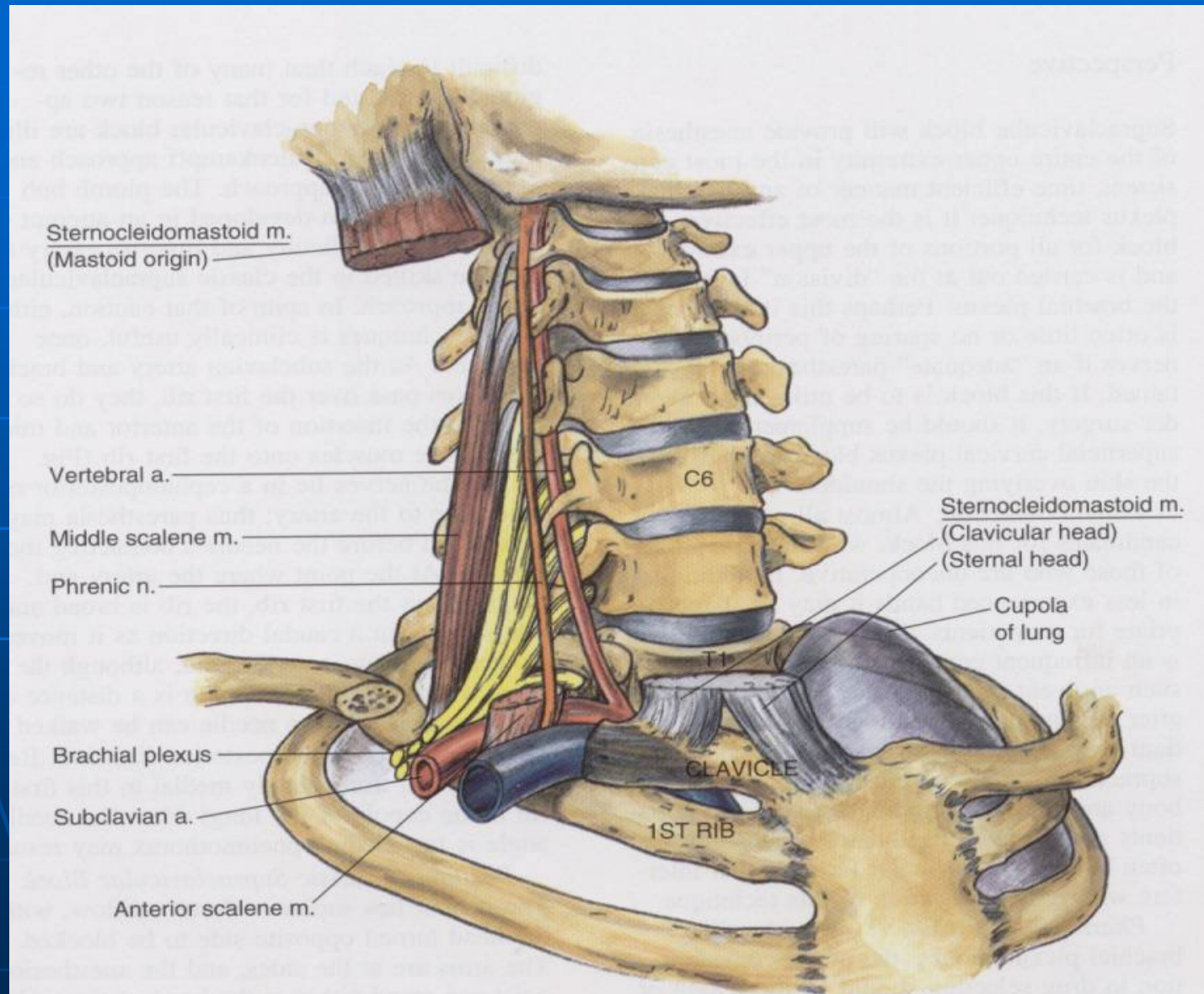


Supraclavicular Brachial Plexus

Blocks brachial plexus at level of the divisions



Supraclavicular Block Technique





AIASC L15
MSK



3 cm



Supraclavicular Block: Step by Step

Patient Positioning



a) Back flexed ~ 30 degrees

b) Head turned away

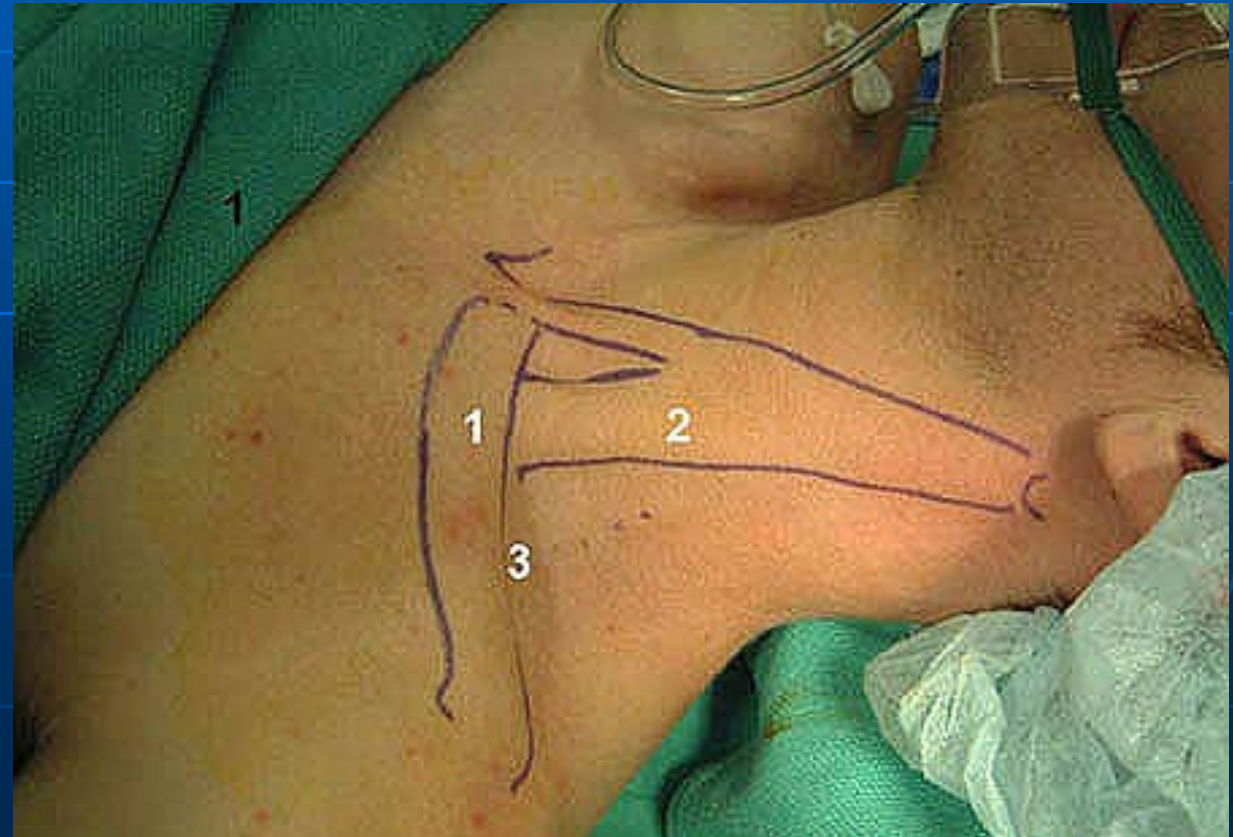
c) Arm neutral

d) Posterior room to needle

Supraclavicular Block: Step by Step

I.D. Two Landmarks for Probe Placement

- 1) Clavicle
- 2) Posterior border of SCM





Supraclavicular Block: Step by Step

Proper Alligment of U/S Probe



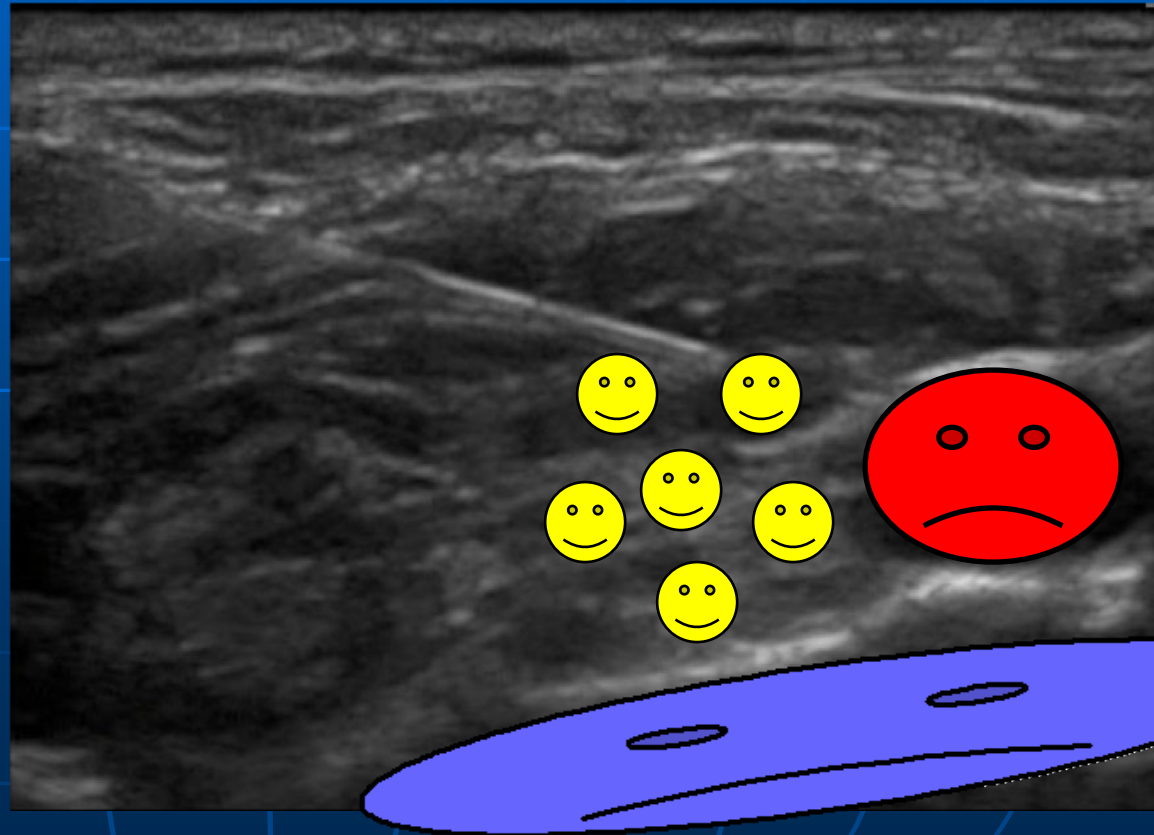
Two Pearls:

- 1) Rotate lateral end of probe 1-2 cm off of clavicle
- 2) Angle U/S beam under clavicle

