

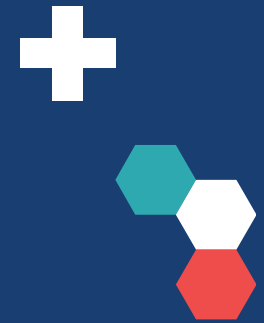
# PoCUS and Radiology approaches to diagnosing arm DVT

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## #POCUSClubInternational

An easy, stepwise approach to an  
area that you might not feel  
entirely comfortable with scanning



# What we will cover today

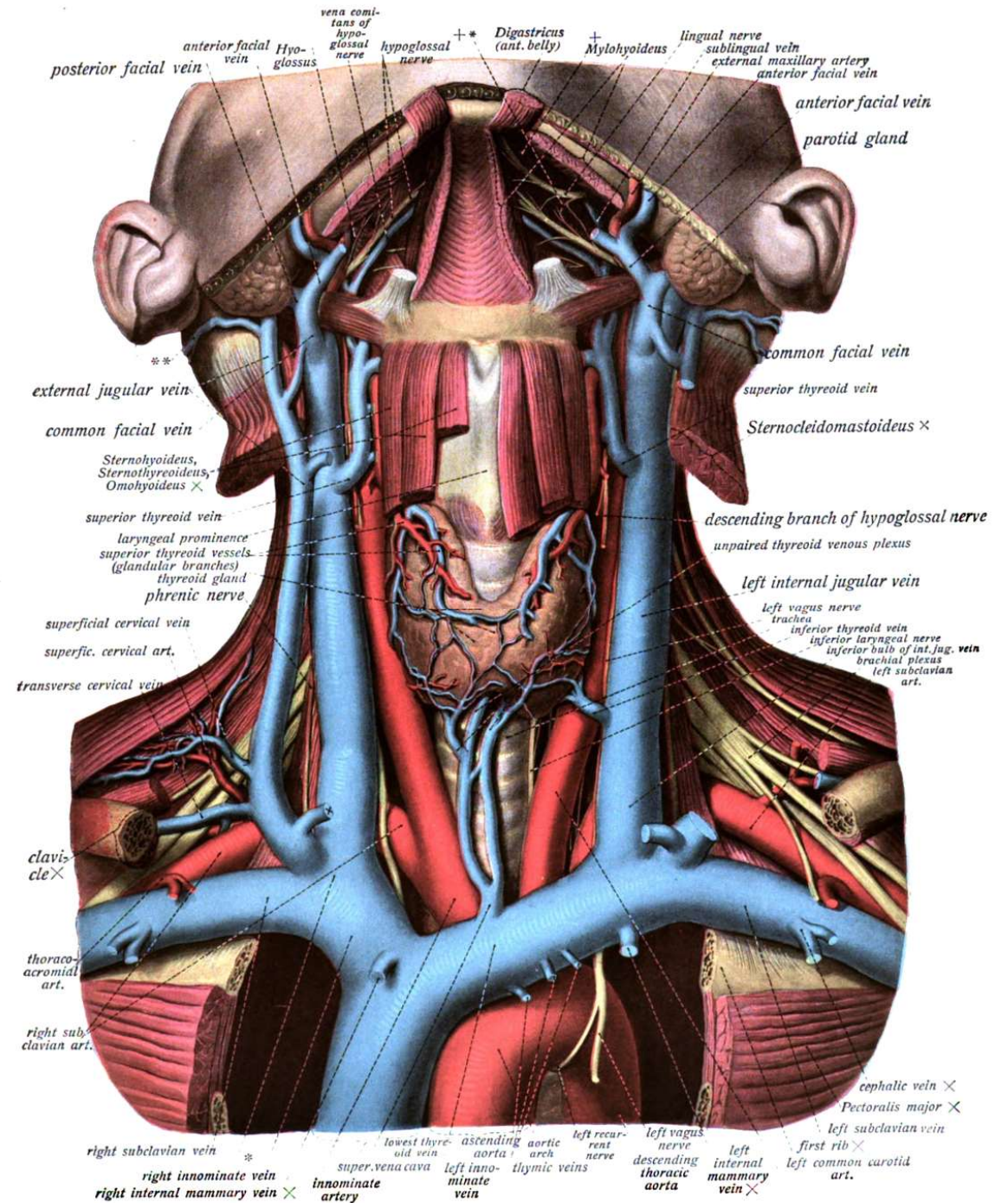
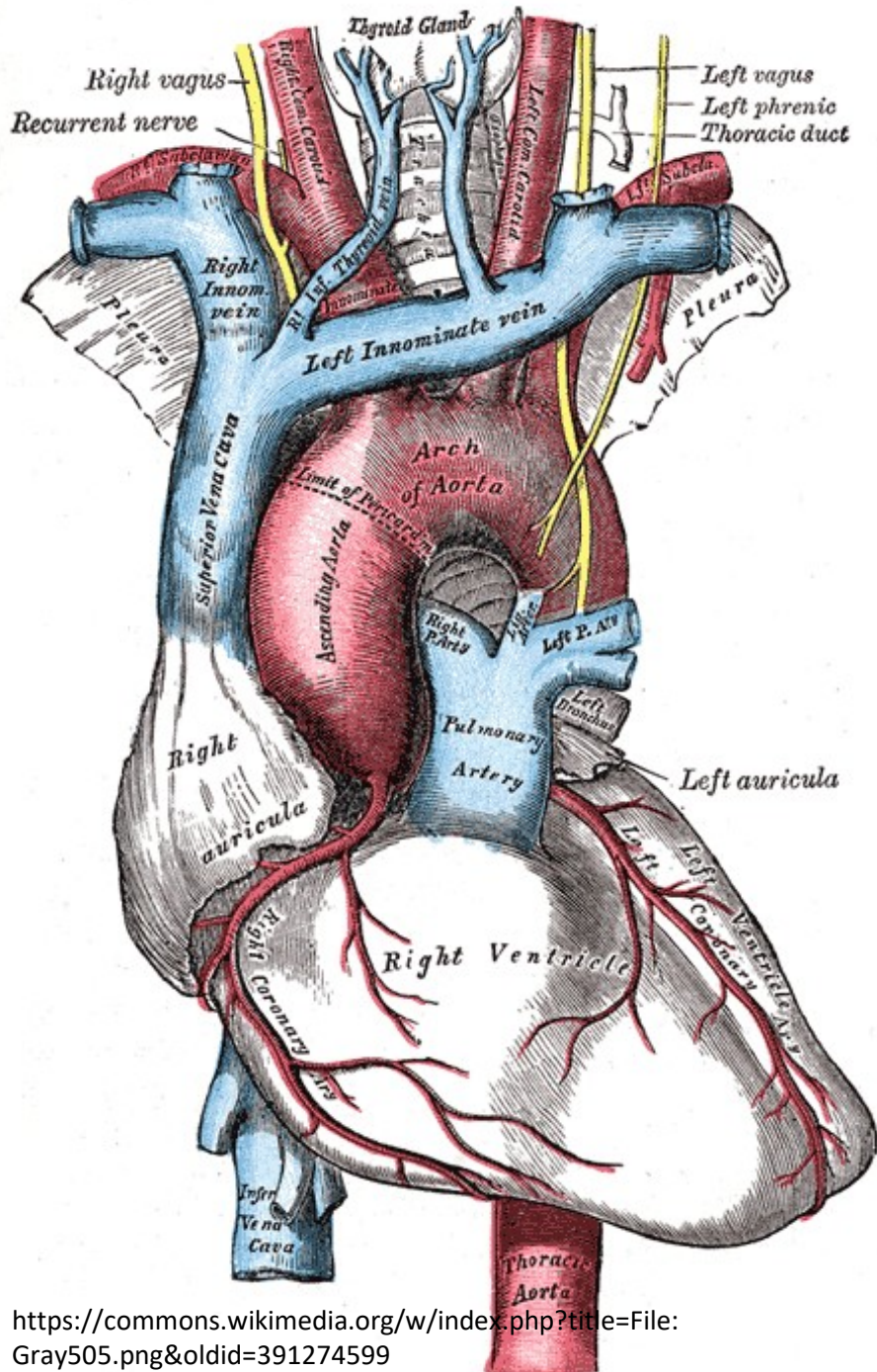
- Anatomy refresher – upper limb and neck veins
- Common reasons for referral
- Clinical signs and symptoms
- Pathology and differentials to consider
- Live demonstrations of technique
- Point of Care Ultrasound learning objectives.

