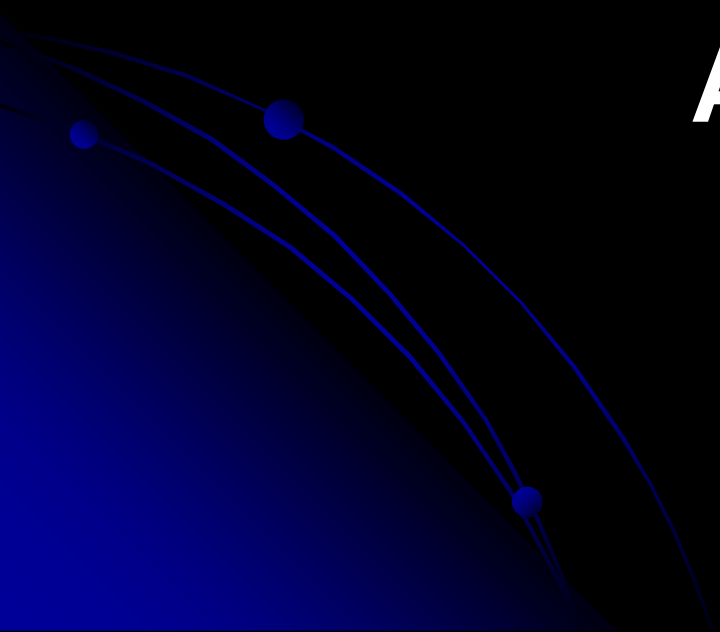


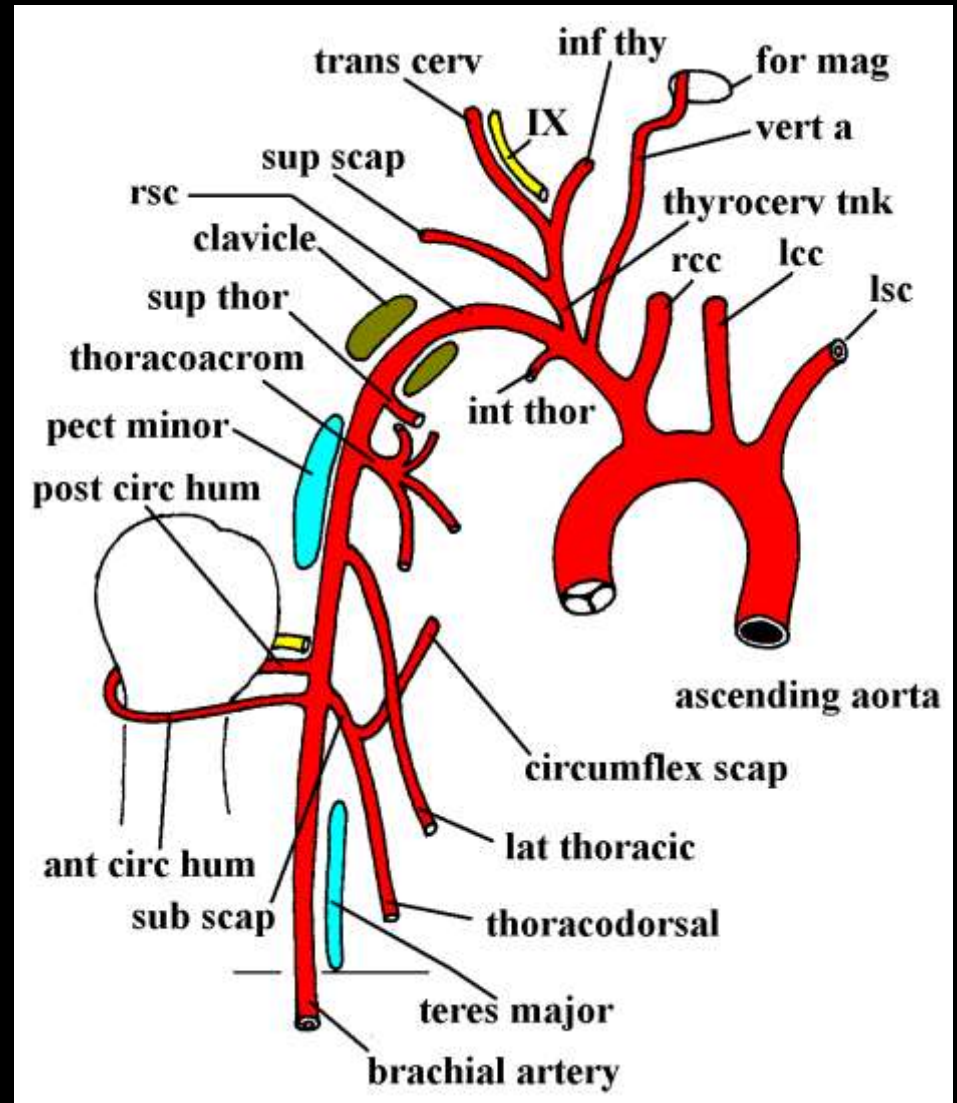
# VASCULAR SUPPLY TO UPPER EXTREMITY

## ARTERIES



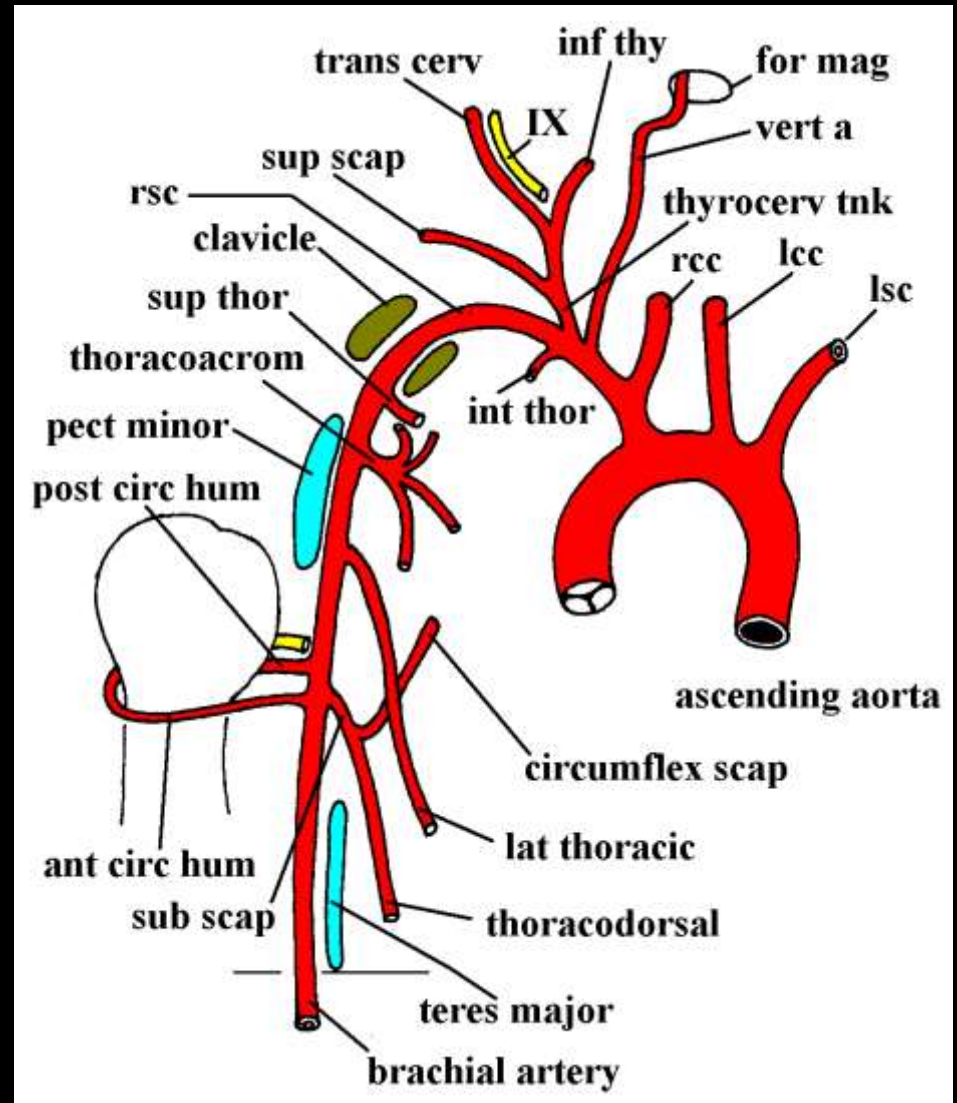
# Subclavian Arteries

- Left subclavian:
  - Direct branch from aortic arch
- Right subclavian:
  - Branch from brachiocephalic



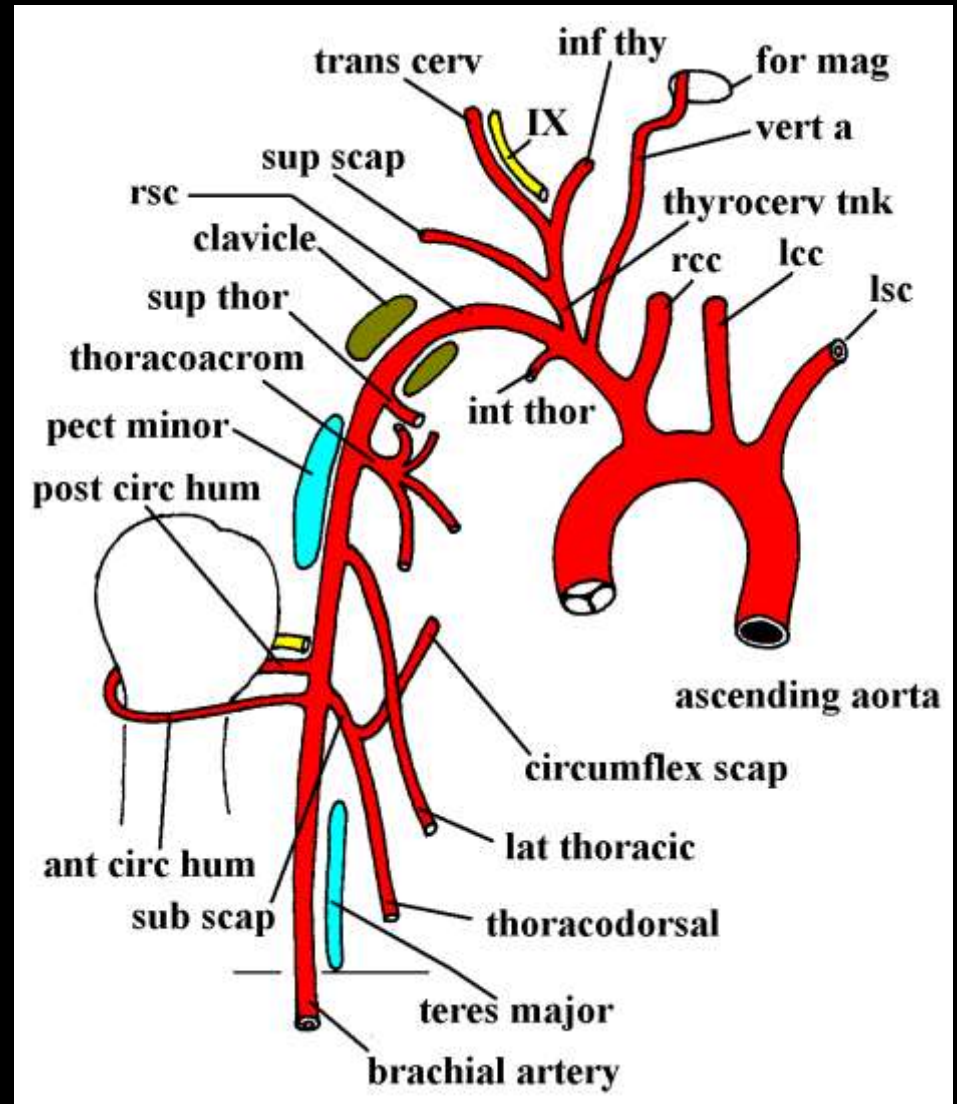
# Subclavian Branches

- Vertebral artery
  - Passes through transverse foramina 6-1
  - Passes through foramen magnum
  - Unites with opposite vertebral artery to form basilar artery



