



جامعة البلقاء التطبيقية

Vessels of the upper limb

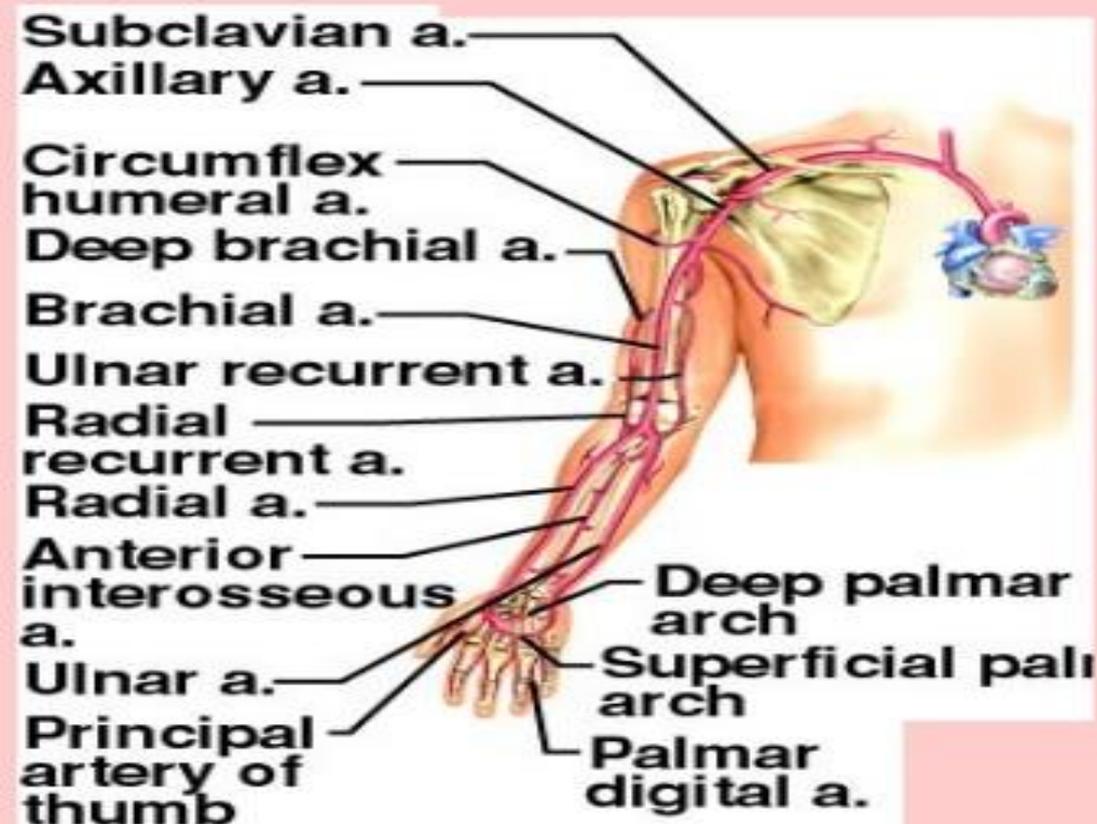
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The arterial supply to the upper limb begins in the chest as the **subclavian artery**. The right subclavian artery arises from the **brachiocephalic trunk**, while the left subclavian branches directly off the **arch of aorta**.

When the subclavian arteries cross the lateral edge of the 1st rib, they enter the axilla, and are called **axillary arteries**



- Subclavian passes between clavicle & 1st rib
- Vessel changes names as passes to different regions
 - subclavian to axillary to brachial to radial & ulnar
 - brachial used and radial artery for pulse

Subclavian artery passes in front of scalenus medius and scalenus posterior muscles, and passes behind the scalenus anterior muscle.

It is divided in to three parts in relation to the **scalenus anterior muscle**. The **first part** extends from the origin up to the muscle. The **second part** is behind the muscle. Lastly, the **third part** is lateral to the muscle.

Each **subclavian artery** extends about **two centimetres above the clavicle**, which is located above the pleura's apex.

Part	Branches	Course
<p>First part From its origin to the medial border of <u>scalenus anterior</u></p>	<p><u>Vertebral artery</u></p>	<p>Runs cranially in the <u>transverse foramina</u> of the <u>cervical vertebrae</u>, joins the vertebral artery on the contralateral side, forming the <u>basilar artery</u> and joins the <u>circle of Willis</u>.</p>
	<p><u>Internal thoracic artery</u></p>	<p>Runs caudally behind the ribs, giving off <u>anterior intercostal branches</u>, perforating vessels to the <u>breast</u> and terminating in the <u>superior epigastric artery</u> and the <u>musculophrenic artery</u></p>
	<p><u>Thyrocervical trunk</u></p>	<p>Very short. Divides into <u>inferior thyroid artery</u>, <u>suprascapular artery</u> and <u>transverse cervical artery</u></p>

<p>Second part Lying behind scalenus anterior</p>	<p><u>Costocervical trunk</u></p>	<p>Splits into <u>superior intercostal artery</u> and <u>deep cervical artery</u>.</p>
<p>Third part is between the lateral border of scalenus anterior and the outer border of the <u>first rib</u></p>	<p><u>Dorsal scapular artery</u></p>	<p>From either second or third part. Passes backwards to supply <u>levator scapulae</u> and rhomboids.</p>

Transverse cervical art

Common carotid artery (cut)

Second part of subclavian artery:
Costocervical trunk

Anterior scalene muscle

Third part of subclavian artery:
Dorsal scapular artery

Inferior thyroid art

First part of subclavian artery:
Vertebral artery
Thyrocervical trunk
Internal thoracic artery