# Upper Limb DVT

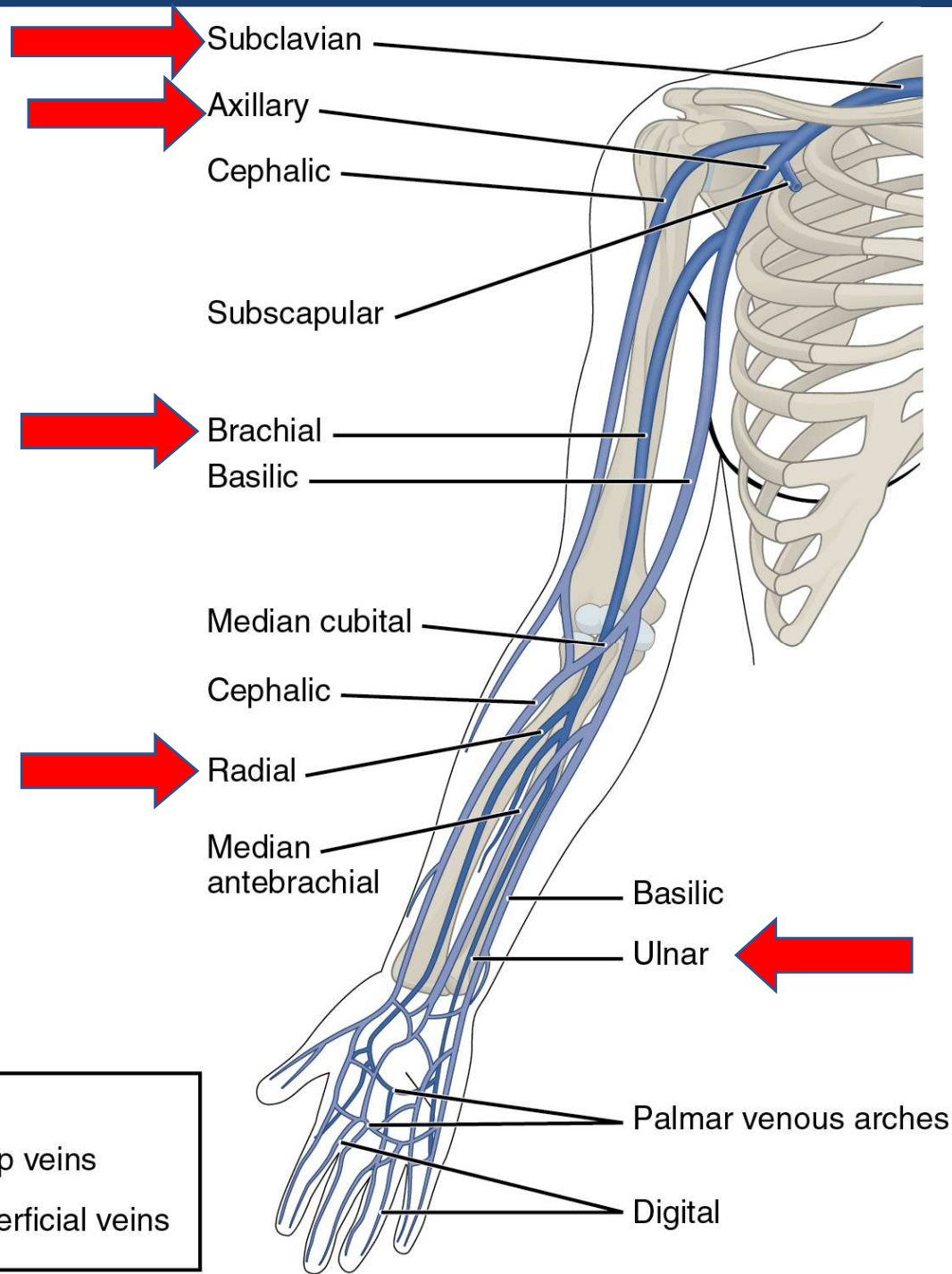
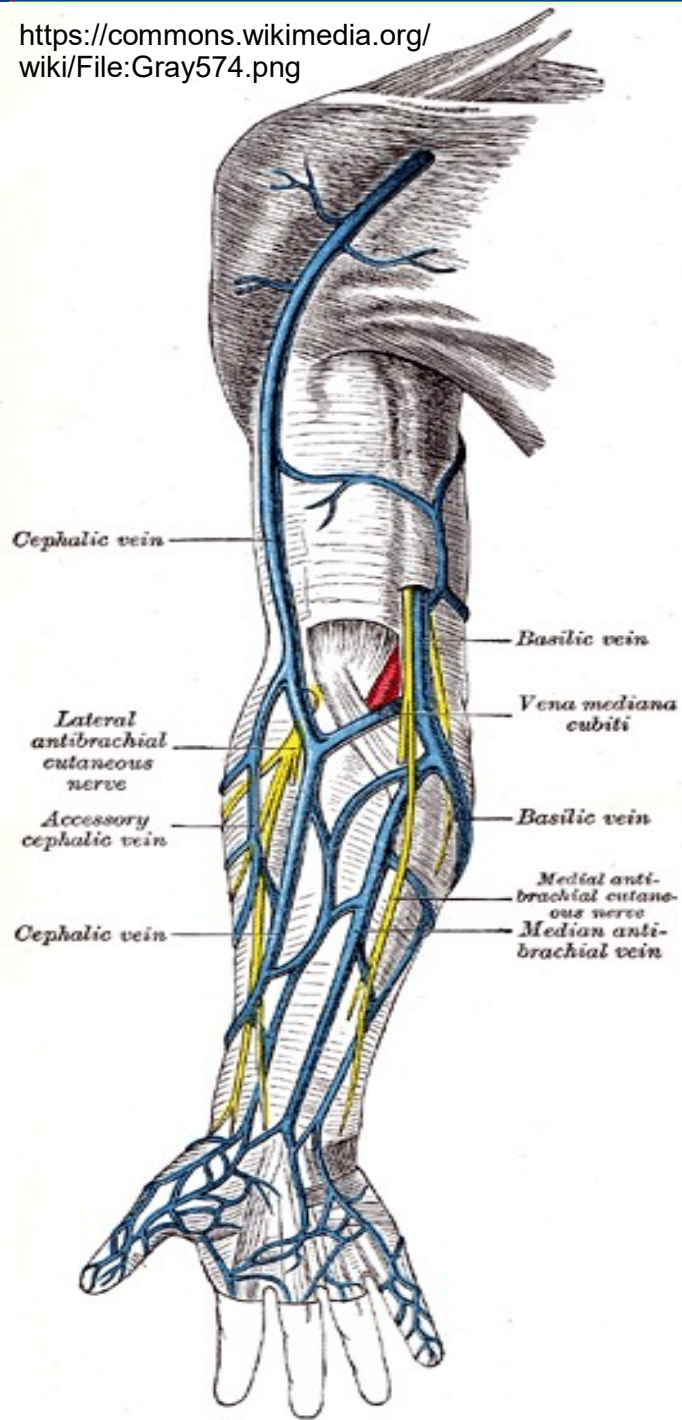
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# Upper Limb Deep Veins

1. Internal Jugular Vein
2. SVC (superior vena cava)
3. Brachiocephalic Veins (right and left innominate)
4. Subclavian Vein
5. Axillary Vein
6. Brachial Vein
7. Radial and Ulnar Veins