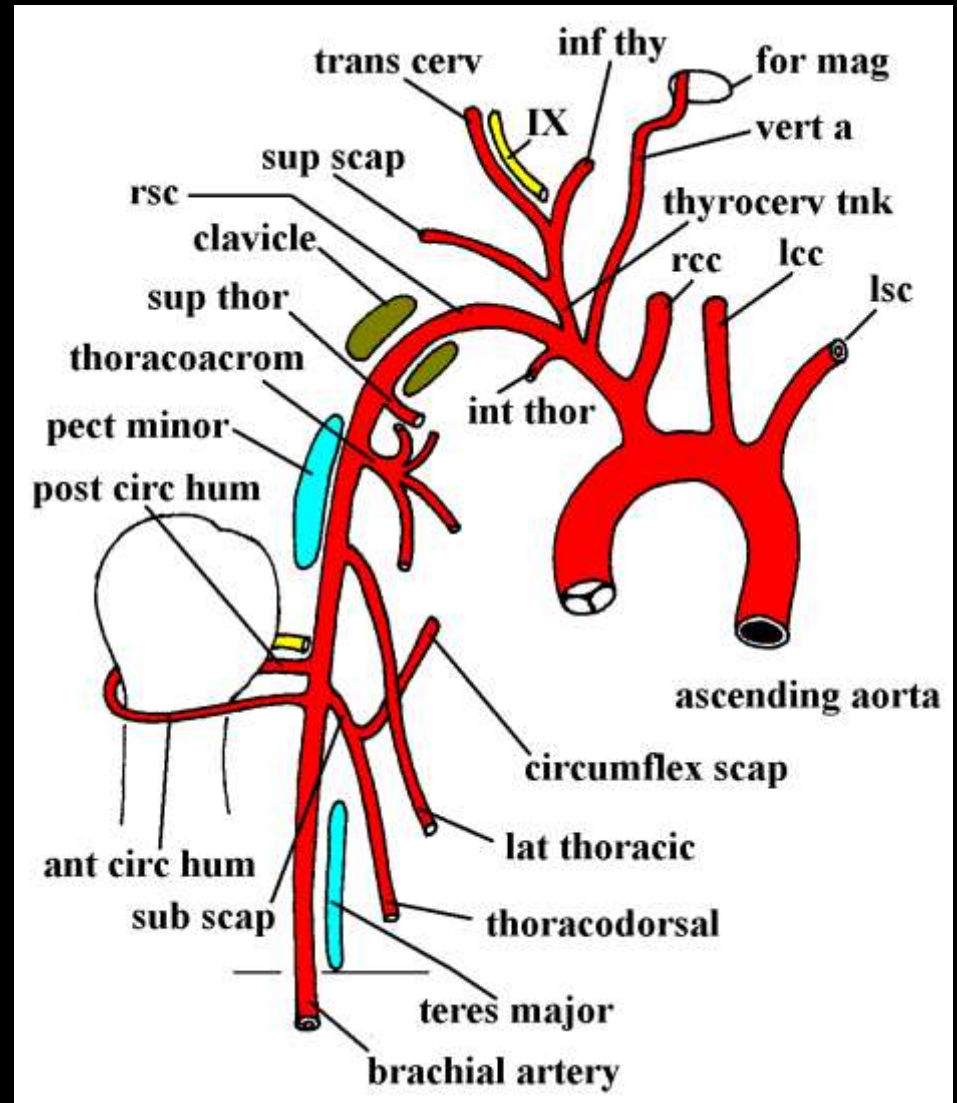
# Subclavian Branches

- Thyrocervical trunk
  - Suprascapular a.
    - Passes btw sternomastoid and ant. Scalene muscles
    - Passes over suprascapular lig.
    - To supraspinous fossa
    - Through spinoglenoid notch
    - To infraspinous fossa



# Subclavian Branches

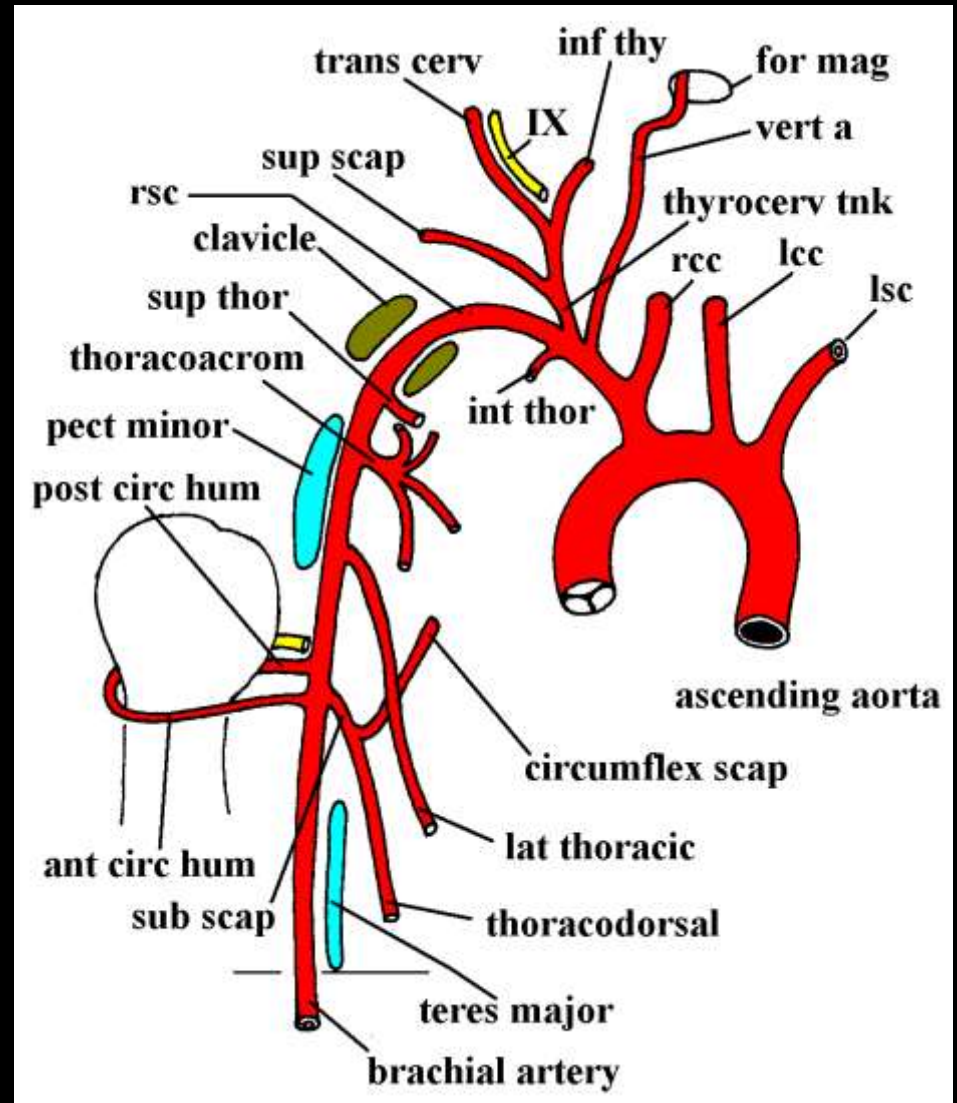
- Thyrocervical trunk
  - Transverse cervical artery:
    - Passes ant to scalenus ant muscle
    - Runs with CN IX
    - Supplies rhomboids
  - Inferior thyroid artery:
    - Variable





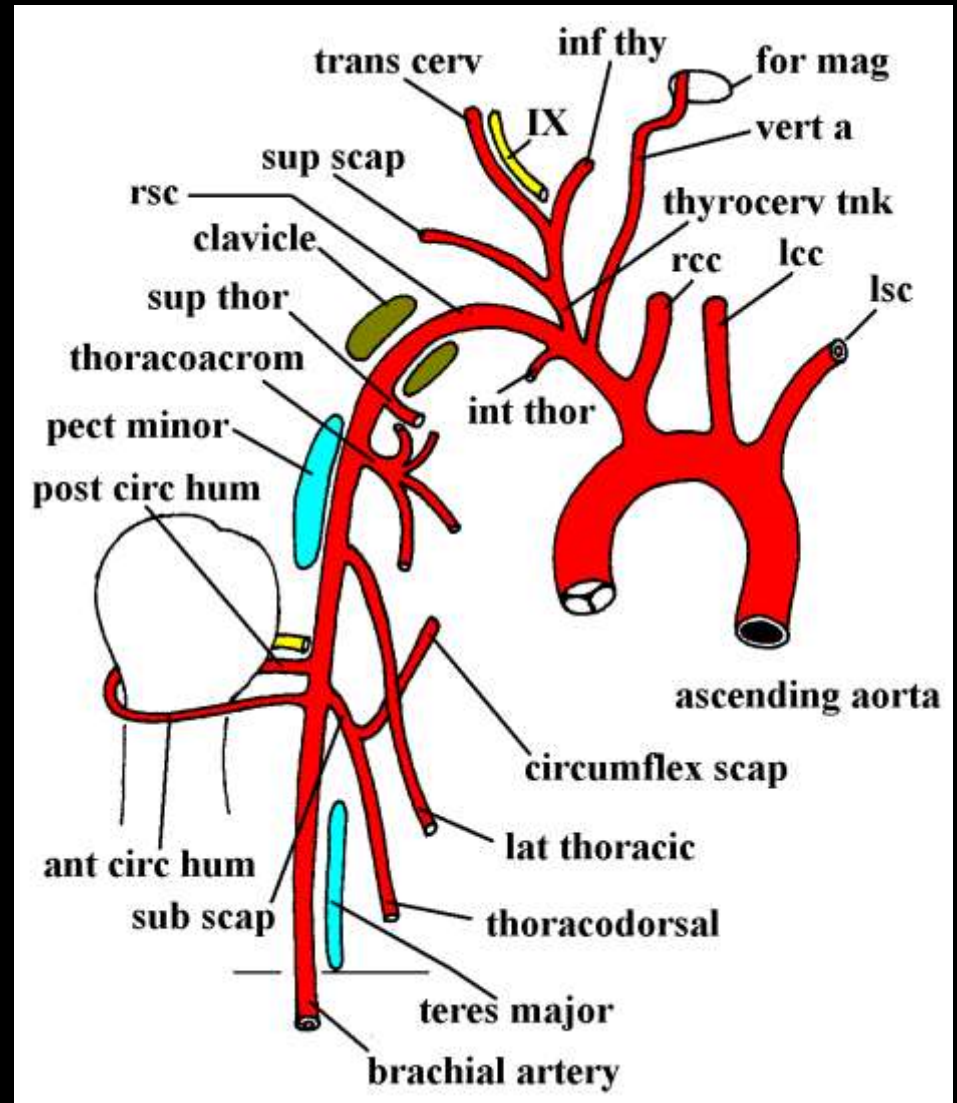
# Subclavian Branches

- Internal thoracic:
  - Gives off ant. Intercostals in intercostal spaces



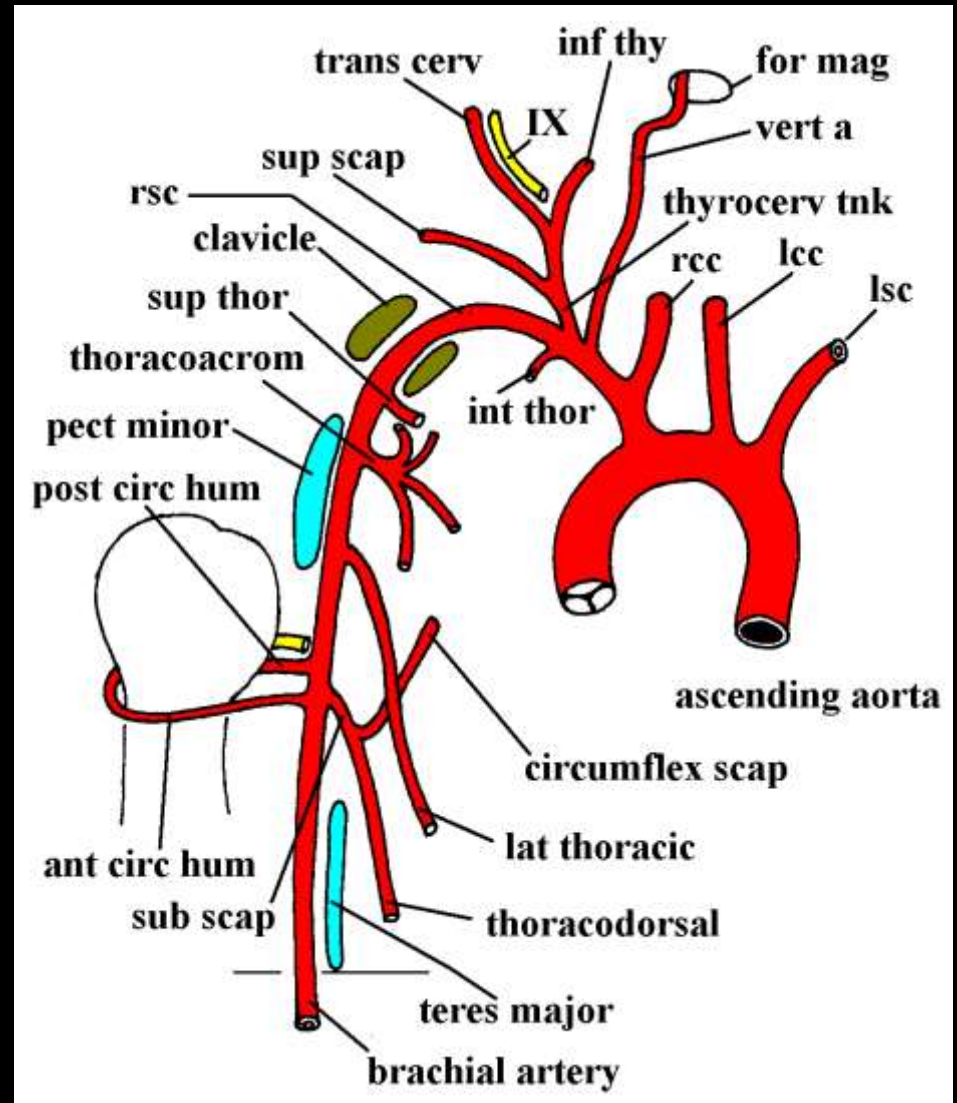
# Subclavian Artery

- Passes between first rib and clavicle and is renamed the axillary artery.
- Runs across subclavian groove behind anterior scalene muscle.