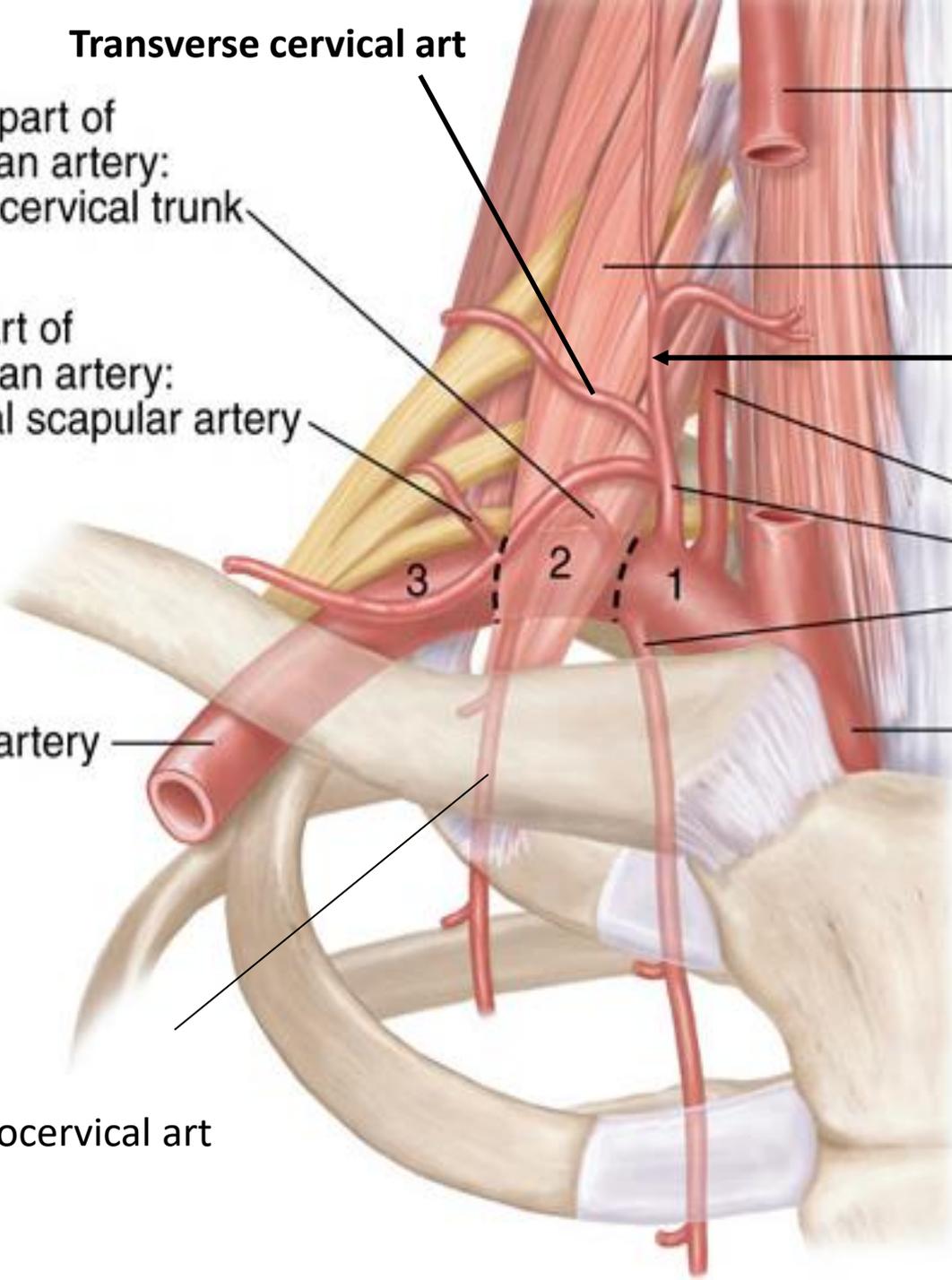
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Brachiocephalic trunk

Axillary artery

Costocervical art

Subclavian artery



axillary artery

Axillary artery originate at the lateral margin of the first rib, then **after passing the lower margin of teres major** it becomes **the brachial artery**.

The Axillary artery passes deep to **pectoralis minor muscle** and divided into three parts; the **first part** is proximal to the muscle, the **second part** is behind the muscle, the **third part** is distal to the muscle

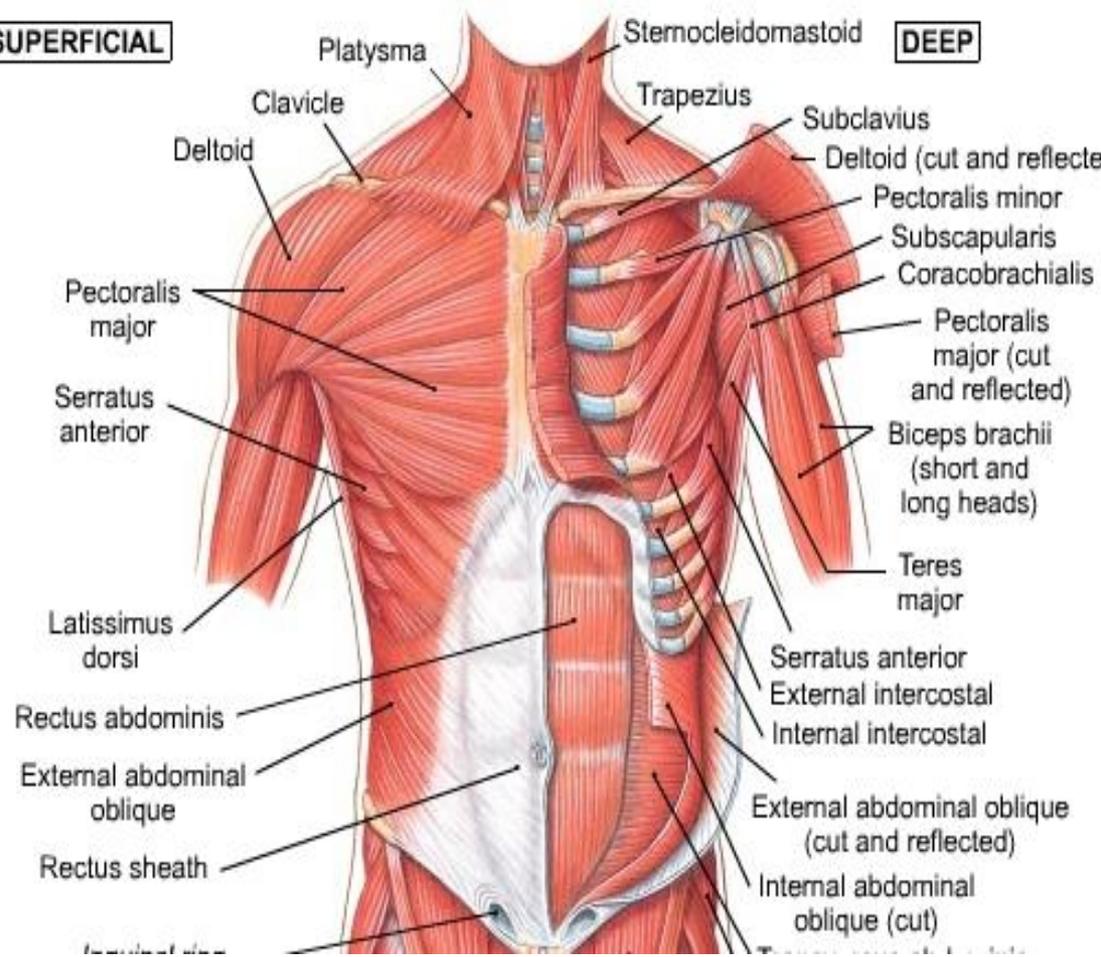
The **axillary artery** is accompanied by the **axillary vein**, which lies medial to the artery, along its length and passes superficial to the pectoralis minor muscle