Supraclavicular Block: Step by Step

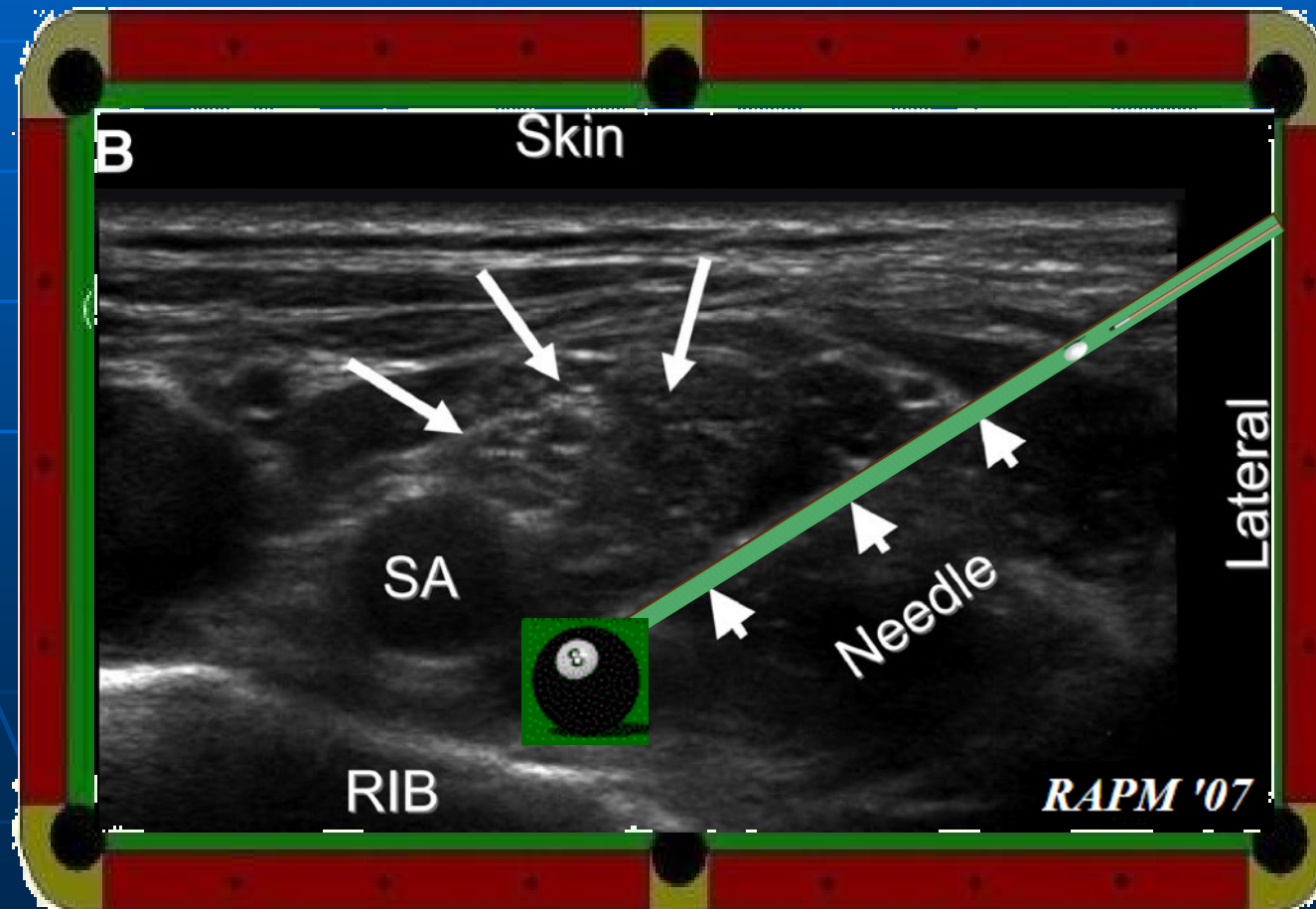
Identify Subclavian Artery & First Rib

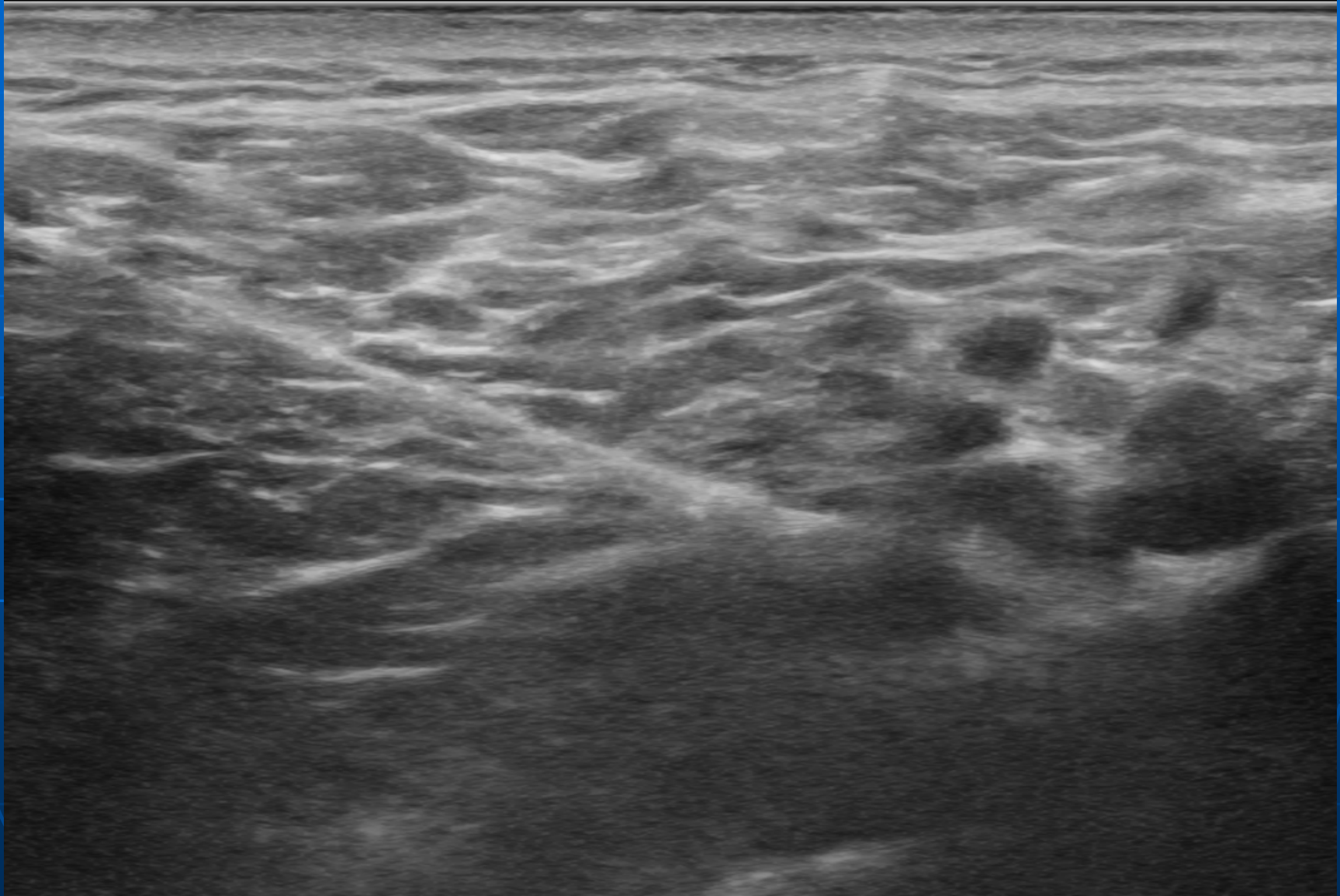
Identify Brachial Plexus Trunks



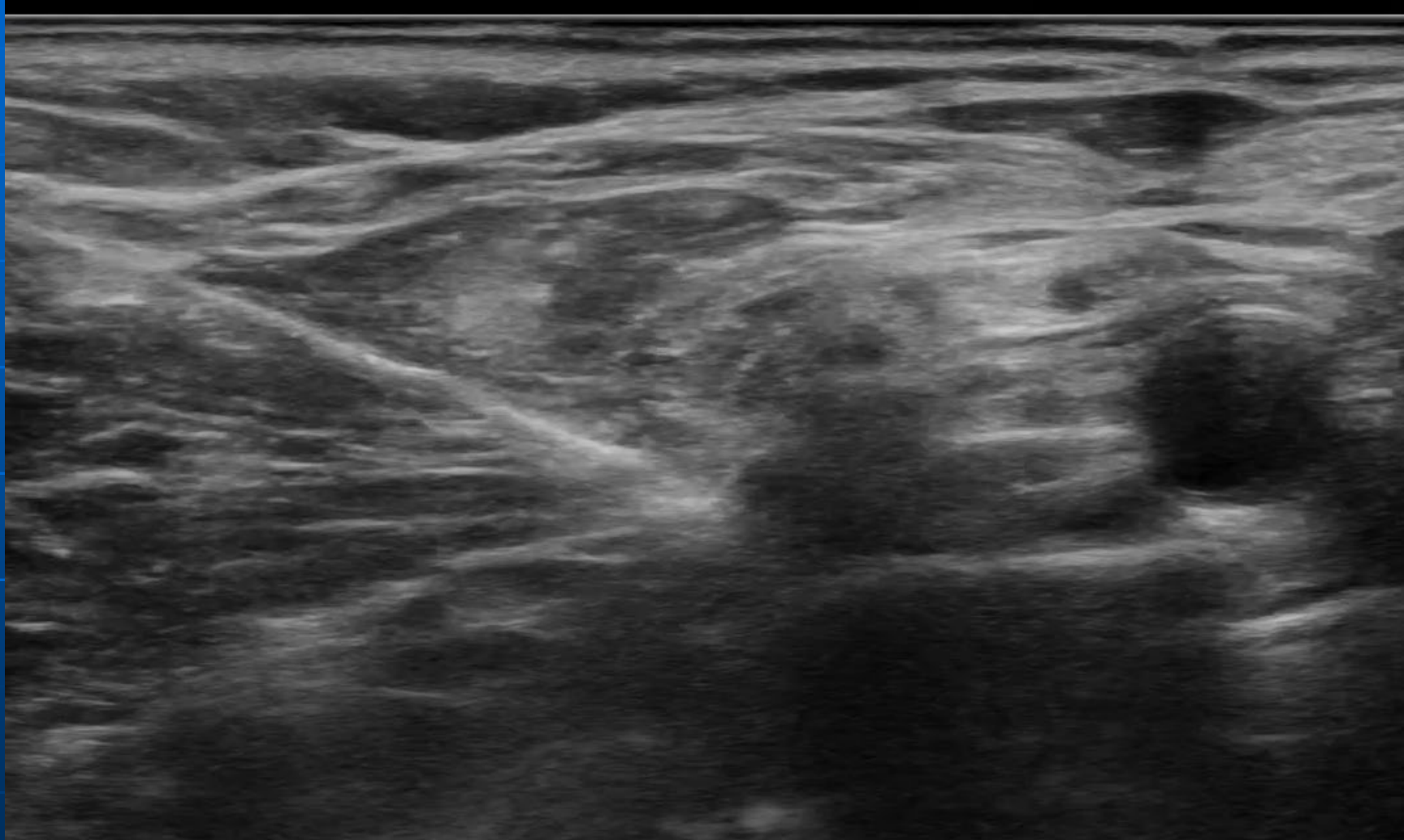
Supraclavicular Block: Step by Step

1st Injection “Corner Pocket”