<https://commons.wikimedia.org/wiki/File:Gray574.png>



**KEY**  
 ■ Deep veins  
 ■ Superficial veins

# Upper Limb Superficial Veins

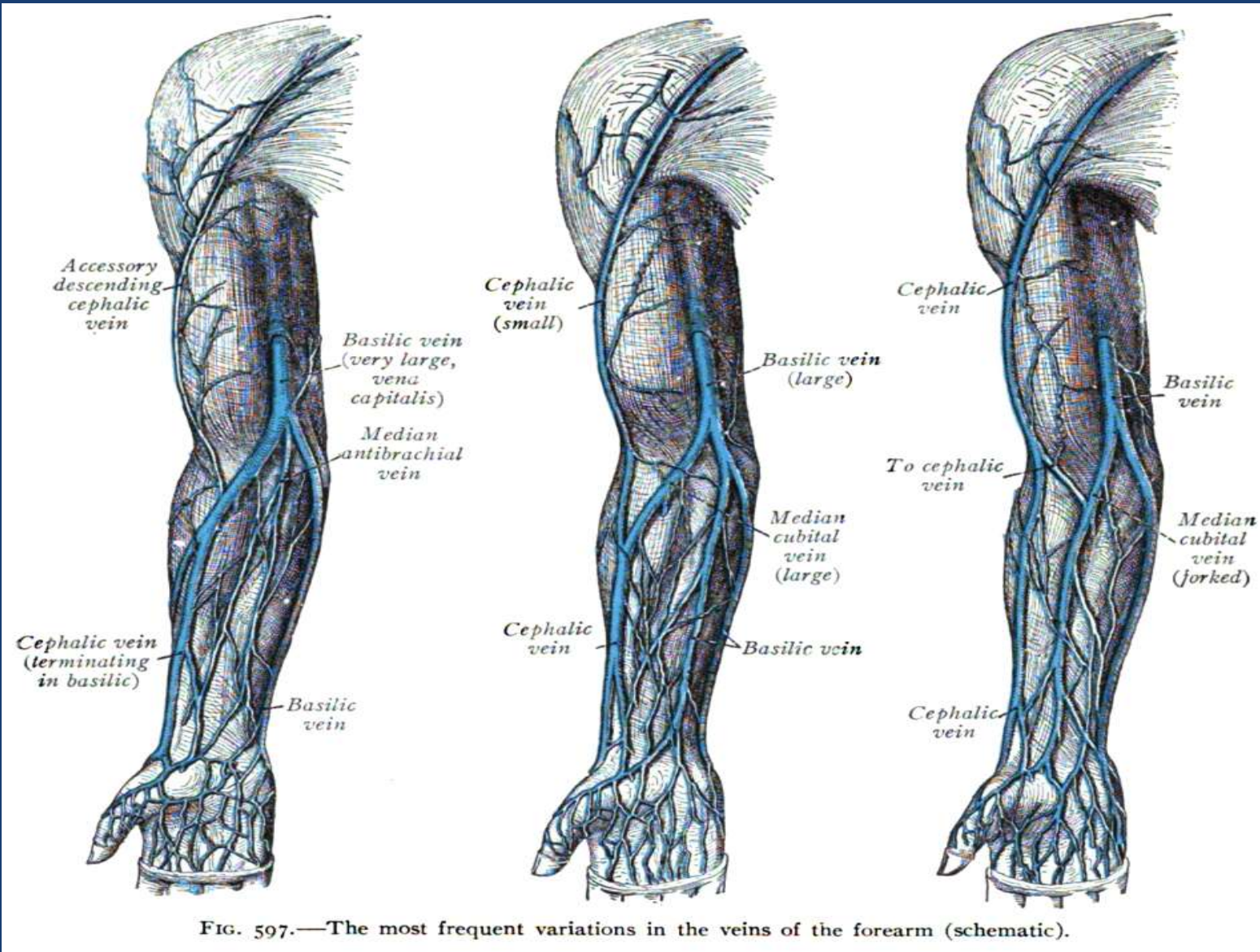
- **Cephalic Vein**

- equivalent to the long saphenous vein
- variable anatomy, mostly size related

- **Basilic Vein**

- equivalent to the short saphenous vein
- variable anatomy, mostly related to insertion into brachial

- **Median Cubital Vein**



<b>Description</b>	English: An anatomical illustration from Sobotta's Human Anatomy 1908
<b>Date</b>	22 October 2013, 13:35:46
<b>Source</b>	Atlas and Text-book of Human Anatomy Volume III Vascular System, Lymphatic system, Nervous system and Sense Organs
<b>Author</b>	Dr. Johannes Sobotta