In the axilla, the axillary artery is **surrounded by the brachial plexus**.

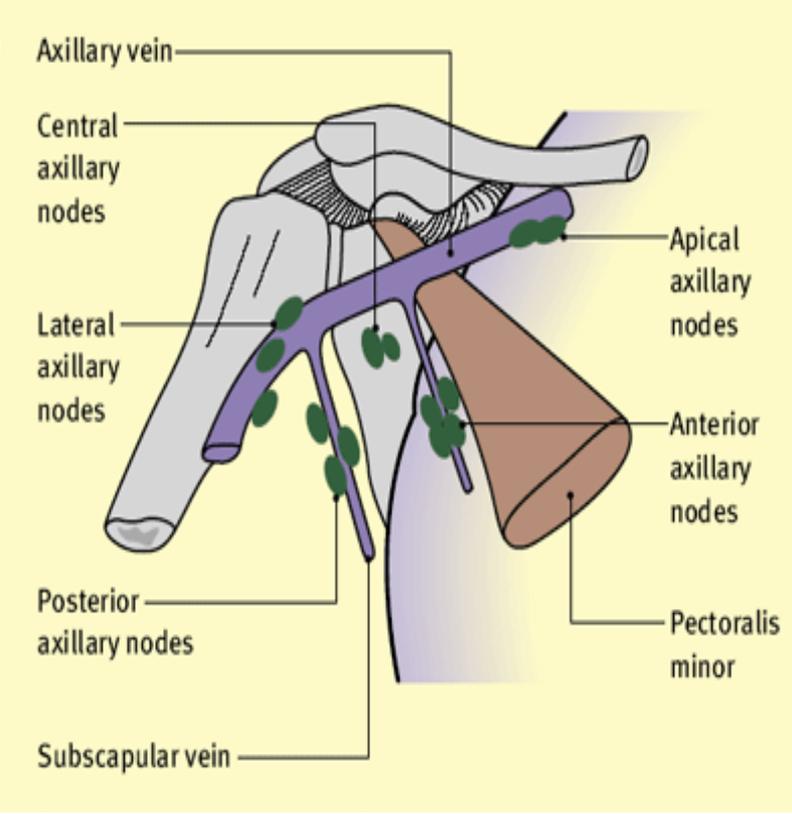
The second part of the axillary artery is the reference for the locational descriptions of the cords in the brachial plexus.