# Axillary Artery

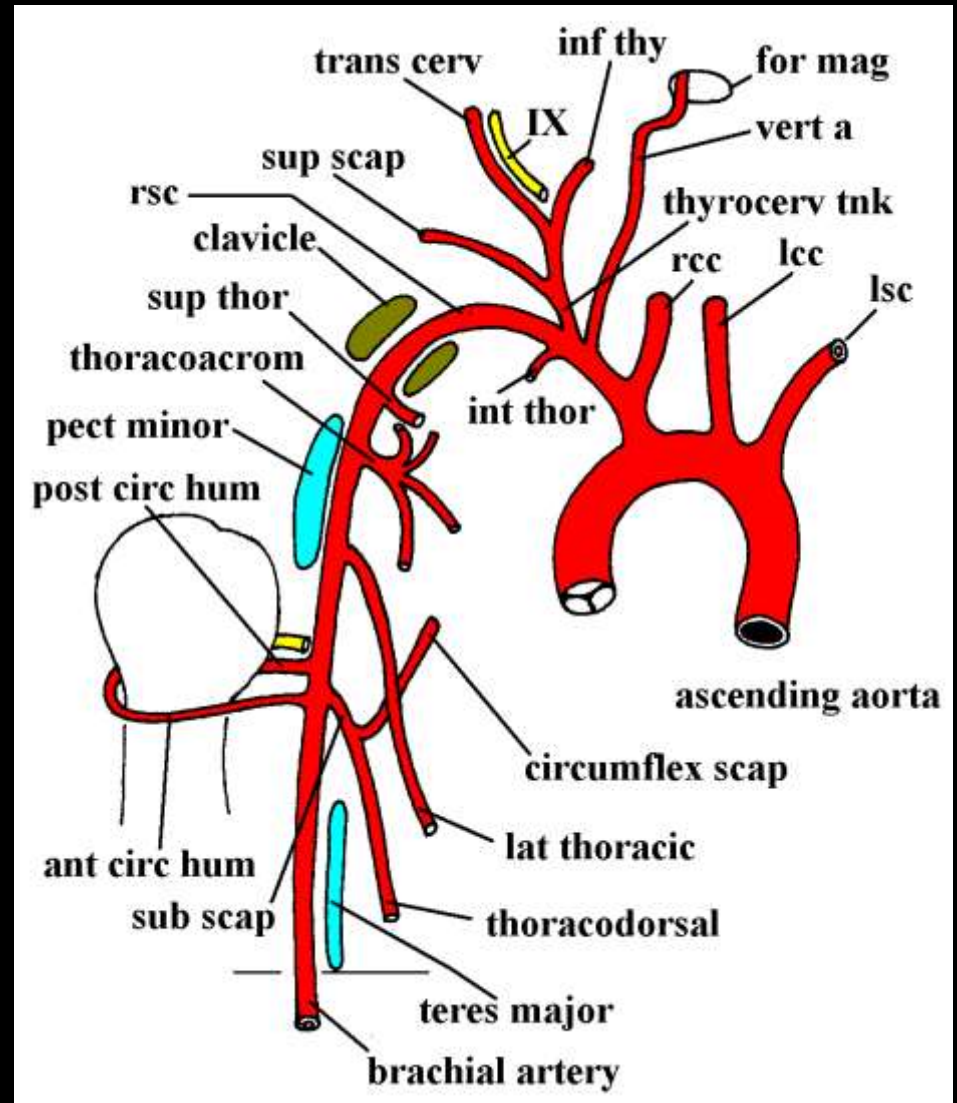
- Begins at inferior border of first rib.
- Divided into thirds by pectoralis minor muscle:
  - First part superior to muscle.
  - Second part deep to muscle.
  - Third part inferior to muscle.





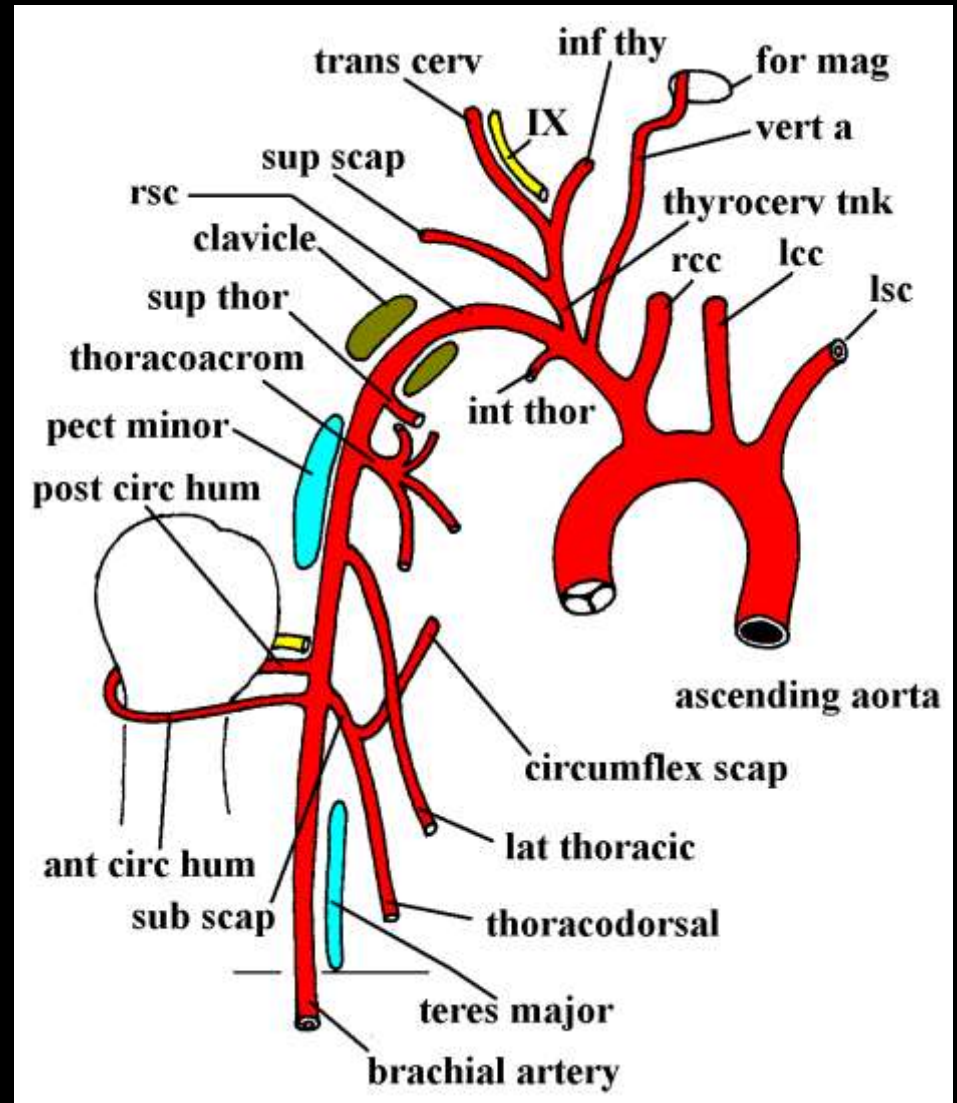
# First Part of Axillary Artery

- Superior thoracic artery:
  - Supplies posterior aspects of intercostal spaces 1 and 2 and part of serratus anterior



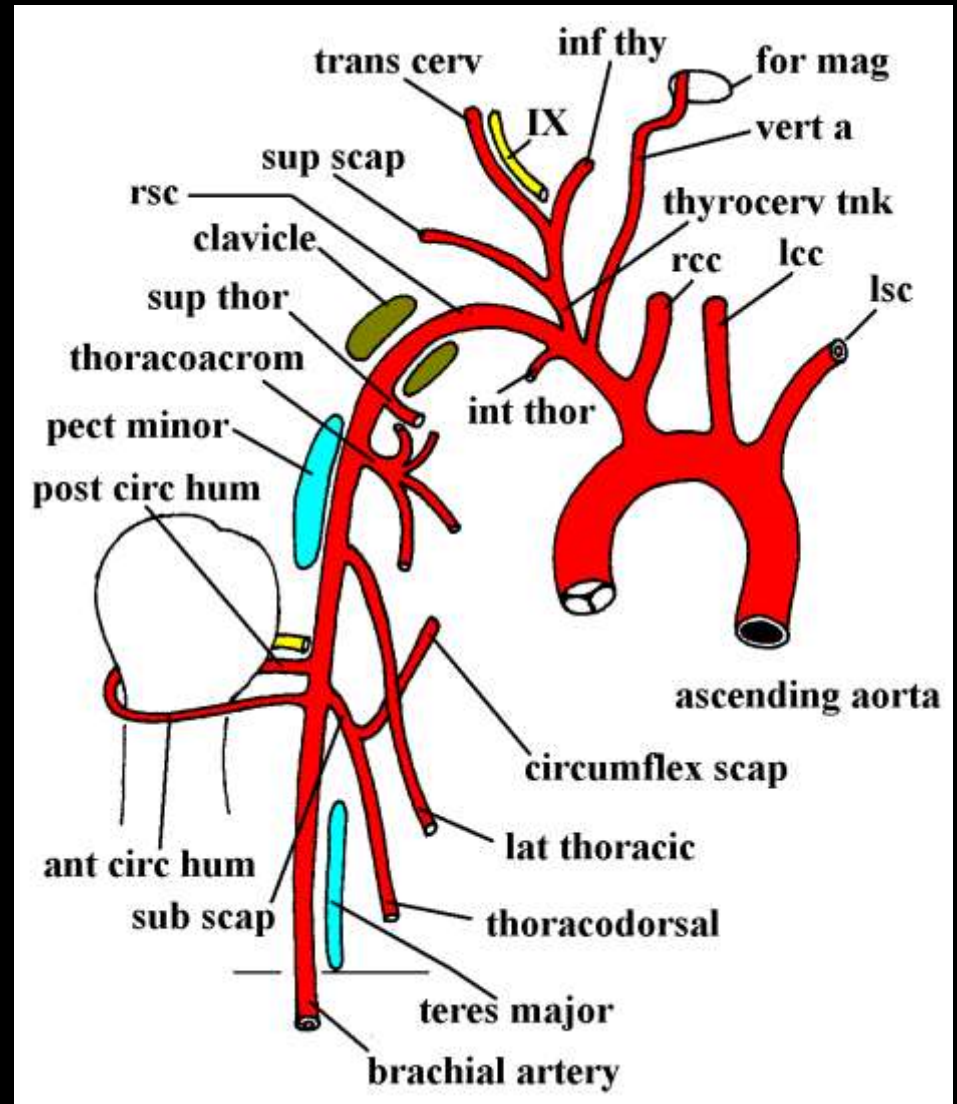
# Second Part of Axillary Artery

- Thoracoacromial artery (trunk):
  - Pectoral branch
  - Deltoid branch
  - Acromial branch
  - Clavicular branch