# Upper Limb DVT

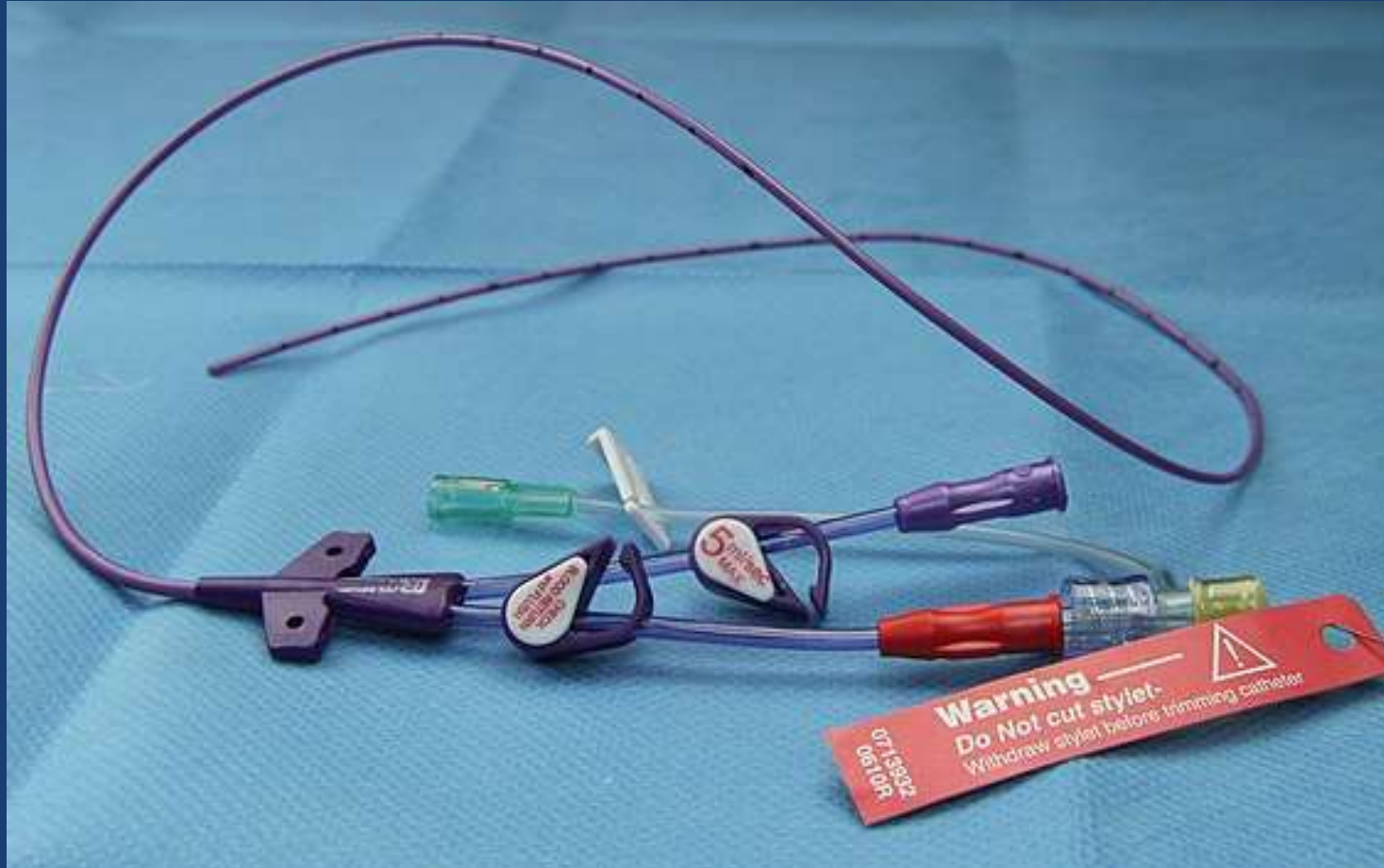
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# Common reasons for referral

- Cancer – chest, lung, breast, lymphoma
- Trauma and Procedural Misplacement  
(chemotherapy catheters, central and PICC lines)
- Inflammation, infection, in situ line thrombosis
- External/extrinsic venous compression or trauma.  
Paget-Schroetter syndrome (PSS) – rare!

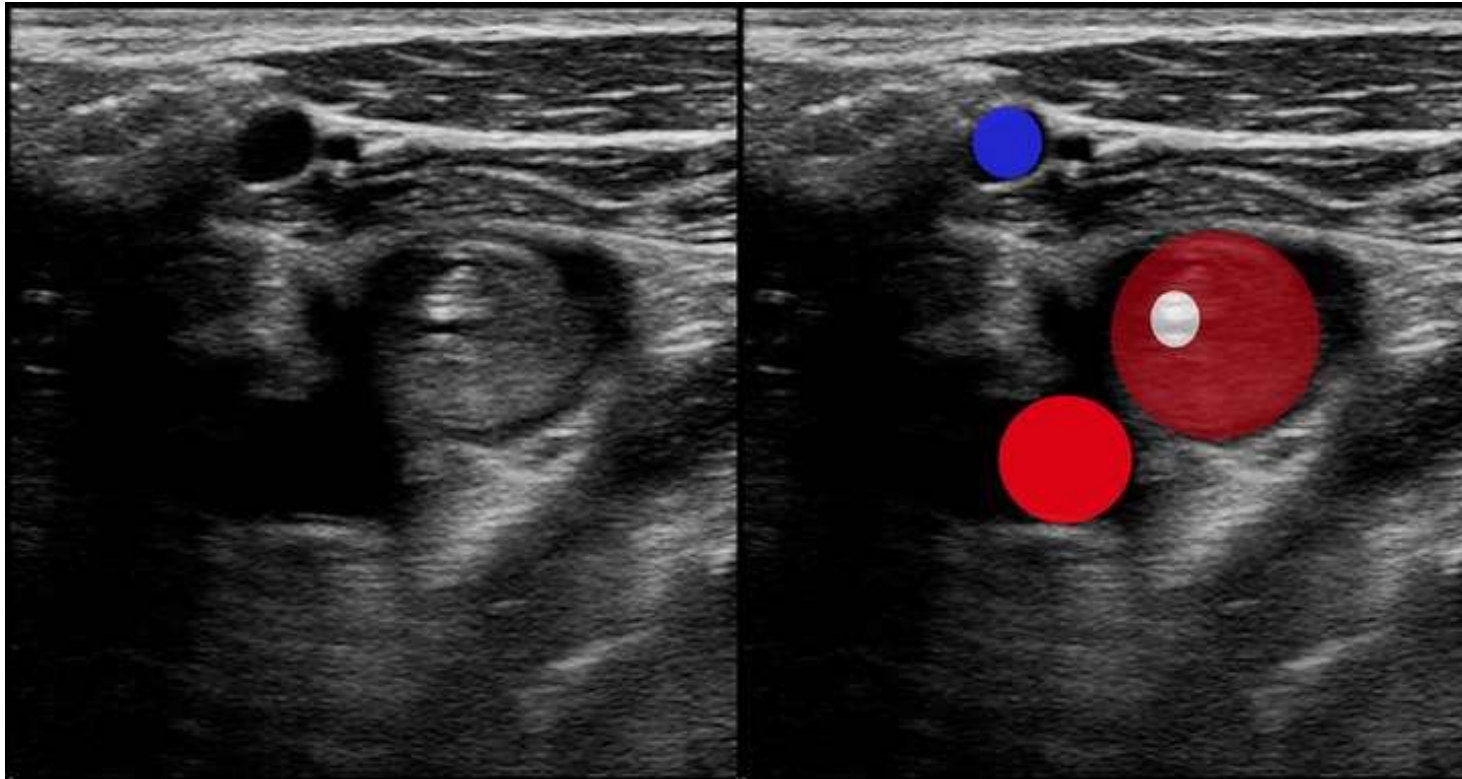
*Typically, young athletes get PSS in the arm they use most for sports like swimming or tennis. When you do the same motion over and over, the veins in your neck and shoulder get squeezed. This can trigger a clot.*