SUPERFICIAL

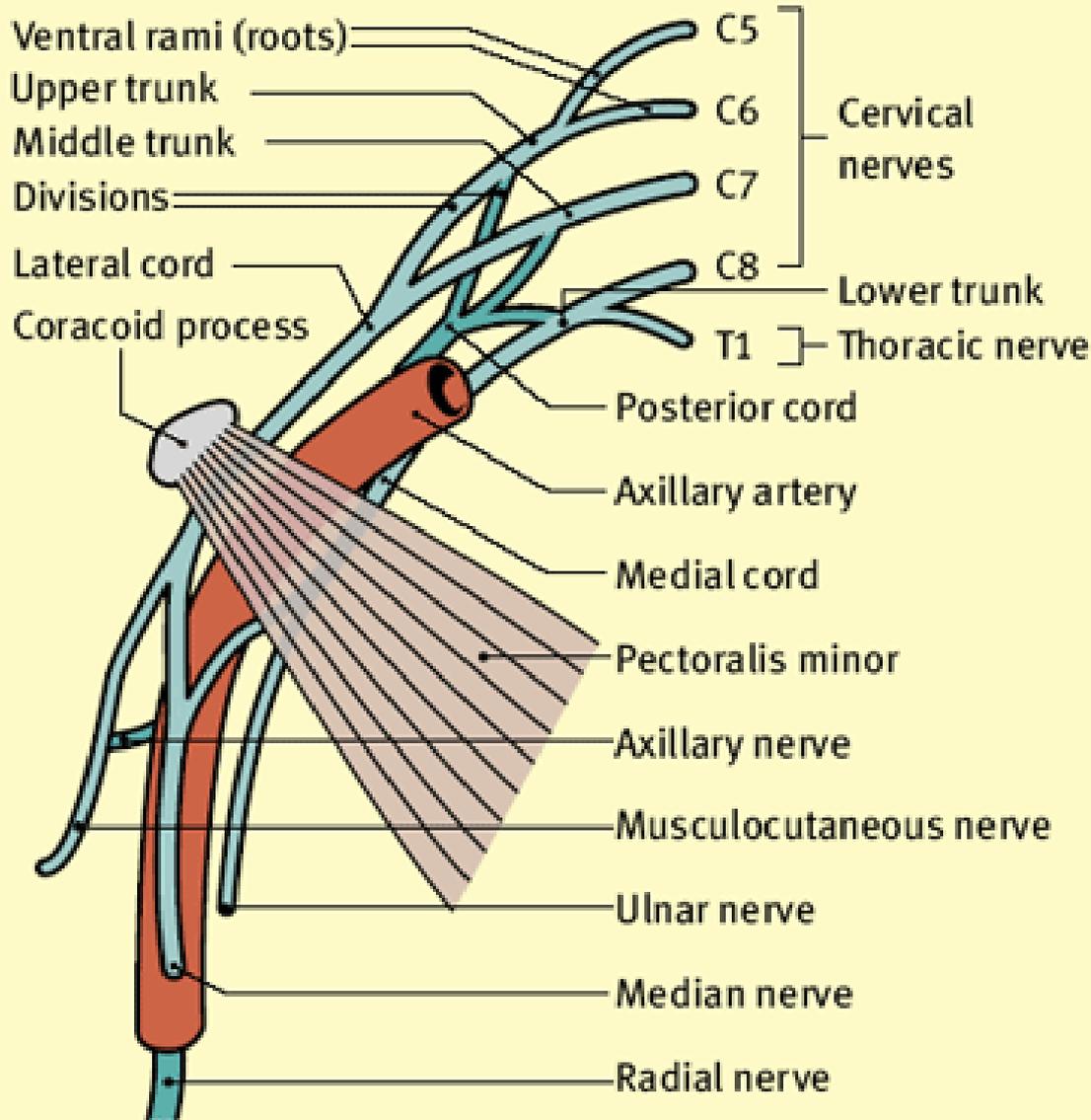
DEEP



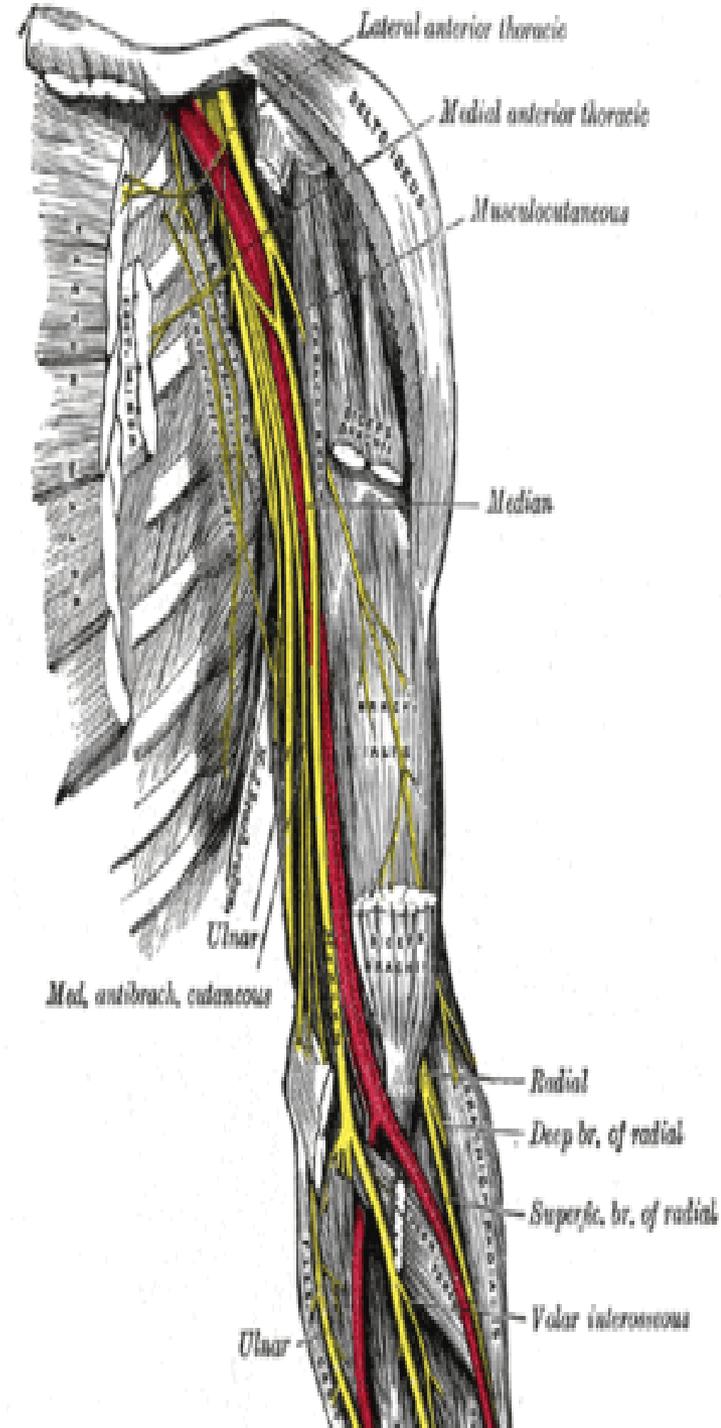
Lymph nodes of the axilla



Relationship of the brachial plexus to the axillary artery



Posterior divisions and their branches dark green



Branches of axillary artery

First part (one branch)

1- Superior thoracic artery

Second part (2 branches)

1- Thoraco-acromial artery

2- Lateral thoracic artery.