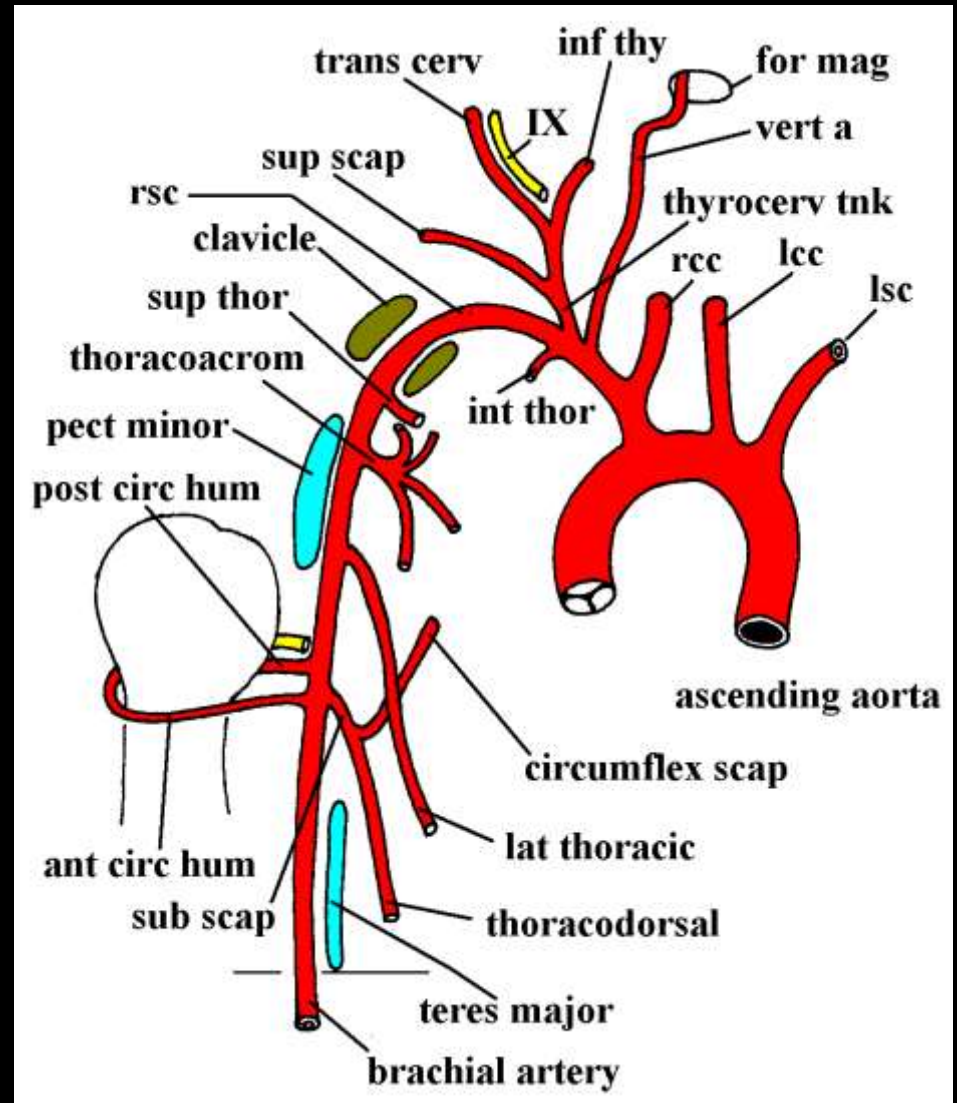
# Second Part of Axillary Artery

- Lateral thoracic artery:
  - Extends along lateral side of pectoralis minor.
  - Supplies part of pectoral muscles, lymph nodes and breast (esp. important in women)



# Third Part of Axillary Artery

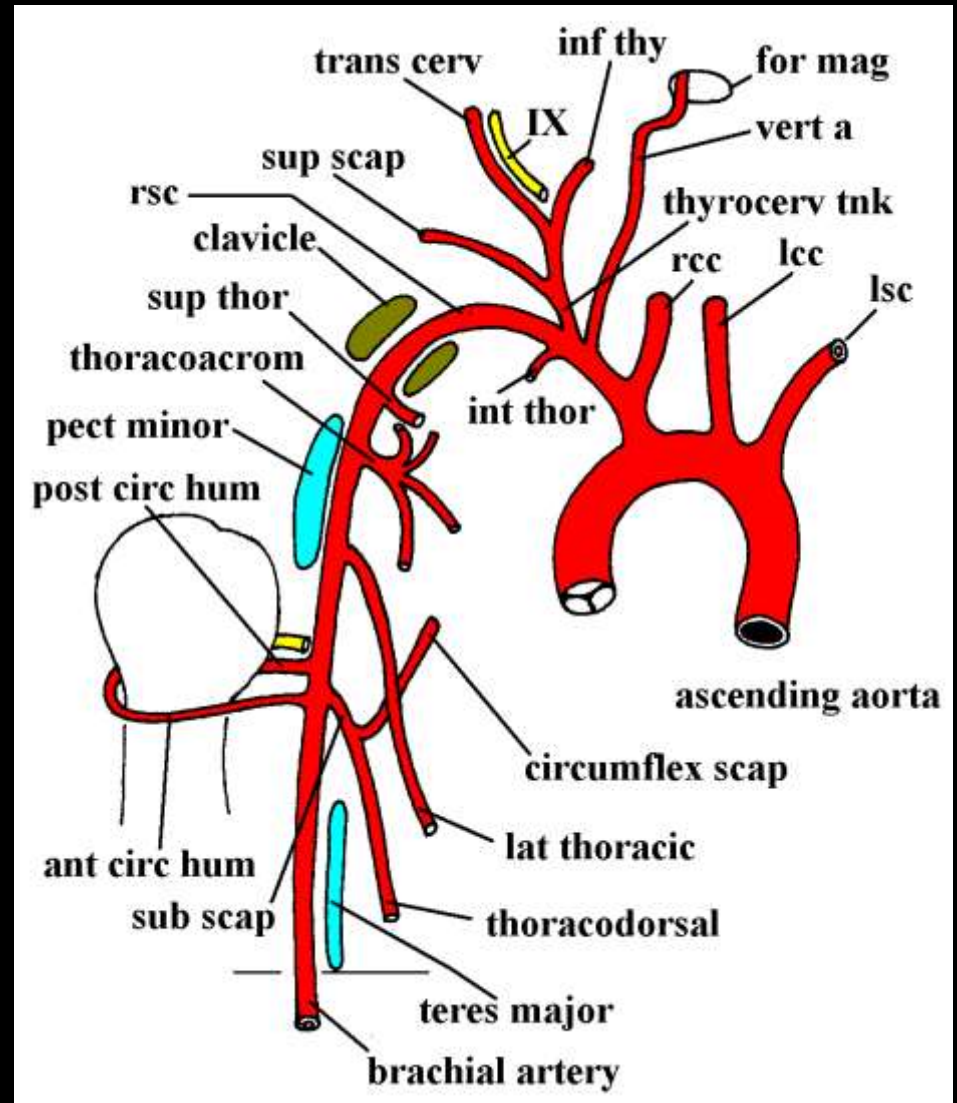
- Posterior circumflex humeral:
  - Passes around posterior aspect of surgical neck of humerus.
  - Anastomoses with the anterior circumflex humeral.





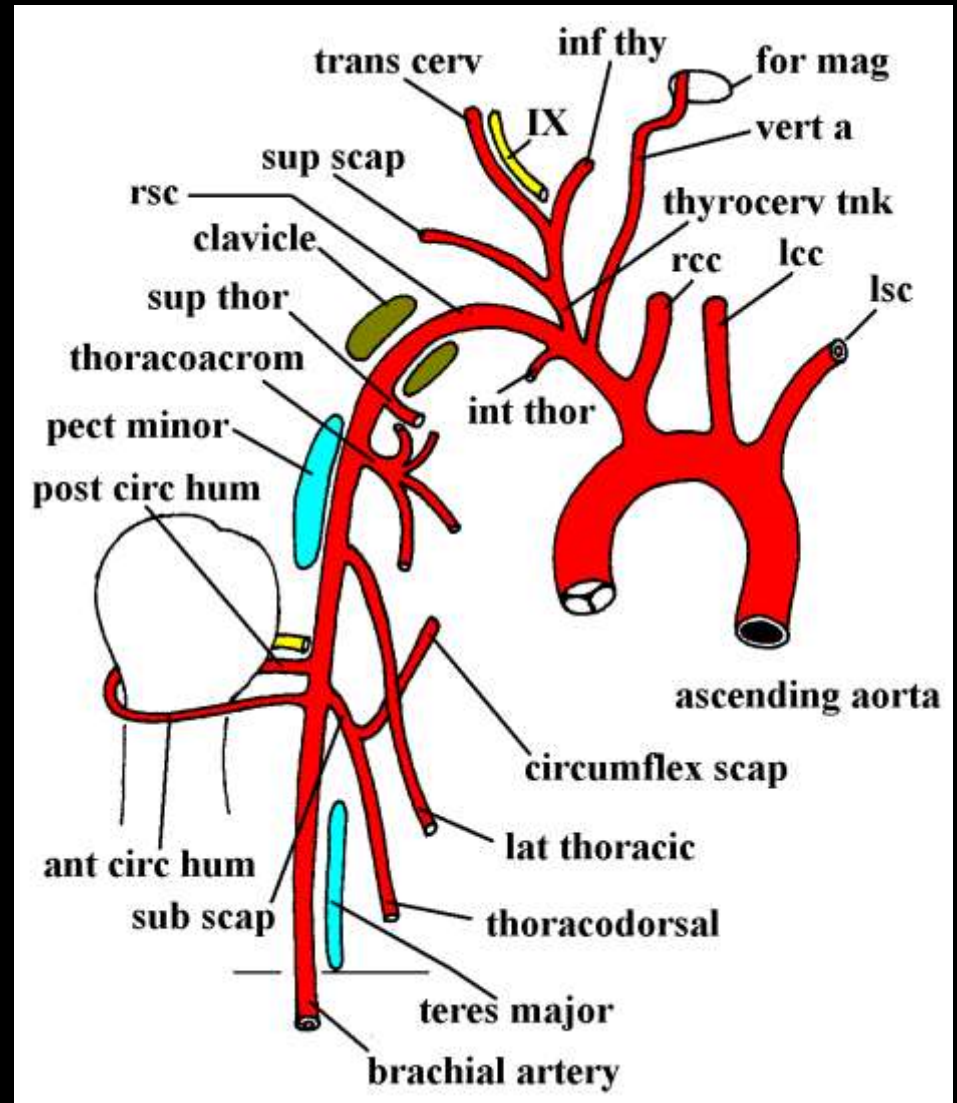
# Third Part of Axillary Artery

- Posterior circumflex humeral:
  - Runs with axillary nerve.
  - Supplies deltoid and triceps muscles
  - Part of contents of quadrilateral space.



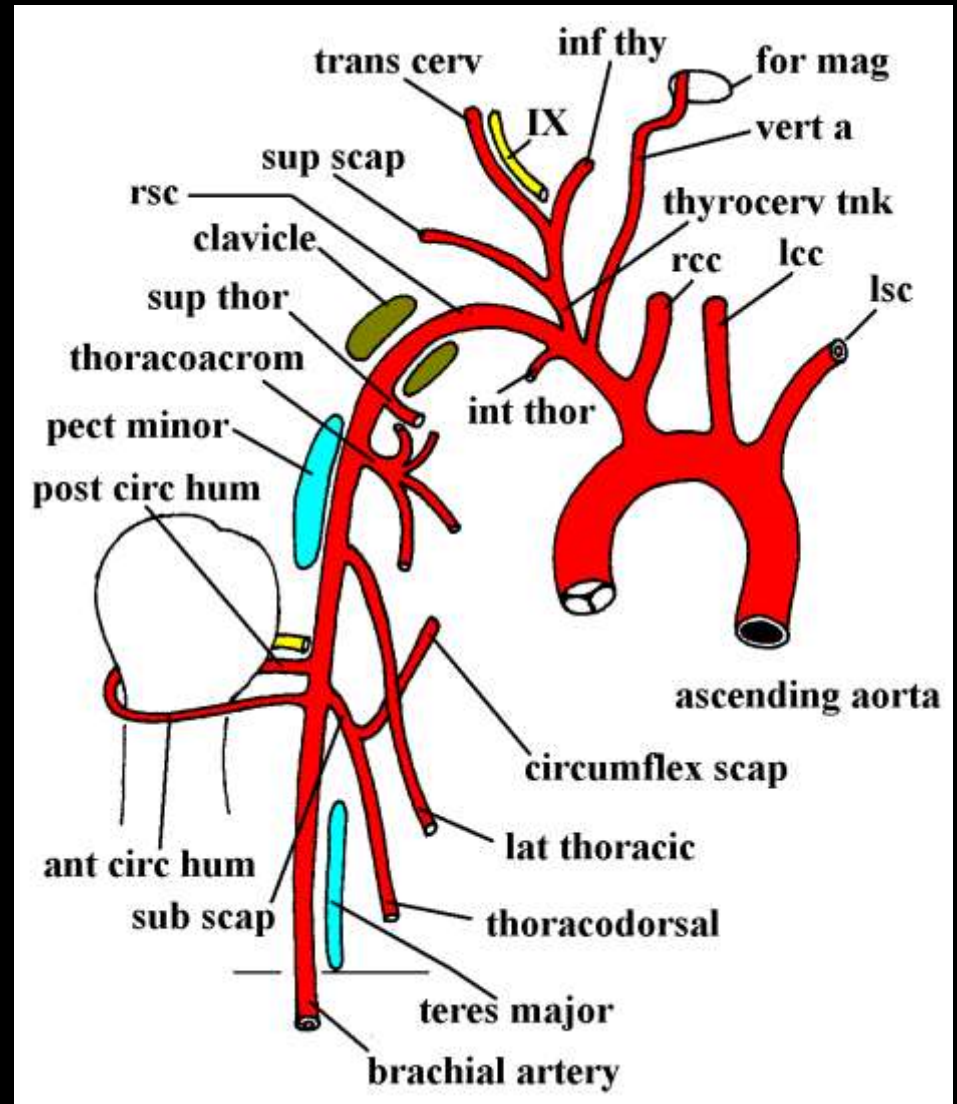
# Third Part of Axillary Artery

- Anterior circumflex humeral:
- Subscapular:
  - Thoracodorsal:
    - Latissimus muscle
  - Circumflex scapular:



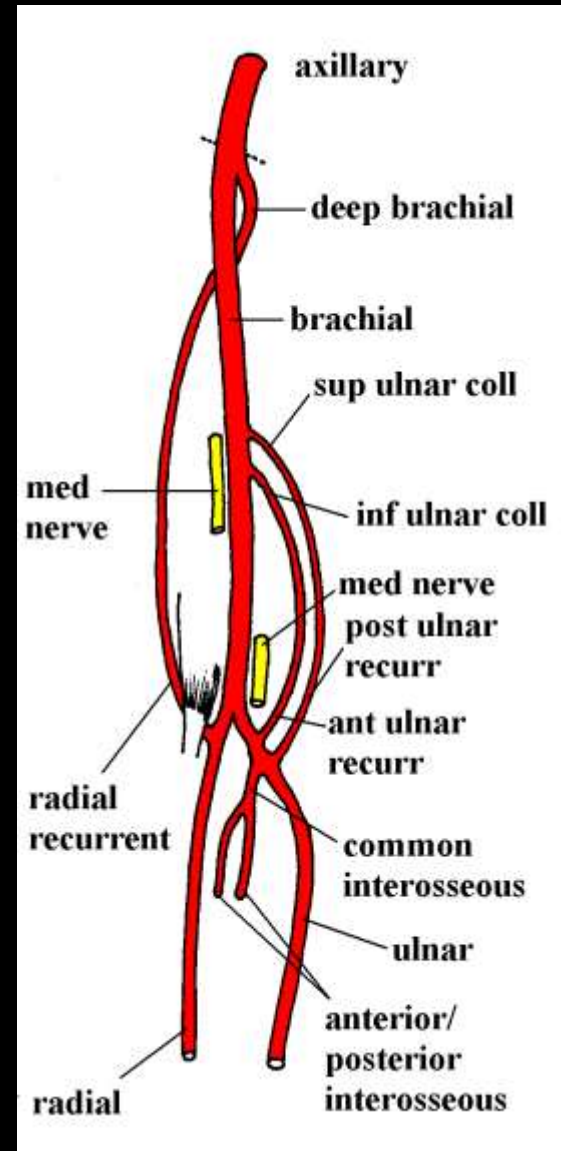
# Brachial Artery

- Continuation of axillary artery at inferior border of teres major muscle.



# Branches of Brachial Artery

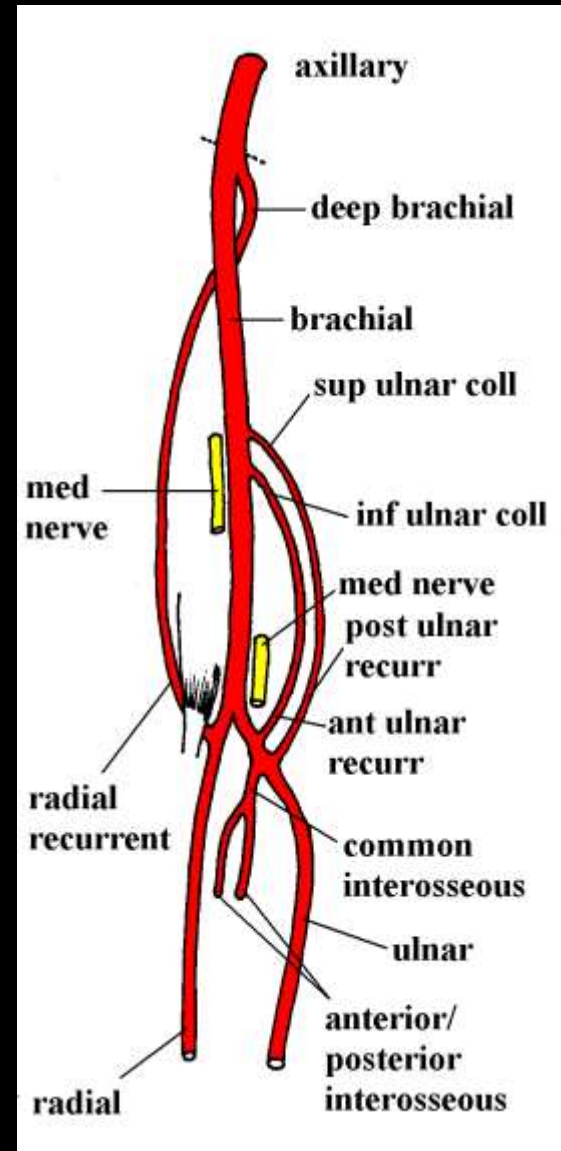
- Deep brachial (profunda brachii):
  - Wraps around posterior surface of humerus.
  - Runs in radial groove with radial nerve.
  - Supplies posterior compartment of brachium.





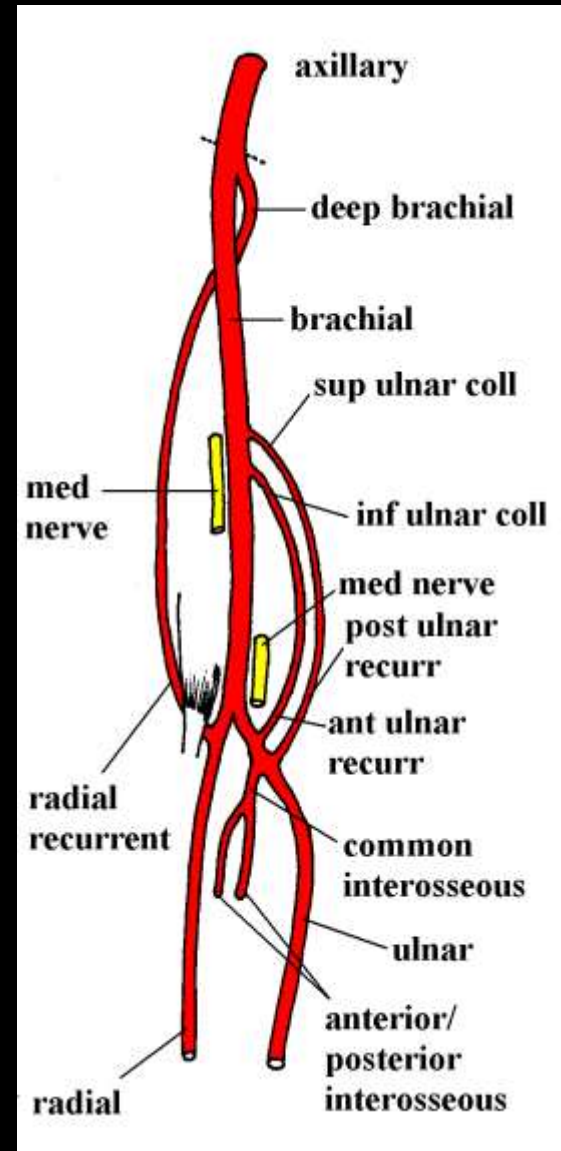
# Branches of Brachial Artery

- Deep brachial (profunda brachii):
  - Branches:
    - Ascending branch to posterior circumflex humeral artery.
    - Descending branch becomes radial collateral.
  - Anastomoses with radial recurrent.



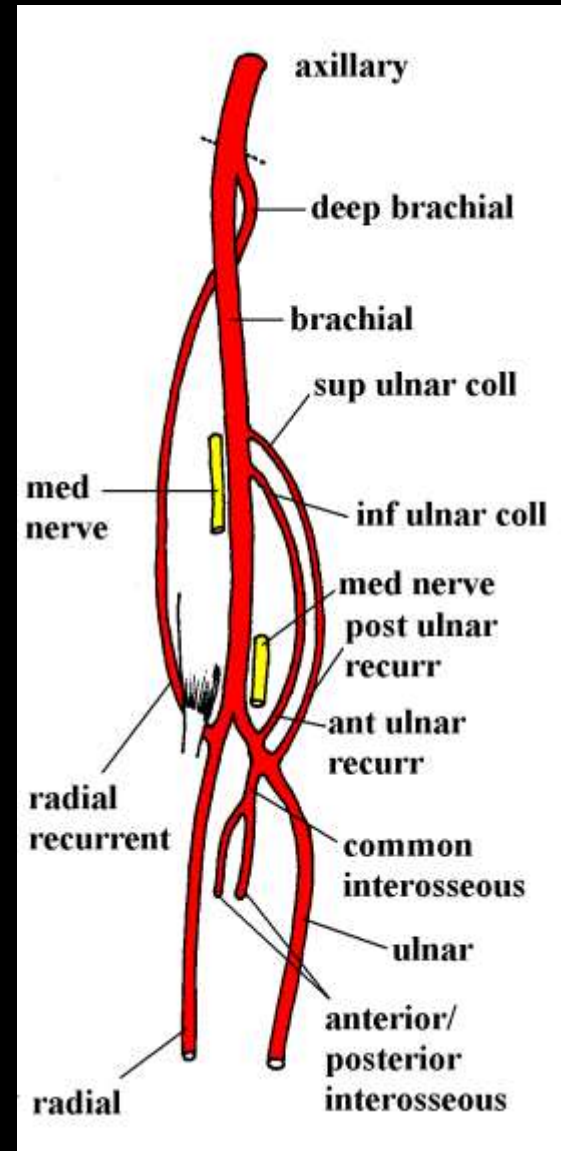
# Branches of Brachial Artery

- Nutrient humeral artery.
- Superior ulnar collateral:
  - Runs with ulnar nerve.
  - Passes posterior to medial epicondyle.
- Anastomoses with posterior ulnar recurrent artery.



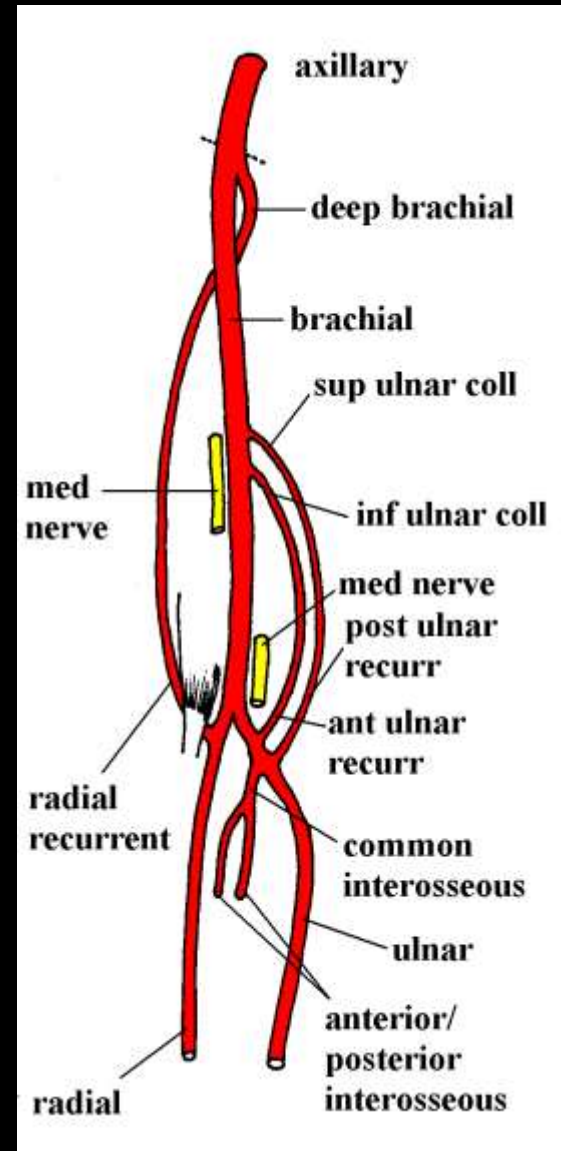
# Branches of Brachial Artery

- Nutrient humeral artery.
- Inferior ulnar collateral:
  - Passes anterior to medial epicondyle.
  - Anastomoses with anterior ulnar recurrent artery.