# PICC line thrombosis



[https://commons.wikimedia.org/w/index.php?title=File:PICC\\_line.jpg&oldid=441711399](https://commons.wikimedia.org/w/index.php?title=File:PICC_line.jpg&oldid=441711399)

Upper extremity deep vein thrombosis: a complication of an indwelling peripherally inserted central venous catheter



#### Figure 4

Dual images (original left; legend right).

A transverse view of the axillary vein with PICC in place, surrounded by echogenic thrombus that is distending the vein (dark red). The axillary artery (red) and cephalic vein (blue) are also seen.

Clinical Case Reports, Volume: 3, Issue: 3, Pages: 170-174, First published: 22 January 2015, DOI: (10.1002/ccr3.187)

Upper extremity deep vein thrombosis: a complication of an indwelling peripherally inserted central venous catheter. [Peter J. Carr](#), [James C. R. Rippey](#) First published: 22 January 2015. <https://doi.org/10.1002/ccr3.187>

# Upper Limb DVT

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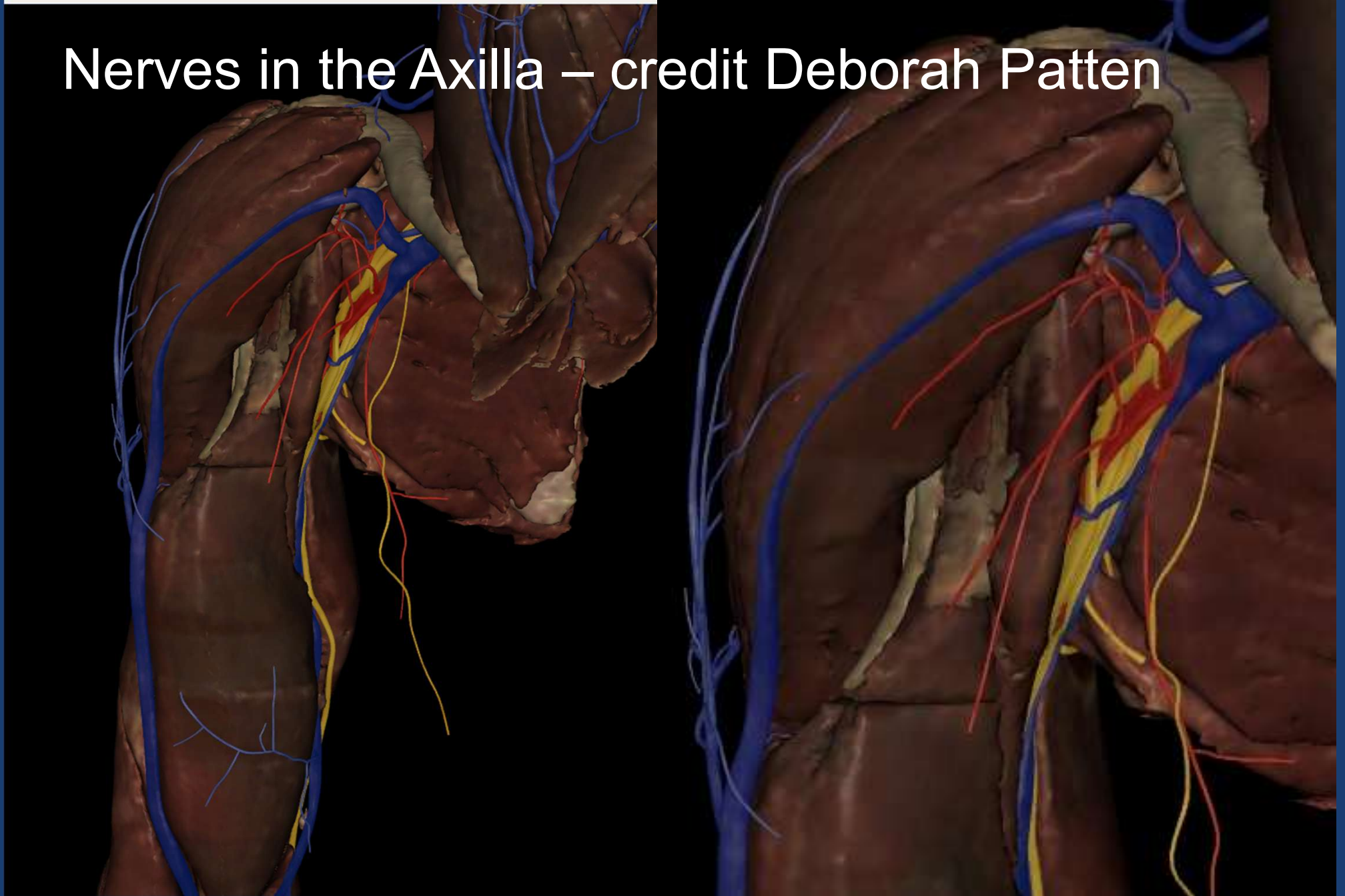
# Clinical signs and symptoms