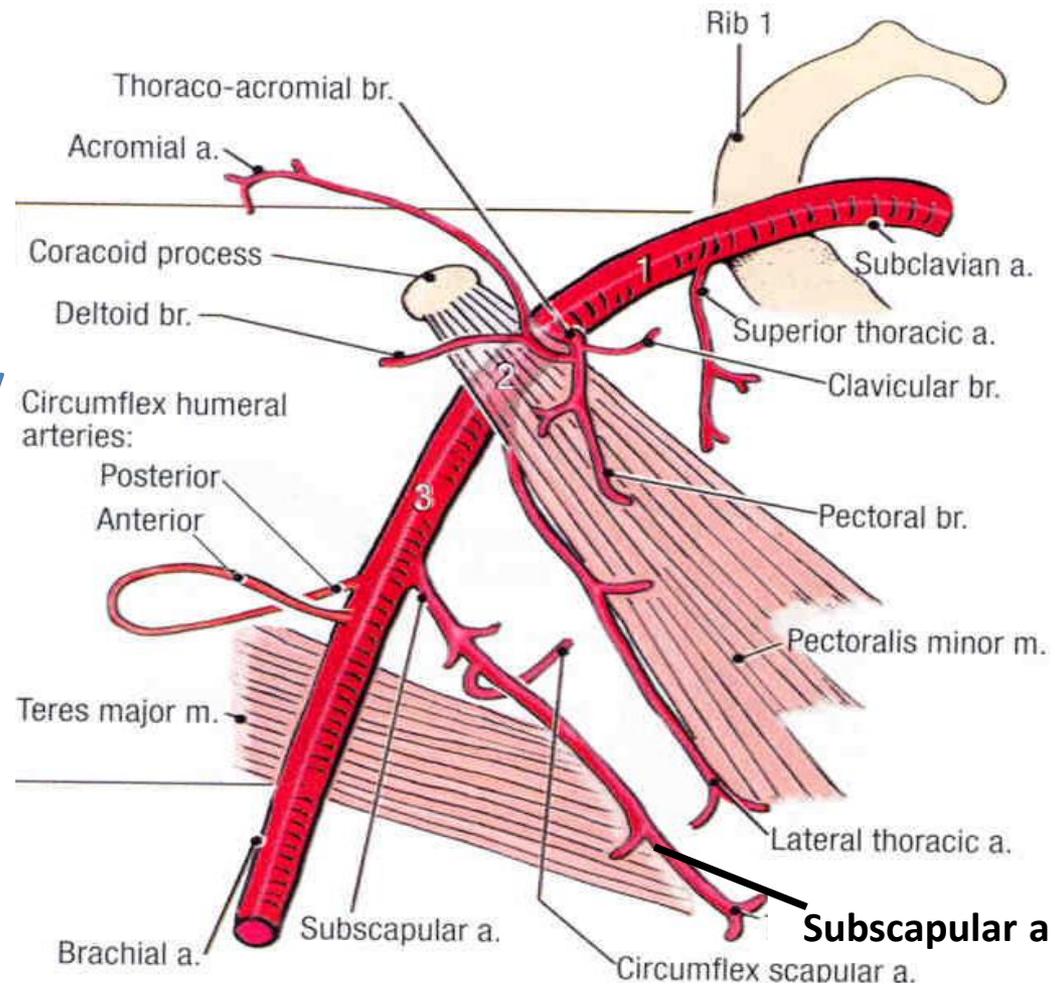
Third part (3 branches)