# Brachial Artery

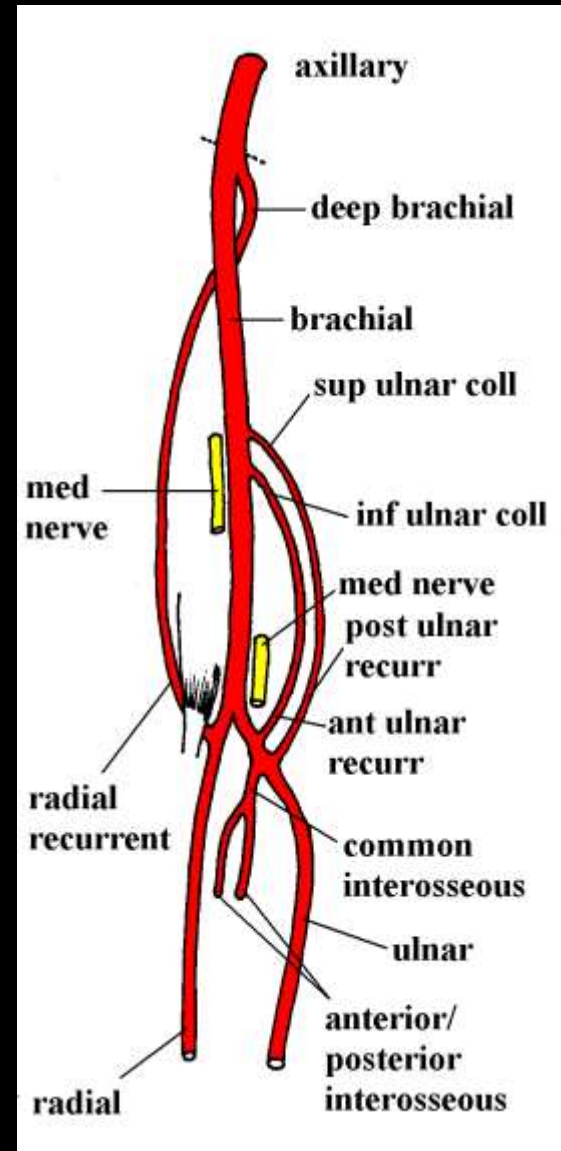
- Runs medial to median nerve in upper part of arm.
- Runs lateral to median nerve in lower part of arm.
- Passes deep to bicipital aponeurosis lateral to median nerve and medial to bicipital tendon.





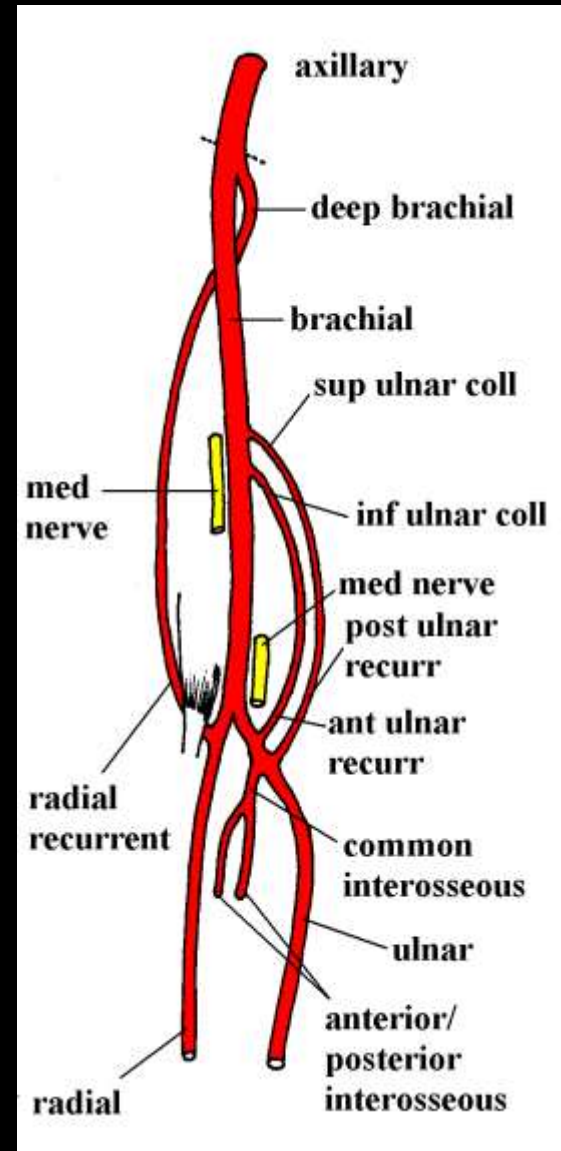
# Brachial Artery

- Branches into radial and ulnar arteries.



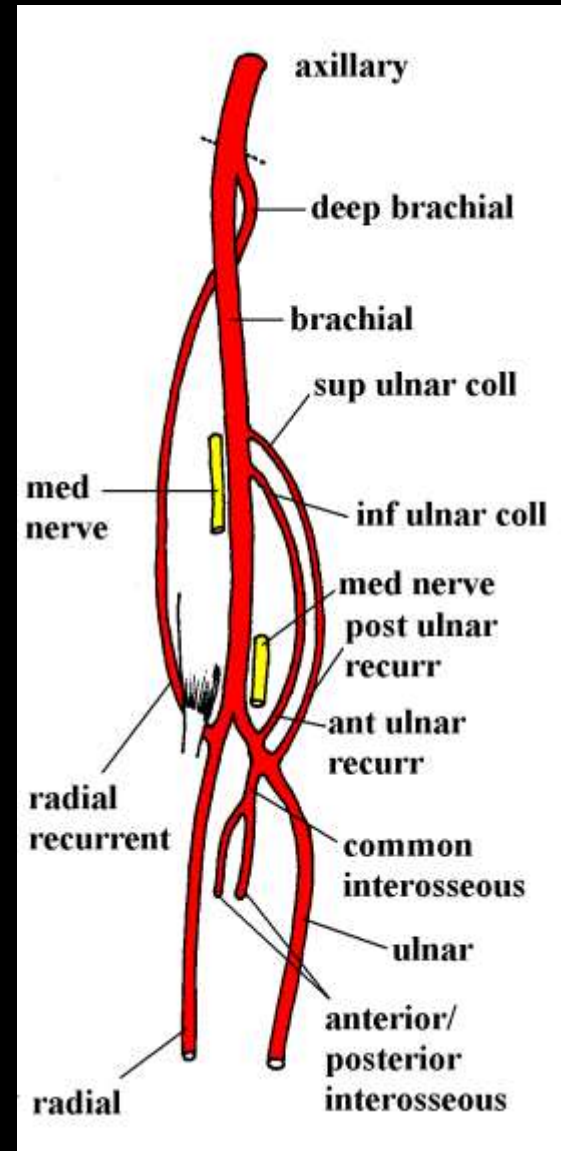
# Radial Artery

- Gives off radial recurrent to radial collateral from deep brachial.
- Enters wrist and hand to form deep palmar arch.



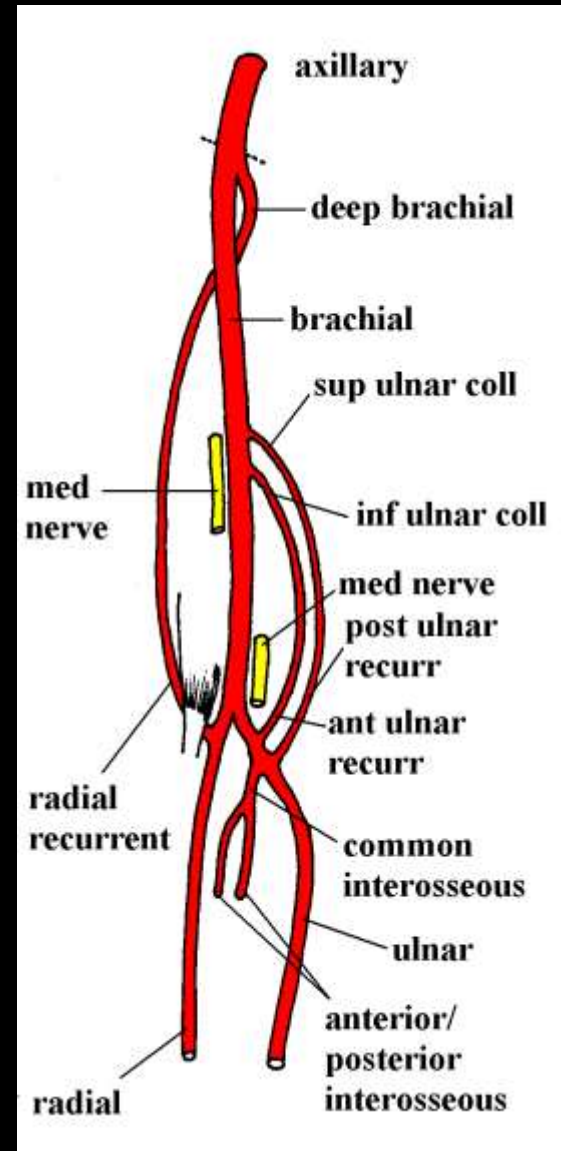
# Ulnar Artery

- Gives off common interosseous artery (trunk) near its origin.
- Runs through antebrachium with ulnar nerve.
- Enters wrist and hand to form superficial palmar arch.



# Ulnar Artery

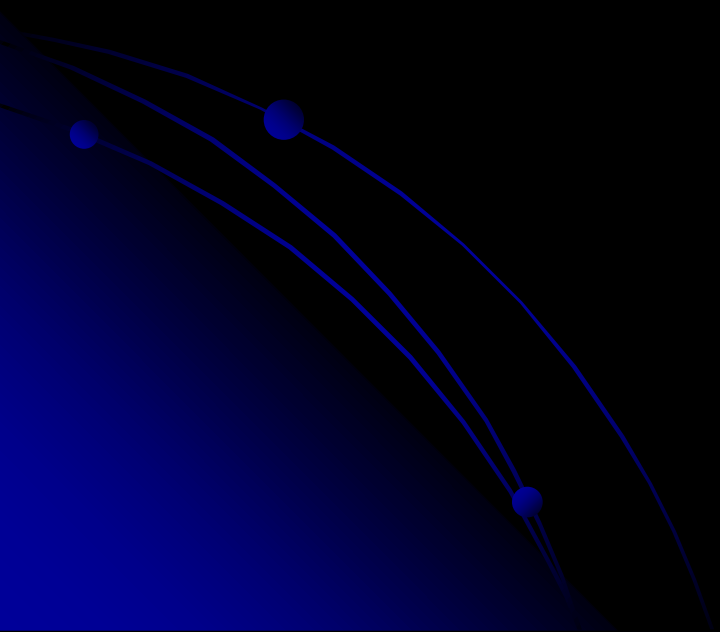
- Common interosseous artery gives off anterior and posterior interosseous arteries:
  - Run on either side of the interosseous membrane in the antebrachium.