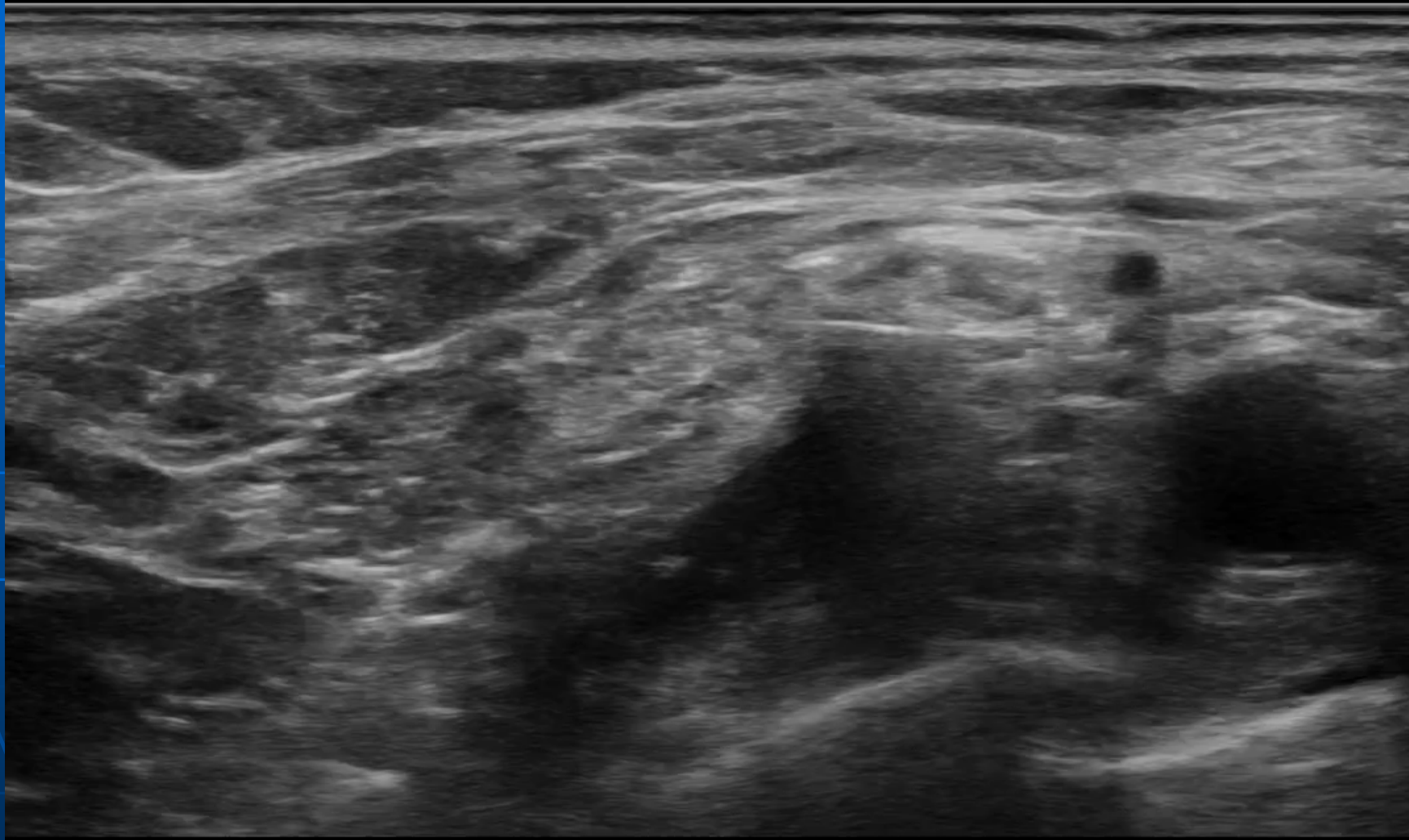




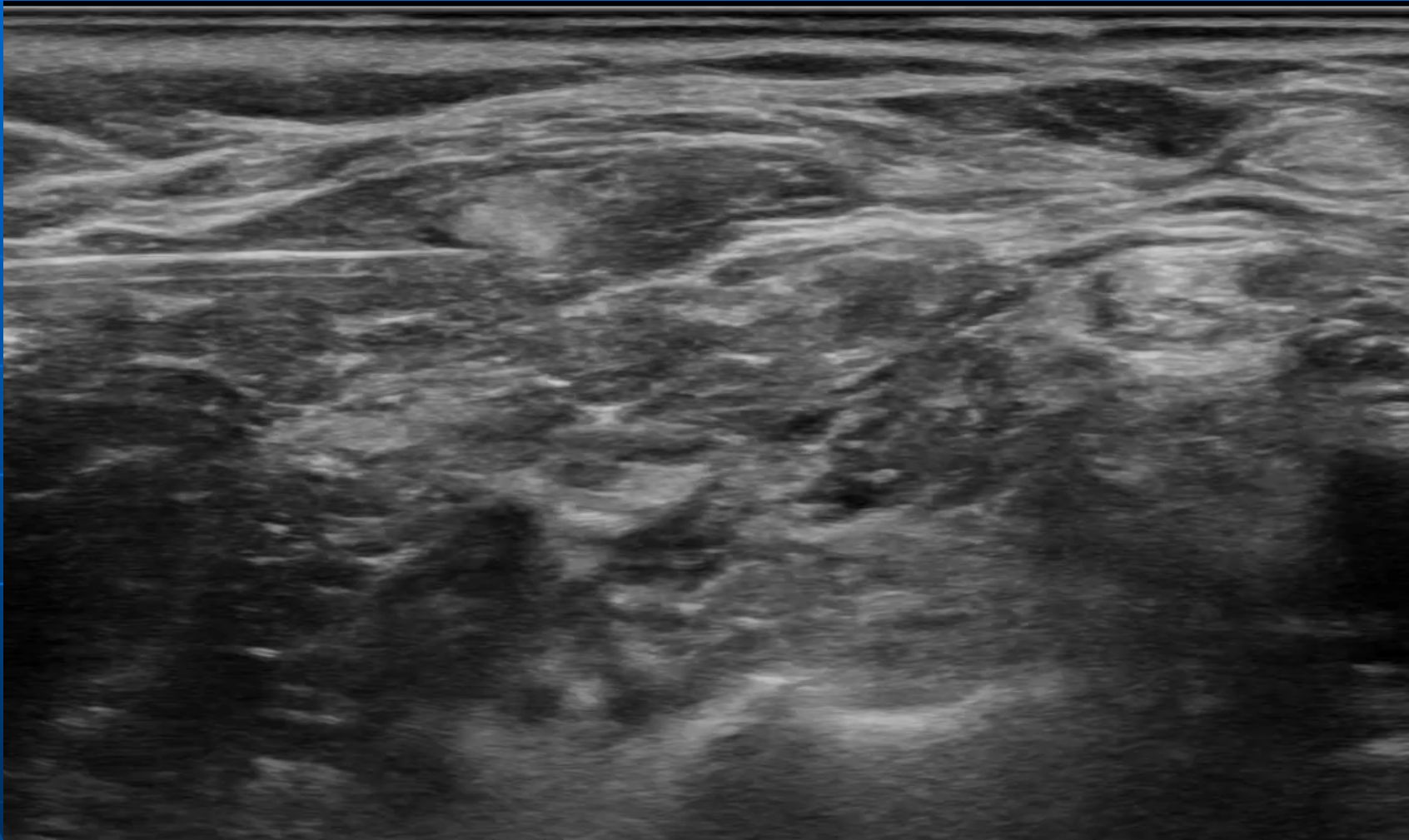
SC corner pocket video



SC video 2



SC video 3 upper trunk



Side Effects

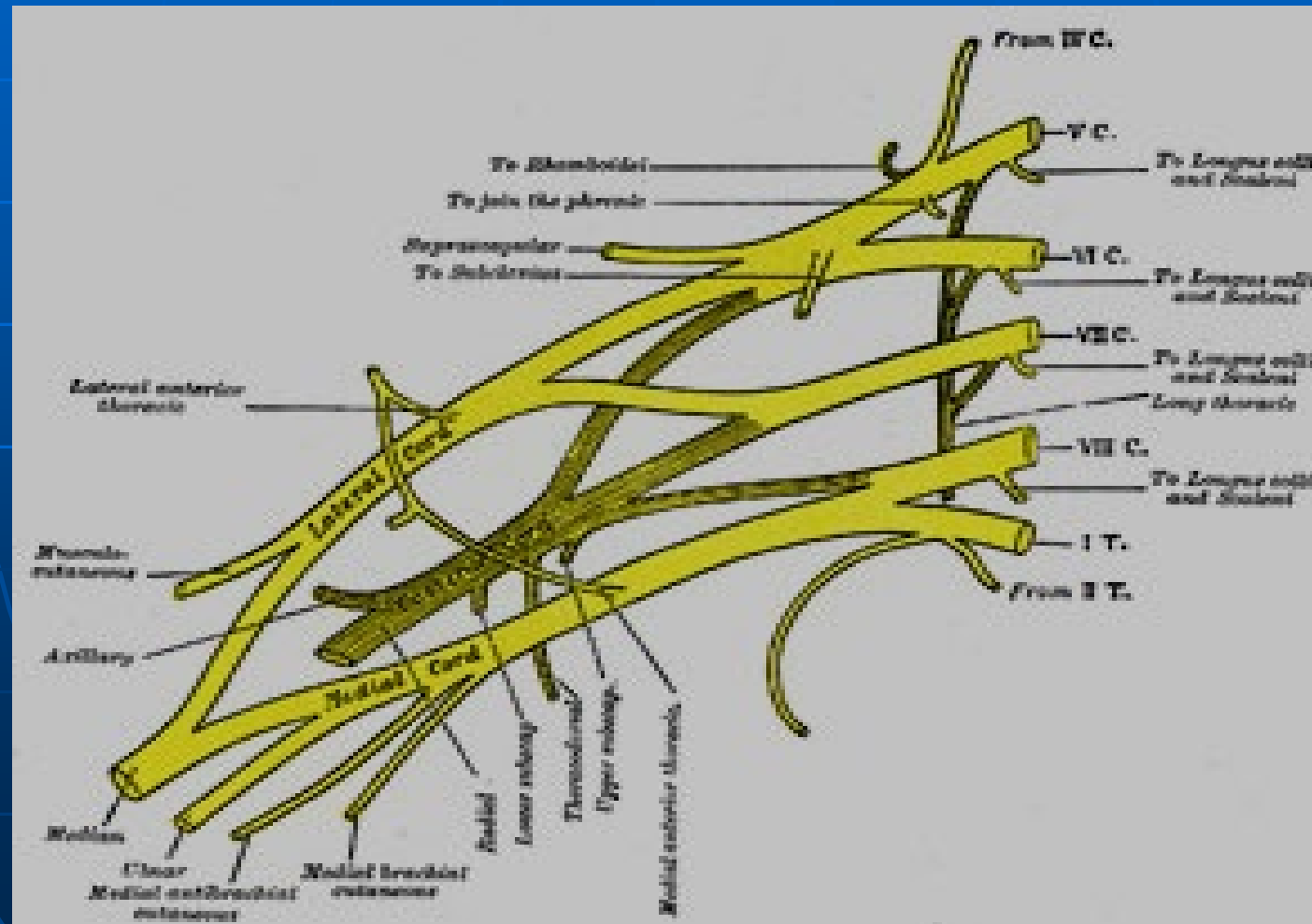
- Phrenic N.
- Horner's syndrome
- Recurrent Laryngeal N.
- Pneumothorax