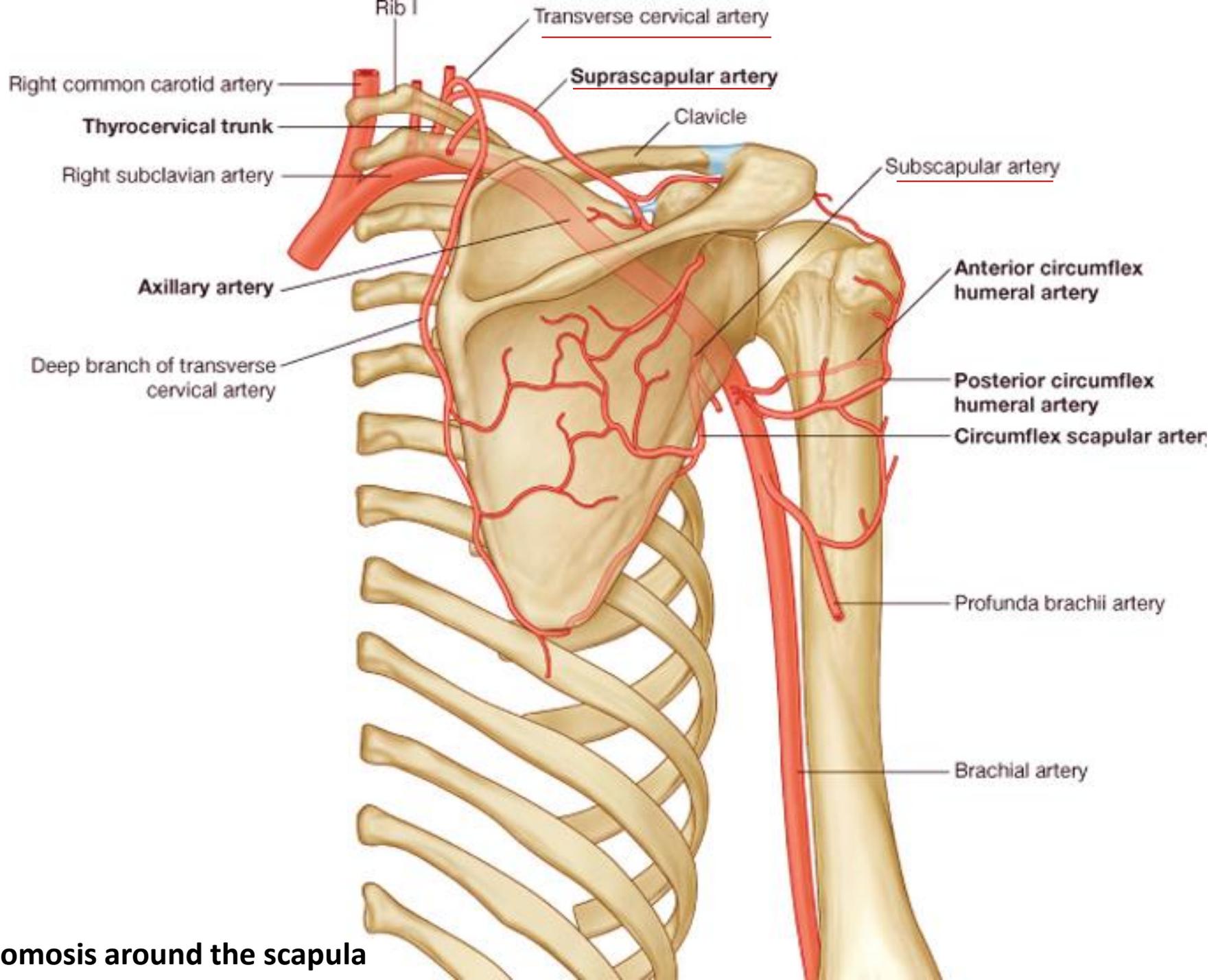
Subscapular artery

Anterior humeral circumflex artery

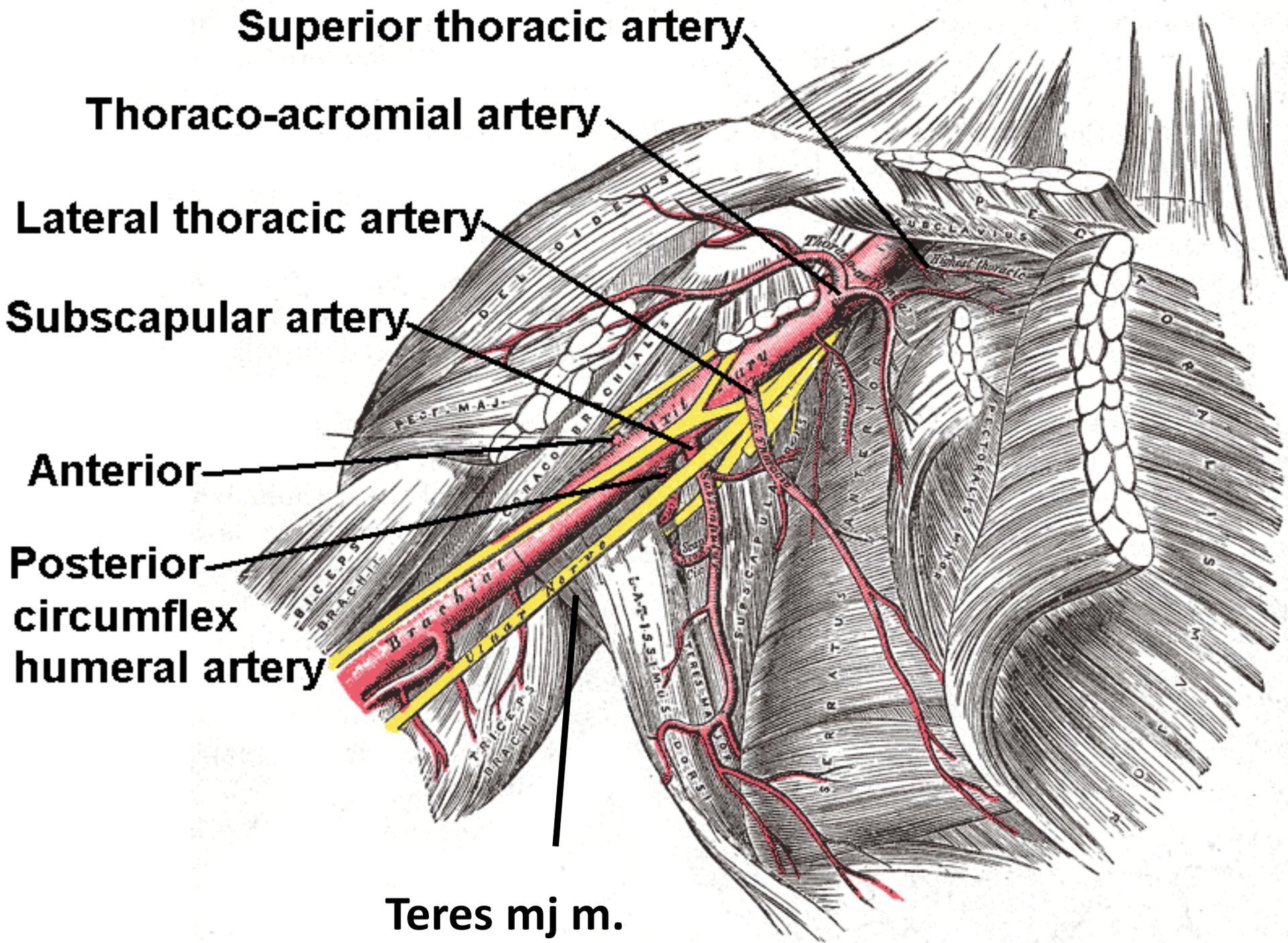
Posterior humeral circumflex artery

Continues as the **brachial artery** past the inferior border of the **teres major muscle**.