# **VASCULAR SUPPLY TO UPPER EXTREMITY**

## **VEINS**



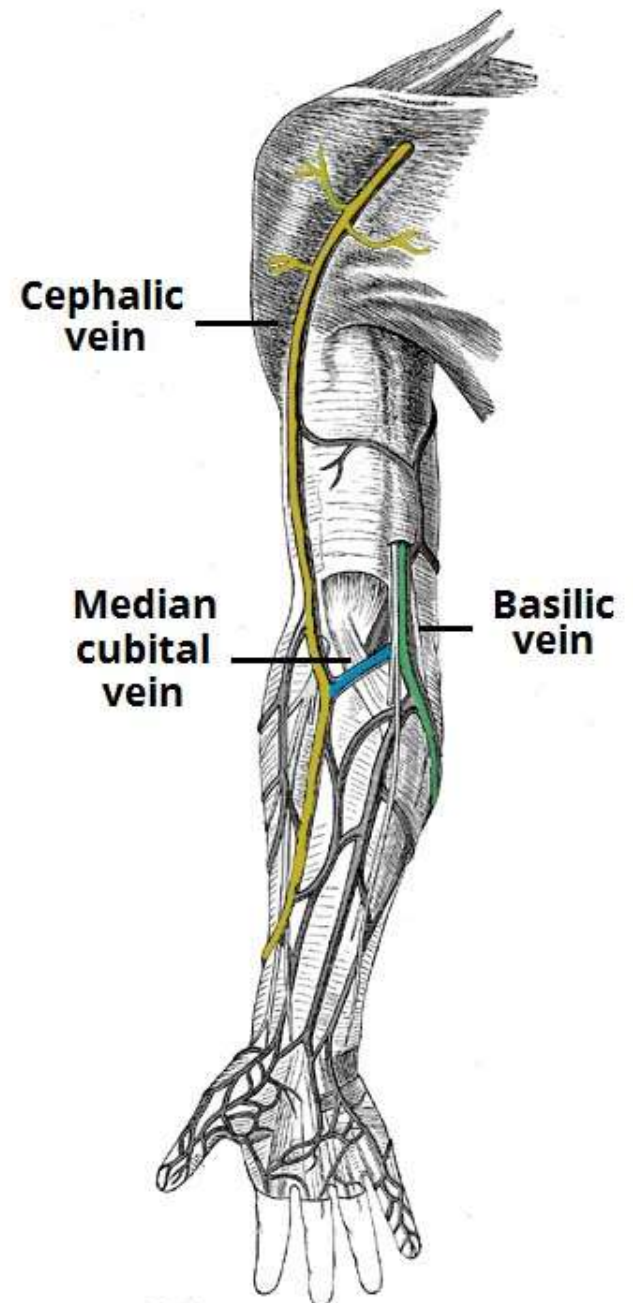
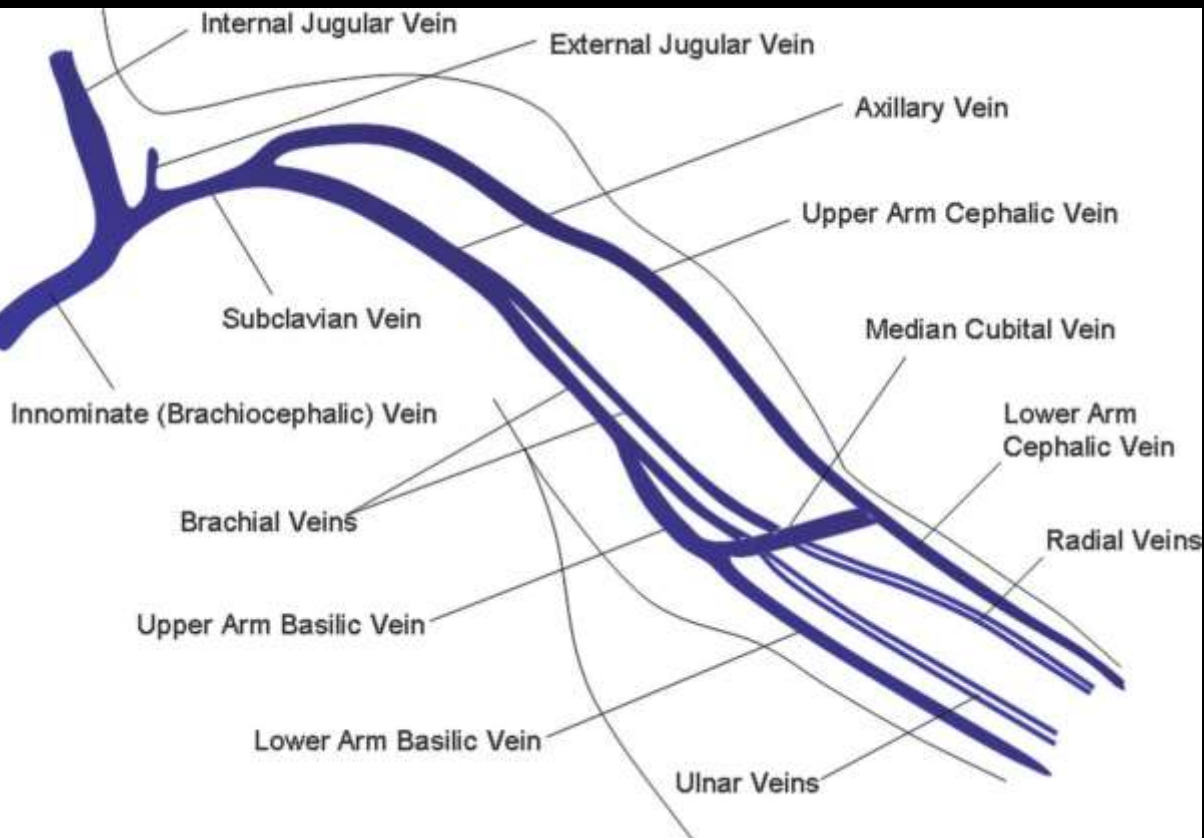
# Venous Drainage of UE

- Trace veins back to heart.
- Venous drainage begins with dorsal venous arch which receives blood from digits.
- Cephalic vein drains lateral side of dorsal venous arch.
- Basilic vein drains medial side of dorsal venous arch.

# Cephalic Vein

- Runs along lateral side of antebrachium in superficial fascia.
- Receives tributaries from median vein near the level of the elbow.
- Runs along lateral side of brachium in superficial fascia.
- Runs through deltopectoral triangle.
- Pierces clavipectoral fascia.
- Dumps into axillary vein.

# CEPHALIC VEIN



teachmeanatomy

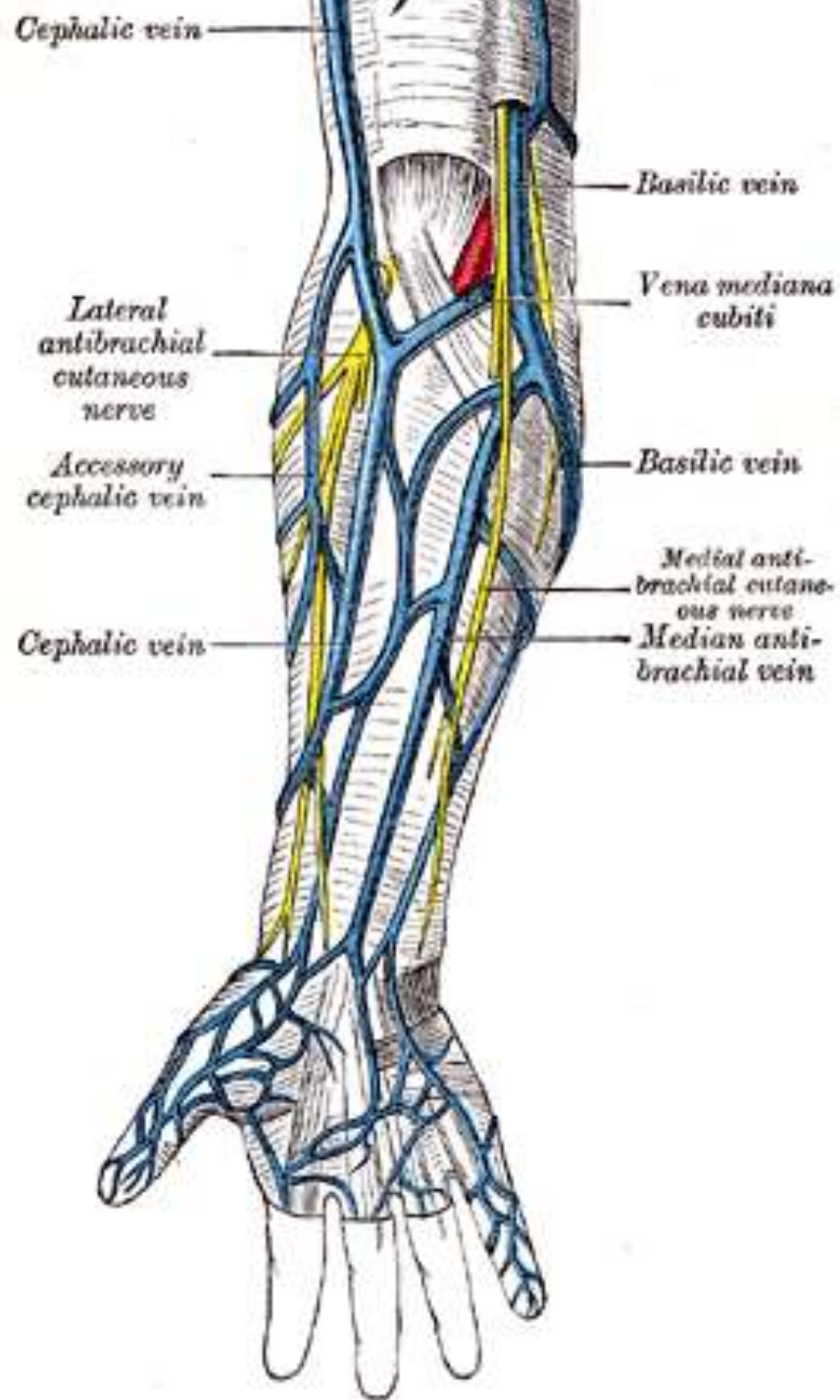
The #1 Applied Human Anatomy Site on the Web!



**V. mediana cubiti**

**V. mediana antebrachii – v. mediana cephalica et basilica**





# Basilic Vein

- Runs along medial side of antebrachium.
- Receives median cubital vein drainage.

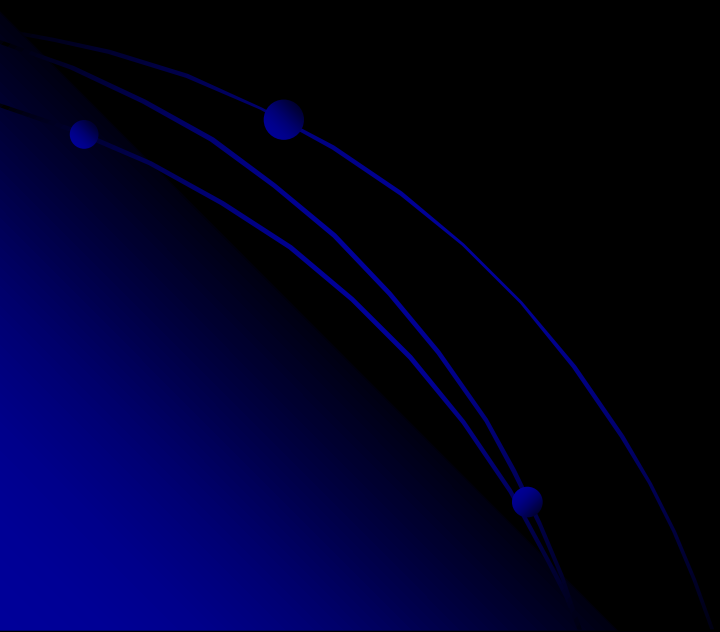
Median cubital vein lies superficial to bicipital aponeurosis:

Useful site for venipuncture.

- Runs in deep fascia along medial side of brachium.
- Joins with venae comitantes to form axillary vein.

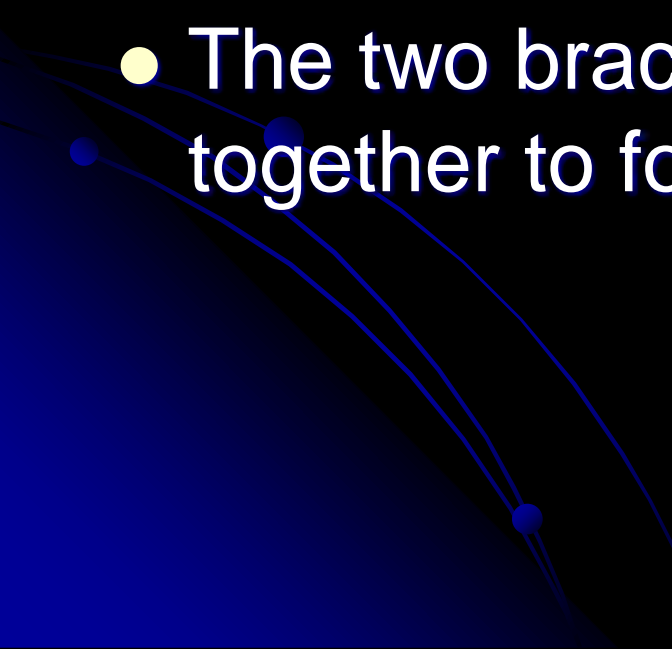
# Axillary Vein

- Formed by union of basilic vein and venae comitantes.
- Renamed subclavian vein after it passes under clavicle.





# Subclavian Vein

- Forms brachiocephalic vein along with jugular veins.
  - Note: there are two brachiocephalic veins but only one brachiocephalic artery.
  - The two brachiocephalic veins come together to form the superior vena cava.
- 

# Lymphatics

- Lymphatic drainage is from palmar surface to dorsal surface of hand.
- Laterally:
  - Lymphatics follow cephalic vein to:
  - Chain of nodes in deltapectoral groove to:
  - Axillary nodes.
- Medially:
  - Lymphatics flow to epitrochlear nodes to:
  - Axillary nodes.

# Lymph Nodes

- Brachial:

Lie medial to humerus near axillary artery and vein.