Infraclavicular Block

Infraclavicular block

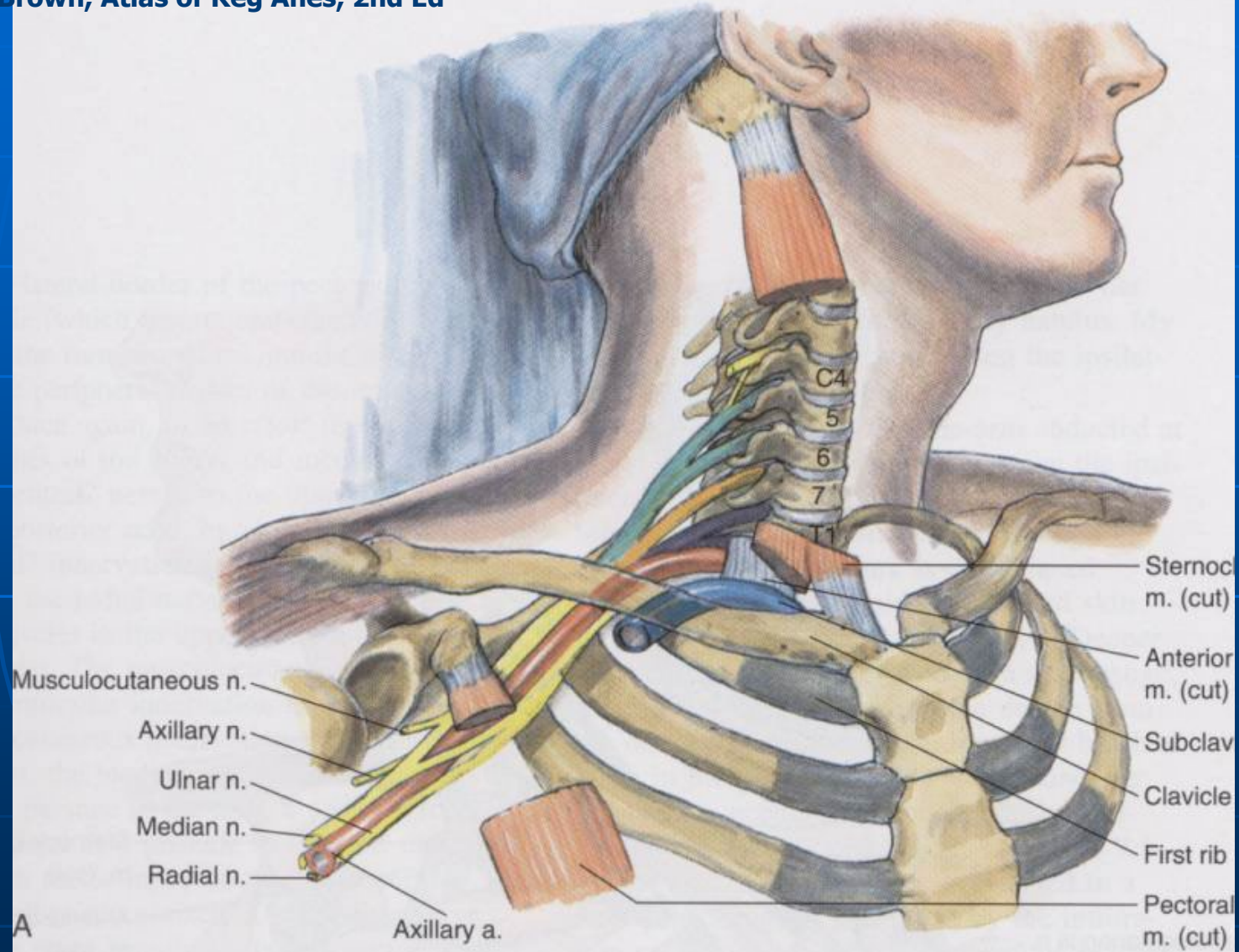
- Between axillary and SC blocks
- Level of the plexus “cords”
lateral, medial, posterior
- Predictable, fast onset like SC