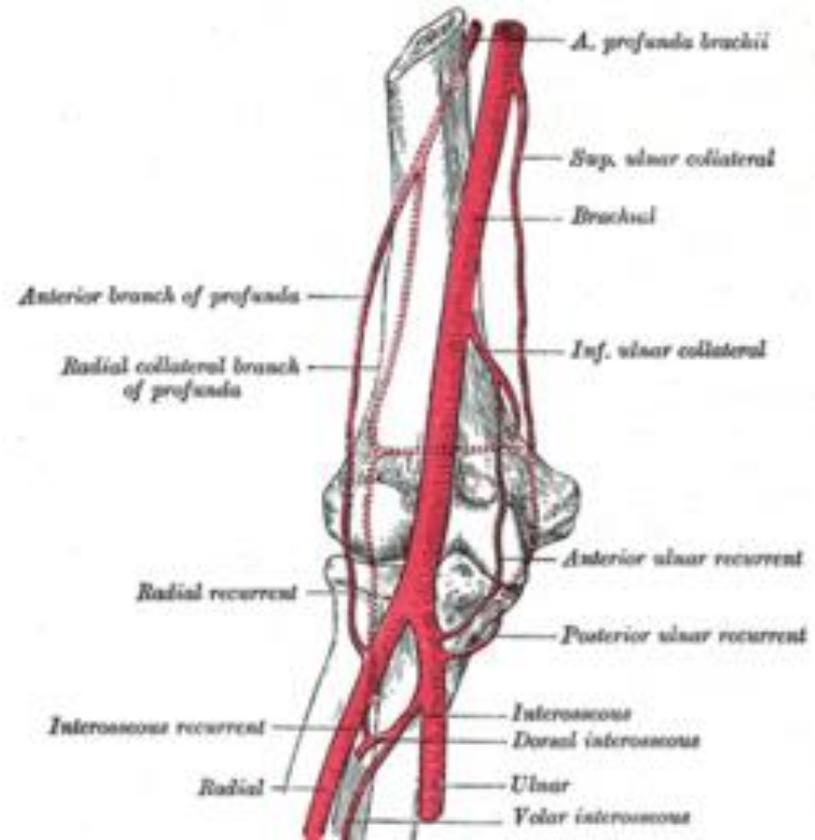
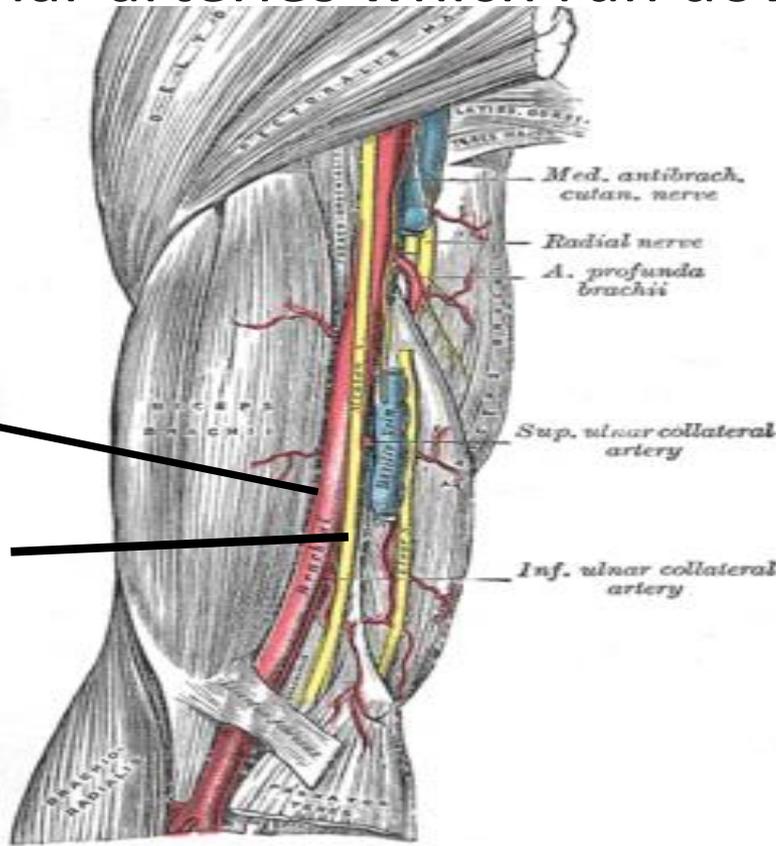
Anastomosis around the scapula



Brachial artery

is the major **blood vessel** of the (upper) arm.

It is the continuation of the **axillary artery** beyond the lower margin of **teres major muscle**. It continues down the **ventral** surface of the arm with the median nerve until it reaches the **cubital fossa** at the **elbow**. It then divides into the radial and ulnar arteries which run down the **forearm**



The biceps head is lateral to the brachial artery. The median nerve is medial to the brachial artery for most of its course.

Branches of the brachial artery

1- Profunda brachii artery (pass in the radial groove)