1. Swollen arm
2. Dilated veins on the anterior chest wall
3. Swelling, tenderness, erythema and pain
4. Palpable superficial veins in the neck

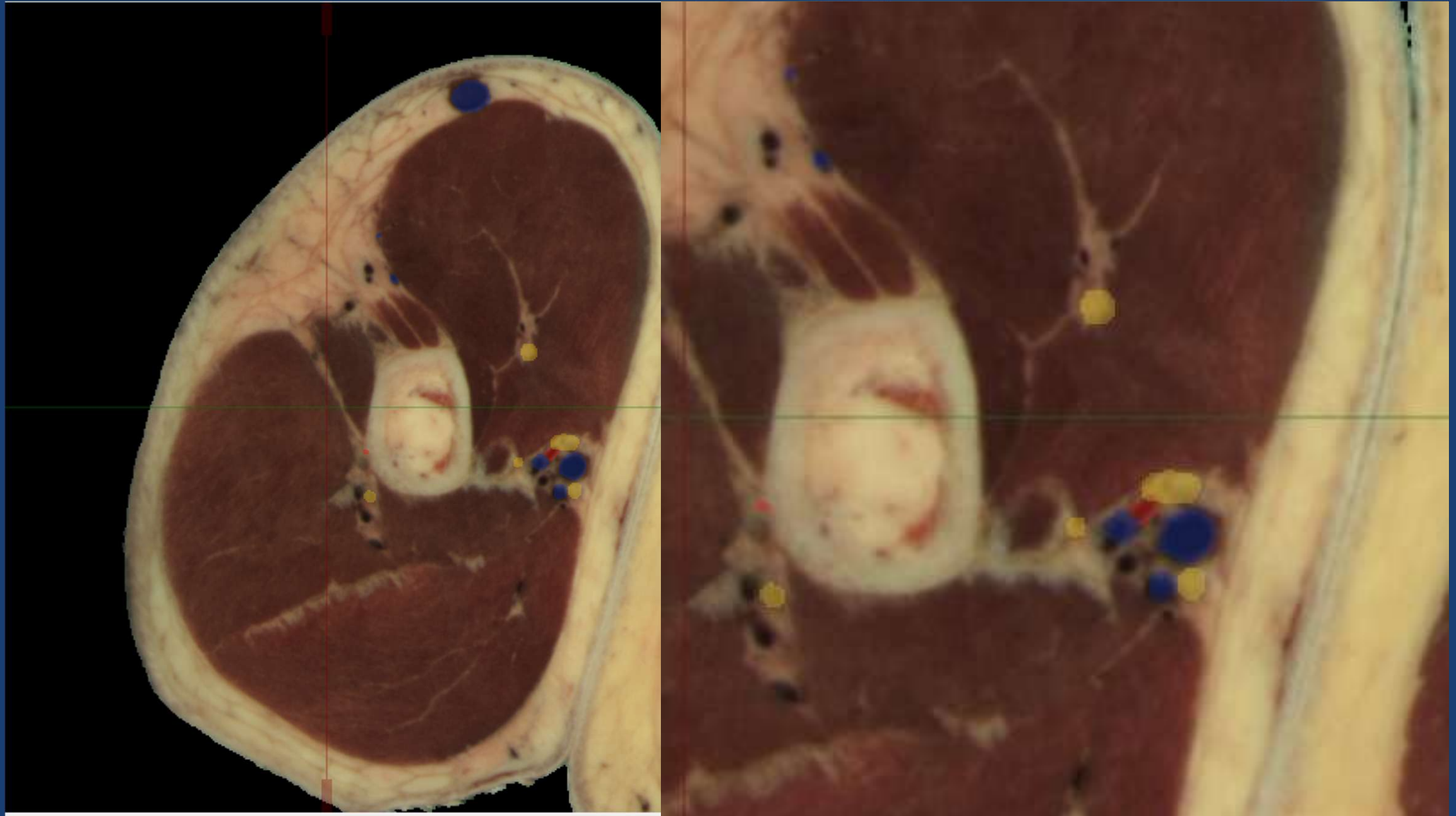
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# Nerves in the Axilla – credit Deborah Patten