Blocks brachial plexus at level of the cords



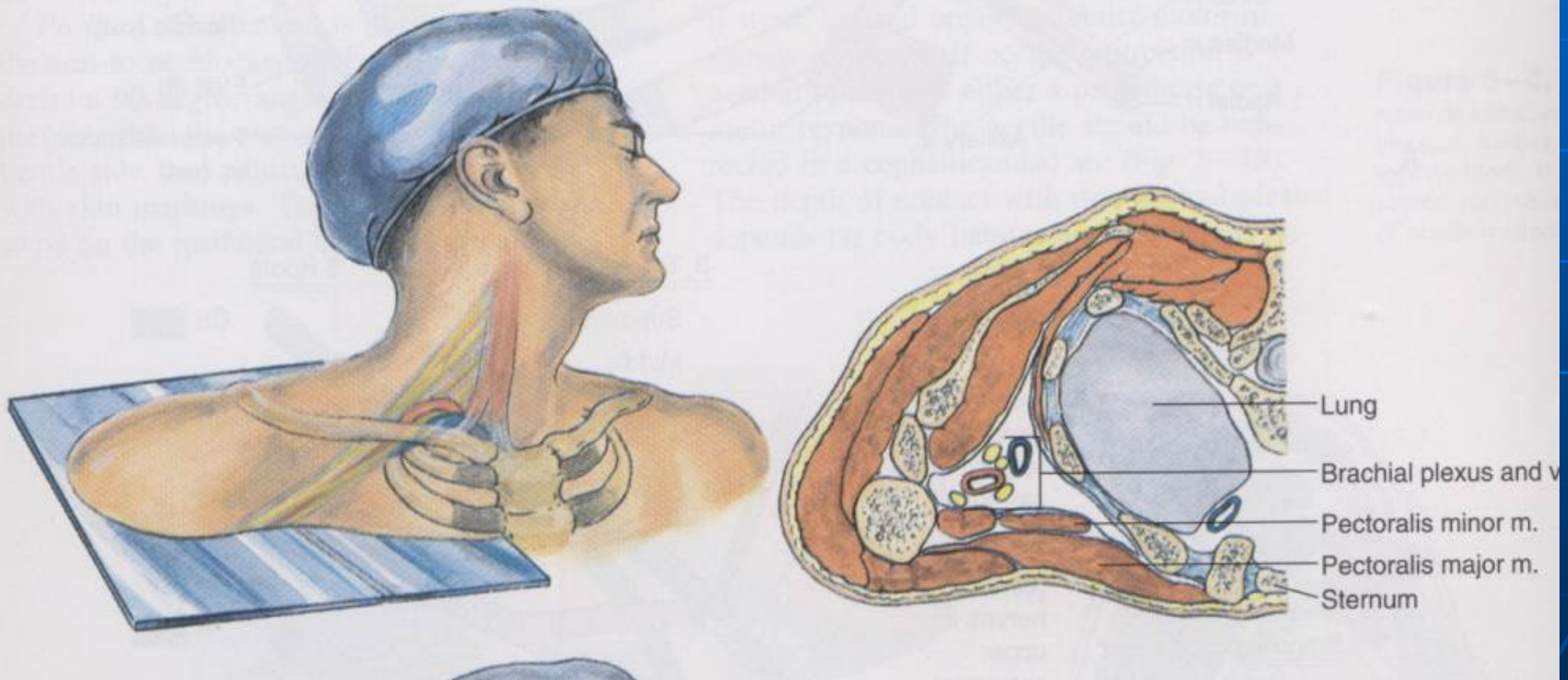
Infraclavicular block

Brown, Atlas of Reg Anes, 2nd Ed



Infraclavicular block

Brown, Atlas of Reg Anes, 2nd Ed



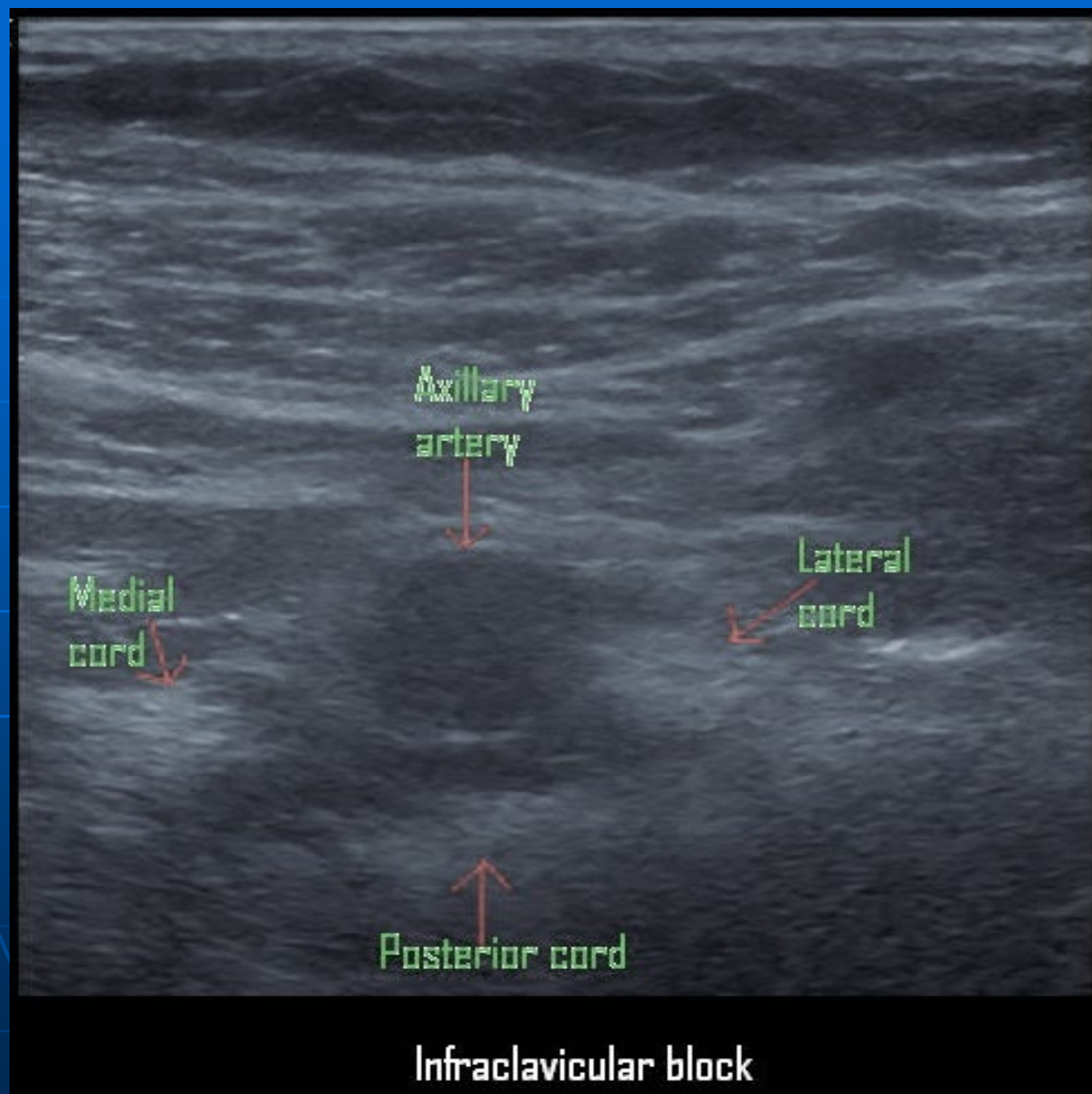
Infraclavicular block

- Good for catheter tech – preferred
- Potential vascular complications

Infraclavicular Brachial Plexus

- Head of bed up 30 degrees
- Turn the patient's head away from the side of interest
- Transducer is positioned just below the clavicle, medial to the coracoid process
- Sagittal plane, probe in the delto-pectoral groove superior-medial to inferior-lateral orientation





Distal nerves

- Lateral cord – Musculocutaneous and median nerves
- Posterior cord – Radial n.