- Pectoral:

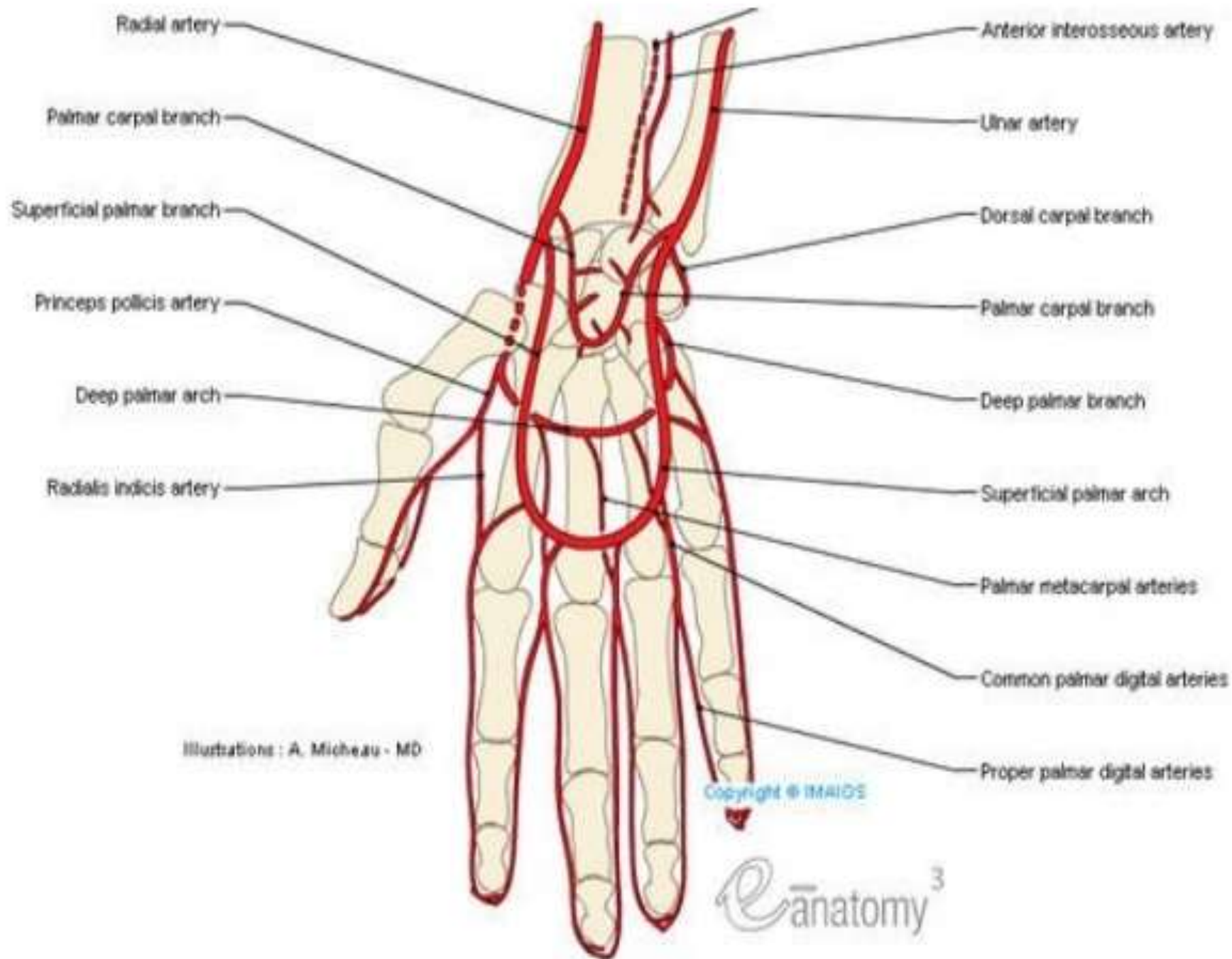
Lie behind pectoralis minor with lateral thoracic artery.

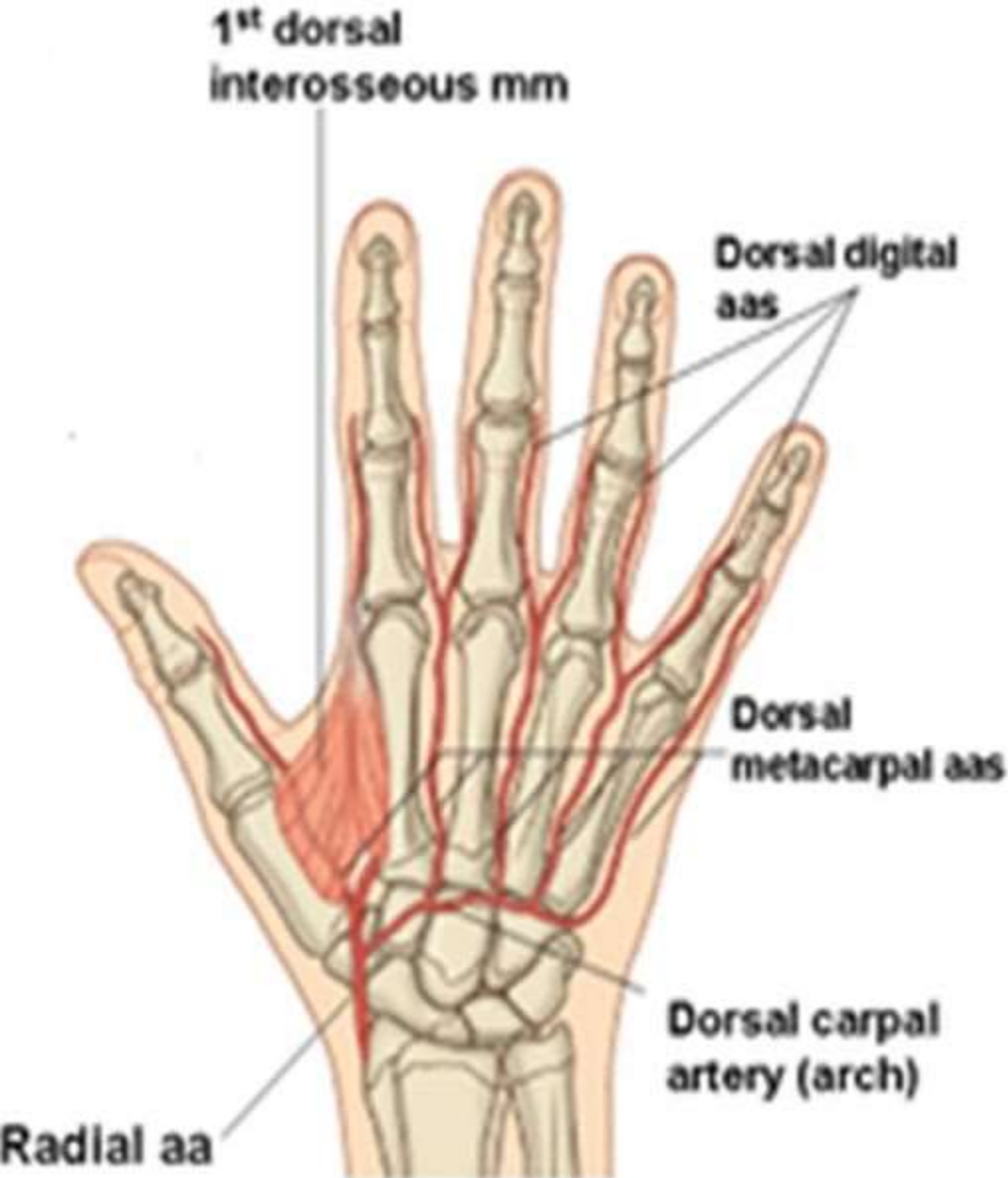
Drain mammary gland.

# Lymph Nodes

- Subscapular:
  - Lie along lower border of scapula with subscapular artery.
  - Drain back.
- Central nodes:
  - In axillary fat.
  - Receive lymph from all the above nodes.
  - Drain to:
- Apical nodes behind clavicle.







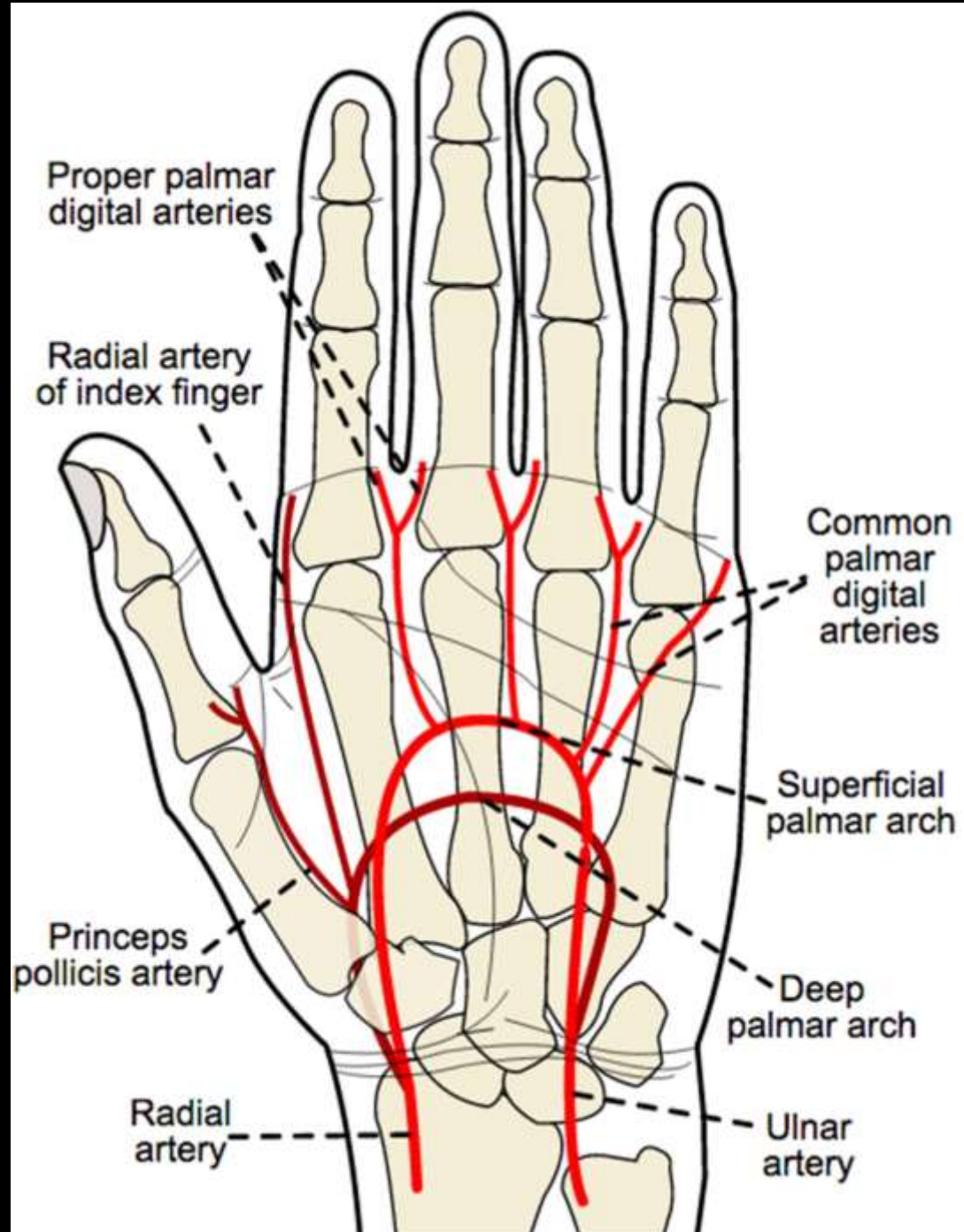
DORSAL VIEW

Before penetrating the back of the hand, the radial artery gives rise to two vessels:

**dorsal carpal branch** passes medially as the **dorsal carpal arch**, across the wrist

**dorsal metacarpal arteries**  
**dorsal digital arteries**

**first dorsal metacarpal artery** supplies adjacent sides of the index finger and thumb.





# ARTERIES

## B. Ulnar Artery

Enters the palm on the lateral side of the ulnar nerve superficial to the flexor retinaculum

- passes lateral to the pisiform bone

1. deep palmar branch → deep palmar arterial arch, passes deep through the hypothenar muscles and anastomoses with the radial artery

2. superficial palmar arterial arch

- formed mainly by the ulnar artery

- located distal to the deep palmar arch

- gives rise to the *three common digital arteries* that anastomoses with the palmar metacarpal arteries from the deep palmar arch

→ each common digital artery divides into a pair of ***proper palmar digital arteries*** which run along the sides of the 2<sup>nd</sup> to 4<sup>th</sup> digits

# VEINS

**Veins generally follow the deep arterial system as venae comitantes.**

**A superficial venous system also exists at the dorsum of the hand and contributes to the cephalic and basilic veins in the upper extremity.**