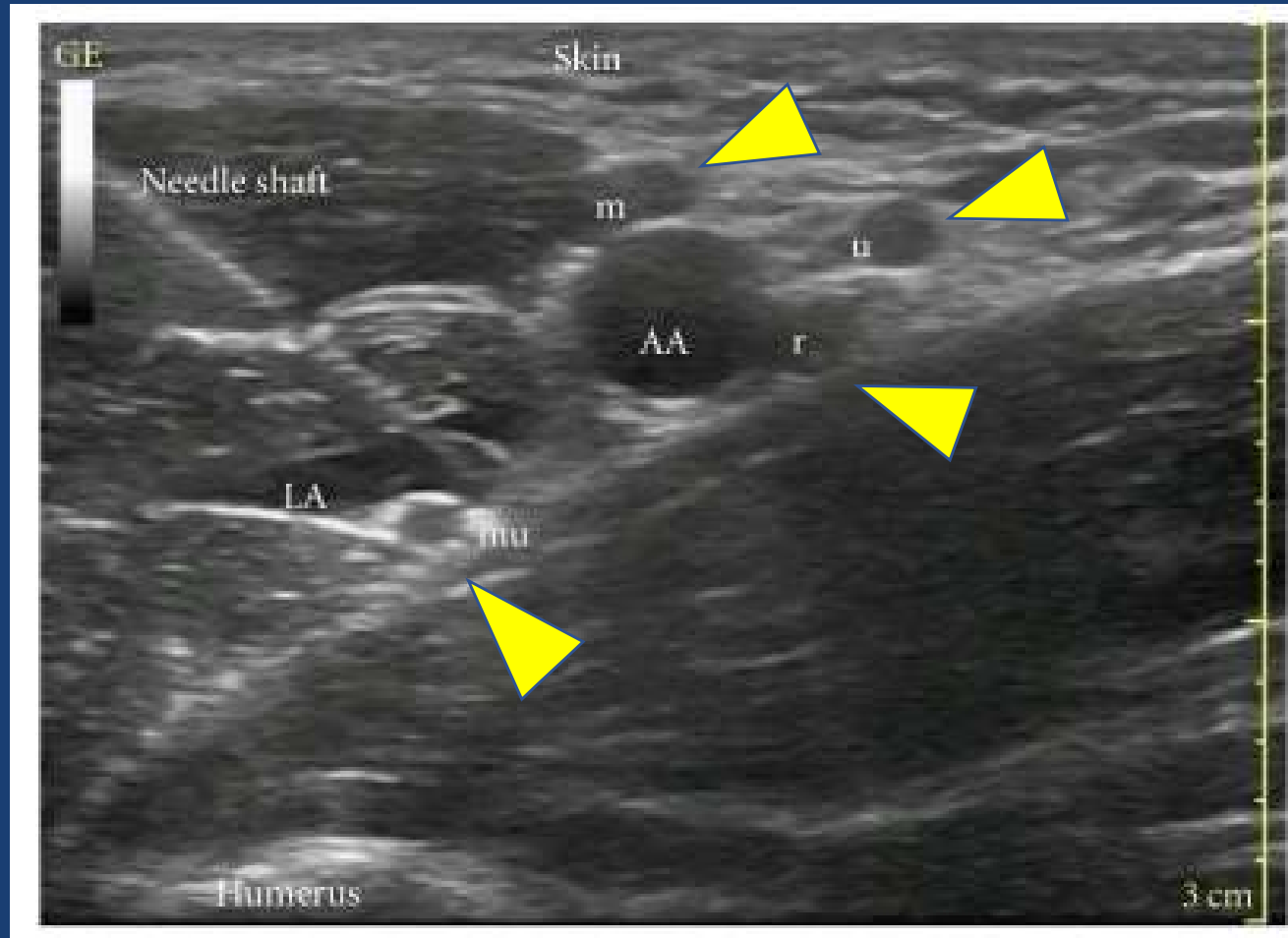


# Nerves in the Axilla – credit Deborah Patten



# Nerves in the Axilla

Axillary brachial plexus block. [Satapathy AR<sup>1</sup>](#), [Coventry DM](#)  
*Anesthesiology Research and Practice*, 22 May 2011, 2011:173796  
DOI: [10.1155/2011/173796](#) PMID: 21716725 PMCID: PMC3119420

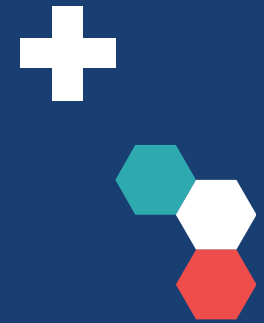


**Figure 2**

Ultrasound scan of axilla. AA: axillary artery, LA: local anaesthetics, r: radial nerve, mu: musculocutaneous nerve, m: median nerve, and u: ulnar nerve. This is an in-plane approach, with the whole length of the needle shaft visible under ultrasound.

# Pathology and differentials to consider

- Upper-extremity deep venous thrombosis (DVT) refers to thrombosis of the internal jugular, brachiocephalic, brachial, subclavian, and/or axillary veins.
- Usually the thrombotic process involves more than 1 venous segment, with the subclavian vein most frequently affected.
- The internal jugular vein, the brachiocephalic vein, and the basilic vein are additionally involved in up to 20% to 30% of these patients.
- Upper-extremity DVT is far less common than lower-extremity DVT but still may account for as much as 10% of DVTs. The annual incidence of upper-extremity DVT is 0.4 to 1 case per 10,000 people, but may be increasing in frequency because of the use of indwelling central venous catheters as well as cardiac pacemakers and defibrillators.
- Compared to patients with lower-extremity DVT, upper-extremity DVT patients are typically younger, more likely to have a diagnosis of cancer, and less likely to have thrombophilia.
- Cancer is found in up to 40% of patients with upper-extremity DVT.



# Live Demonstrations



PART 1: Introduction and **Internal Jugular Vein (IJV)**

PART 2: The Arm

- **brachial**, radial, ulnar, **basilic** and cephalic veins

PART 3: The **axilla and axillary veins**

PART 4: Subclavian and Brachiocephalic Veins



Thank you to Rick Miles



GE HealthCare

Have we answered all your questions?



if not then...tell us





# LIVE

# Question and Answer Session