- Medial cord – Median and ulnar nerves



- Steep needle approach

Positioning for U/S blocks

- Abduct shoulder
- Clavicle “houdini” effect
- Drs. Gonzales, Benonis, Auyong
- Moves clavicle posterior



Retroclavicular Approach

- 3rd approach to IC block
- Now done at AI
- No special patient positioning
- Good needle visualization

Retroclavicular Approach

- Start needle posterior to clavicle
- Needle not seen until comes under clavicle
- Needle image better
- Good needle control to manipulate to cords
- No arm manipulation



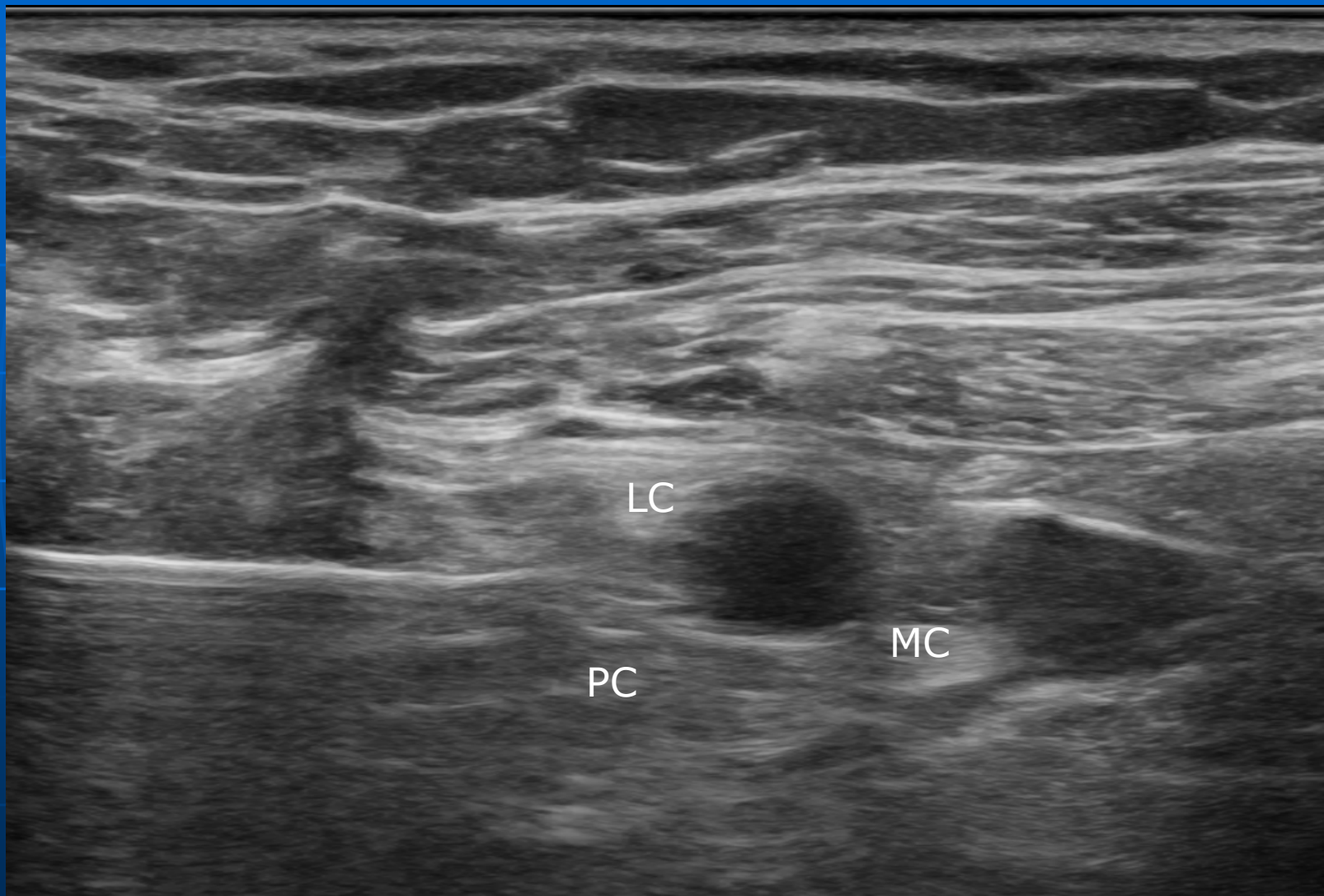




Clavicle

A

V



Retroclavicular Approach

- Easy for catheter insertion
- Go to for catheter placement
- Bupivacaine 0.125%
- 8cc auto bolus q4h
- 8cc demand dose q2h
- Bolus dosing spread to cords

Side Effects

- Phrenic N. – rare
- Horner's – rare
- Recurrent Laryngeal - rare
- Pneumothorax
- LAST



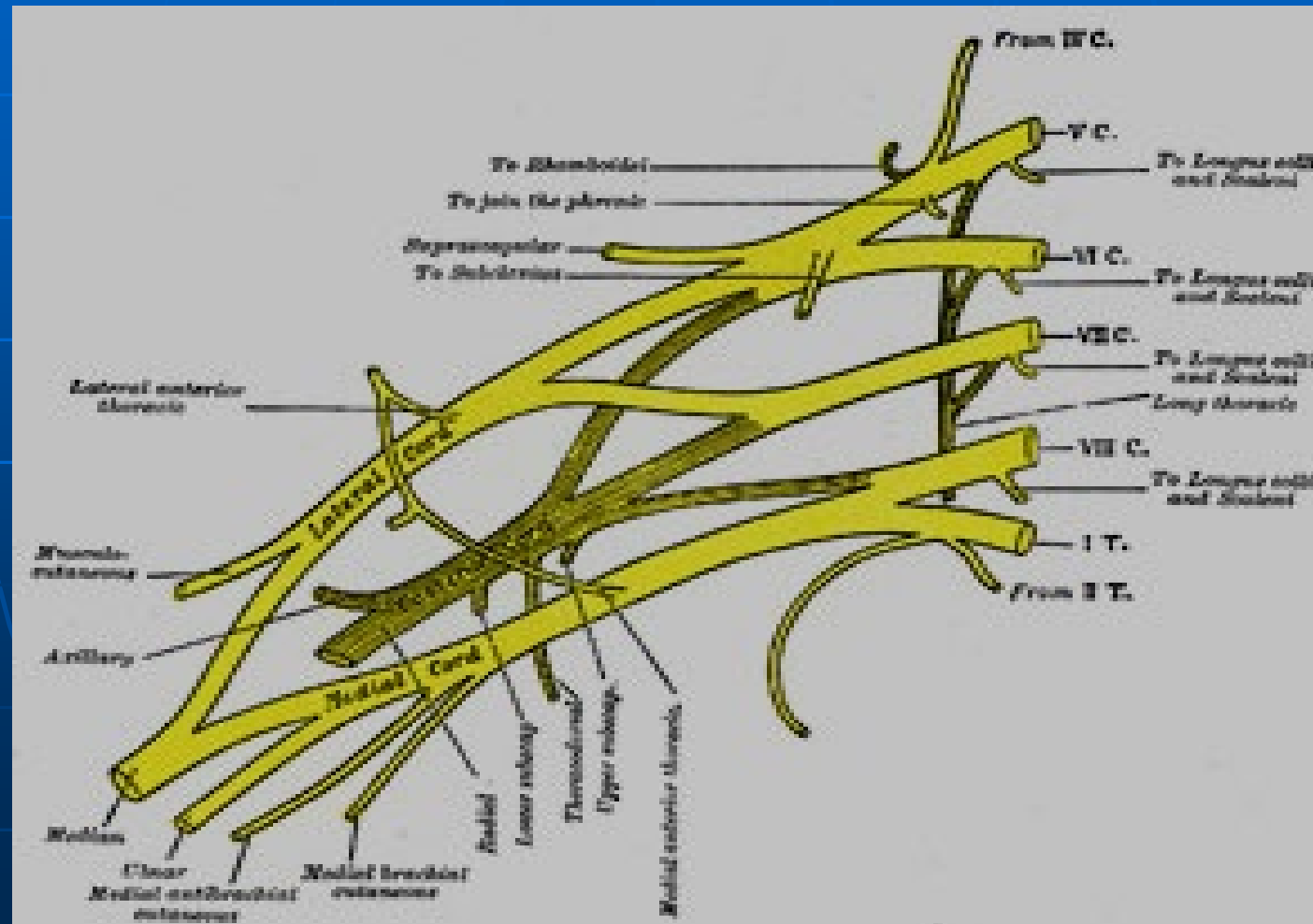
Axillary block

Axillary Block

- Multiple injections
- Four distal nerves
- Highly vascular – small veins
- Superficial and technically easy

Axillary Brachial Plexus

Distal nerves: Radial, Median, Ulnar, Musculocutaneous



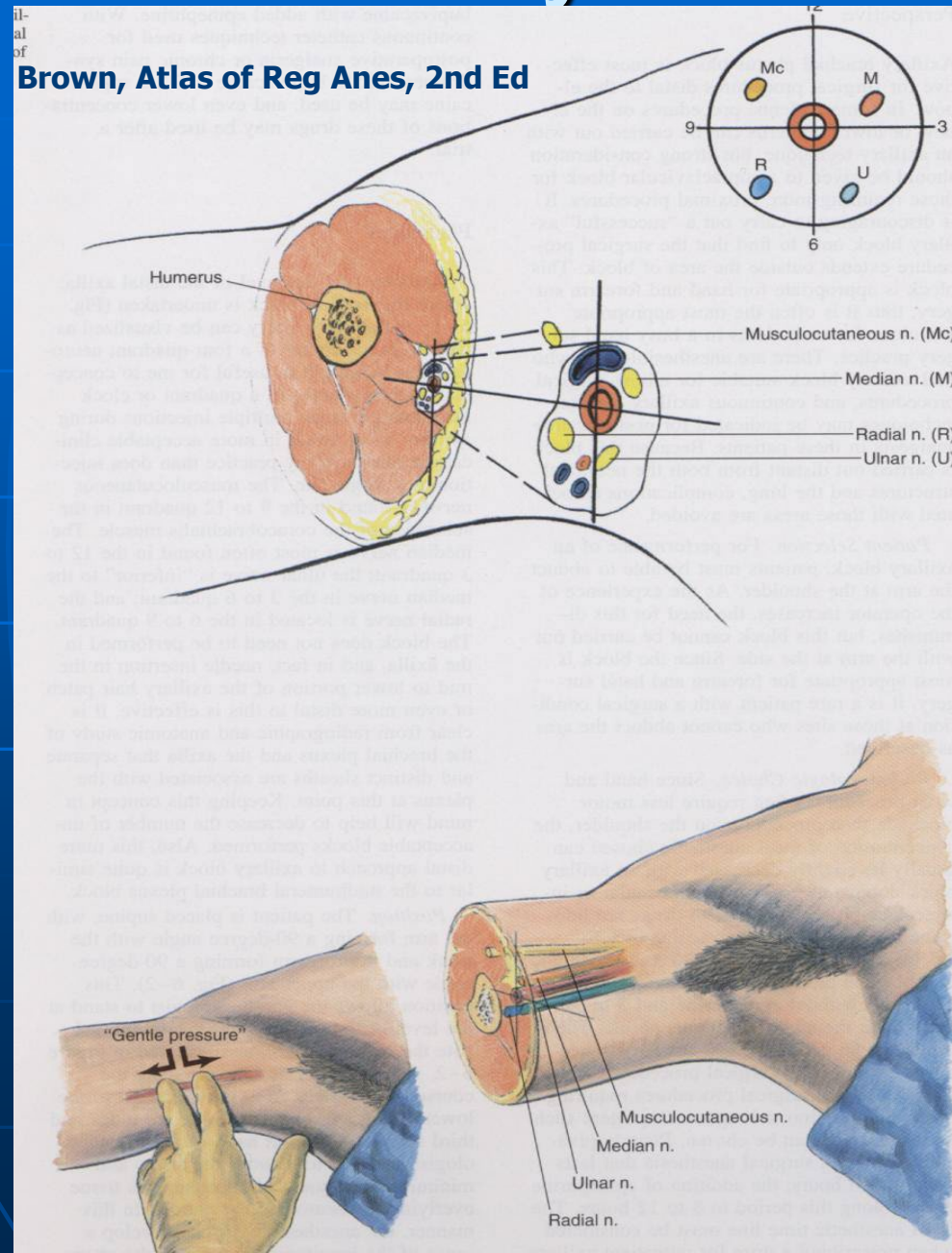
Why do Axillary Blocks?

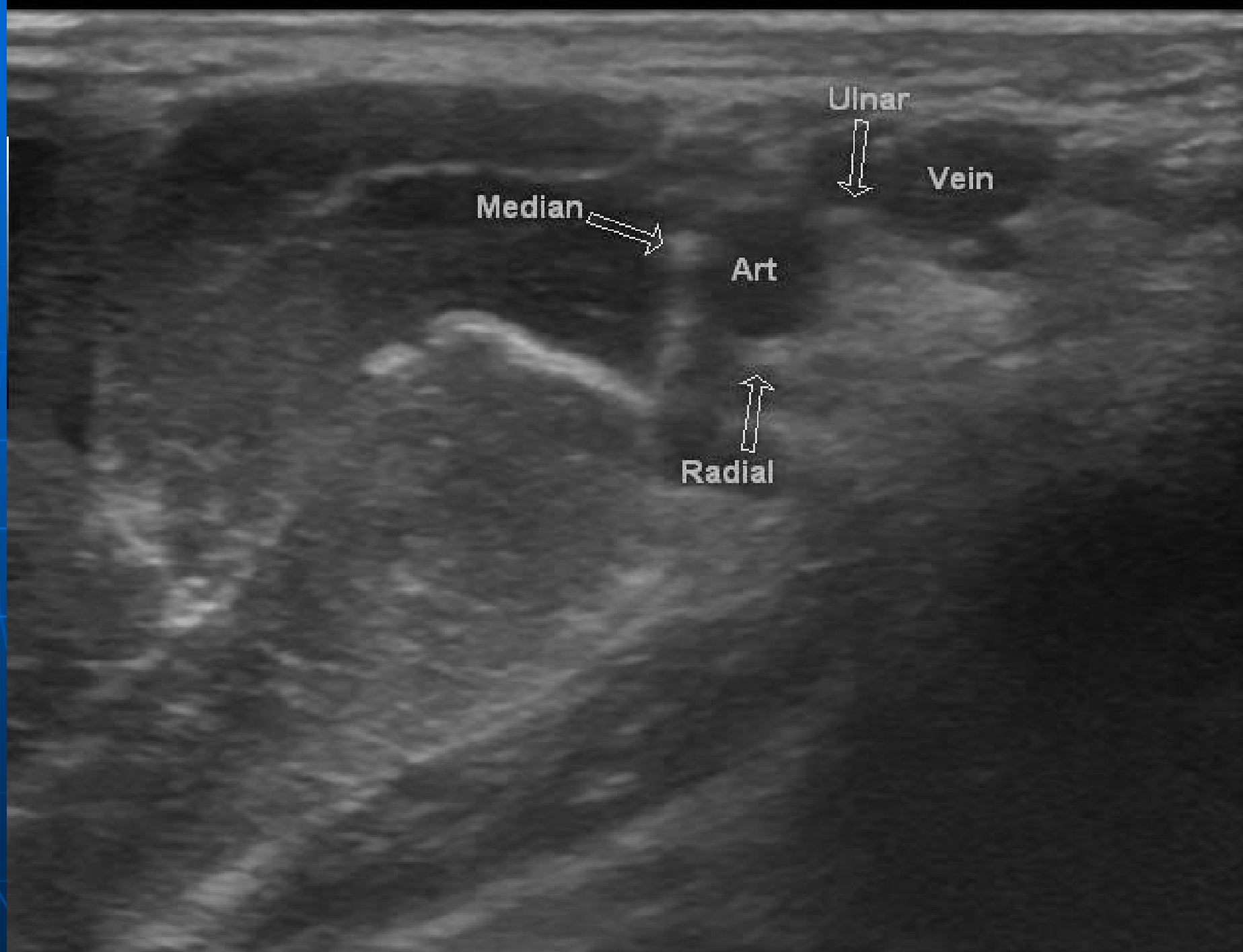
- Go to block
- Superficial
- Easy
- Or at AI



Axillary Block

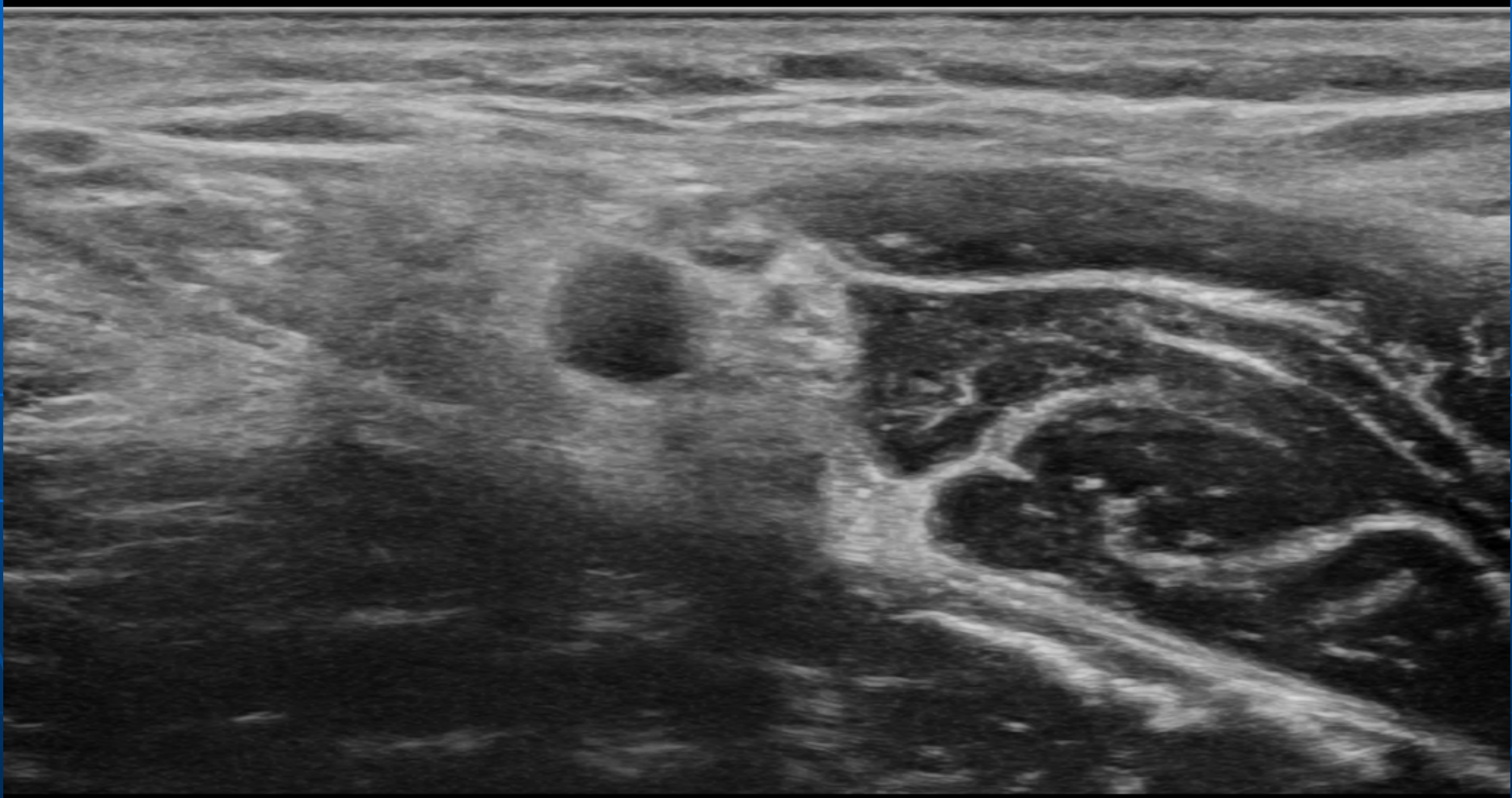
Brown, Atlas of Reg Anes, 2nd Ed





In plane axillary





Side effects

- Pneumothorax
- LAST

2 Day Regional Anesthesia Preceptorship



20 hours CME

Observe busy Regional Anesthesia Practice

Contact Andrews Research and Education Foundation (AREF)
about Regional Anesthesia Preceptorship or ASA website



“Live Demonstration



Shelley Guenther

Clinical Marketing Manager



Dr. Alan M. Hirahara, MD, FRCSC

Orthopaedic Surgeon, Specialist in Sports Medicine

“ The new Clarius HD3 is almost like a traditional cart-based probe without the wire and the cart. If you put it behind the iPhone, you literally can't see it. And what I was most blown away by was actually the new color Doppler feature. In addition to the actual quality of the image, you're getting it wirelessly. It's on par with any corded device I have.



Clarius L7/L15 HD₃

- *30% Smaller & More Affordable*
- *Wireless Freedom*
- *High-Definition Imaging*
- *Easy App for iOS & Android*
- *Needle Enhance*
- *Clarius Cloud Storage*
- *Clarius Live Telemedicine*
- *Unlimited Users*

Questions?



Dr. Greg Hickman



Shelley Guenther



Thank you!