2- Superior ulnar collateral artery

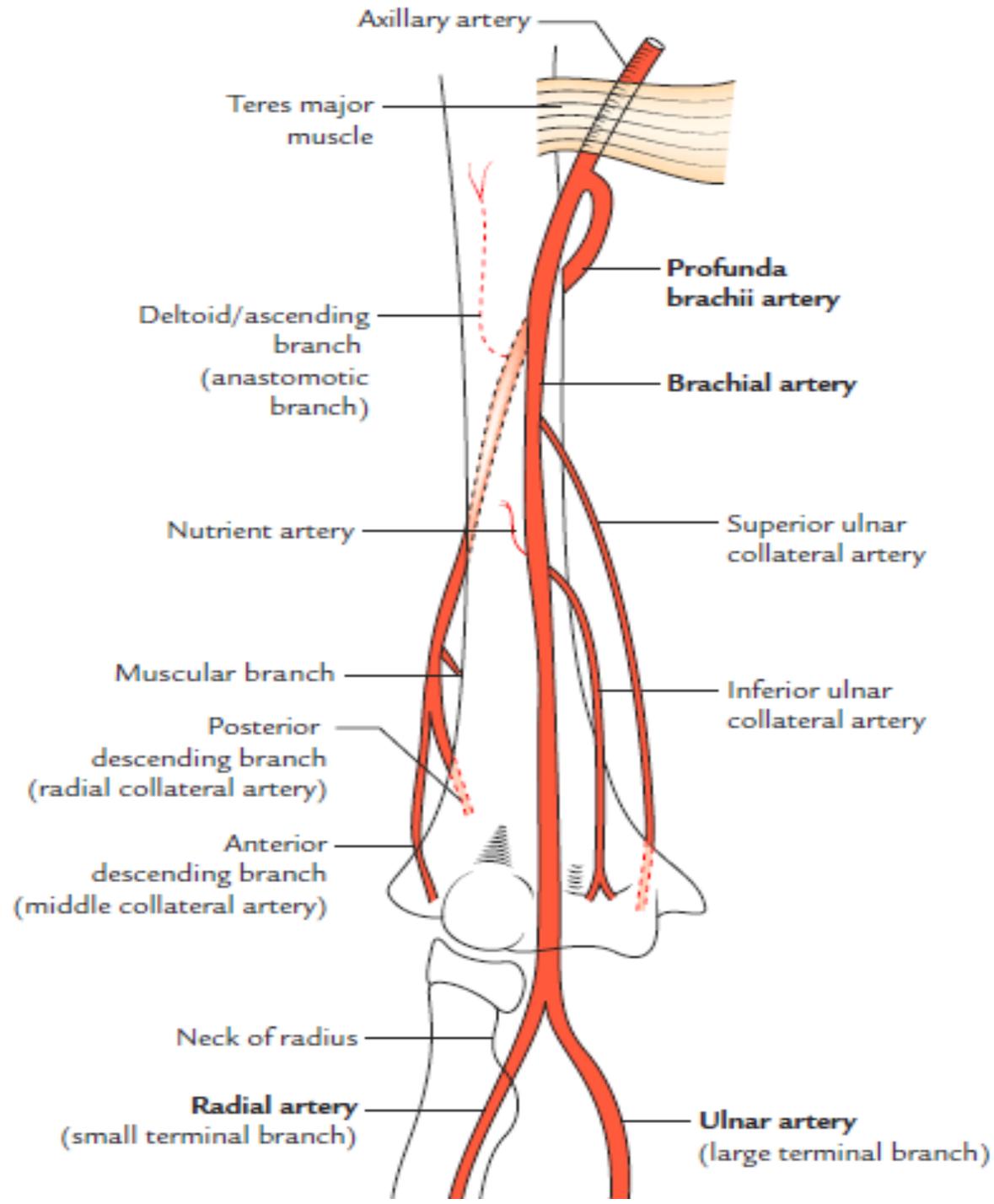
3- Inferior ulnar collateral artery

4- Radial artery (a terminal branch)

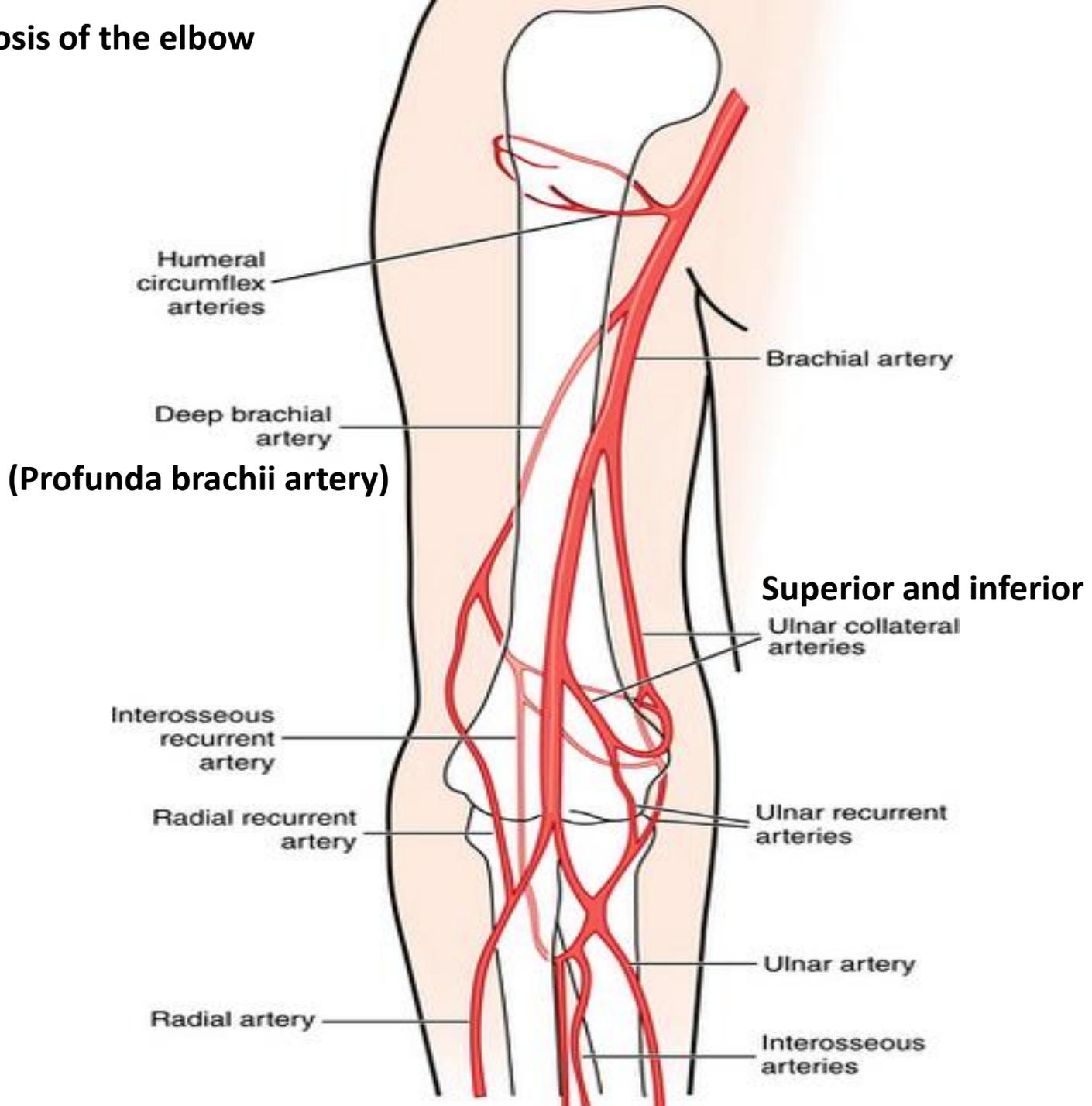
5- Ulnar artery (a terminal branch)

6- Nutrient branches to the humerus

as well as important anastomotic networks of the elbow

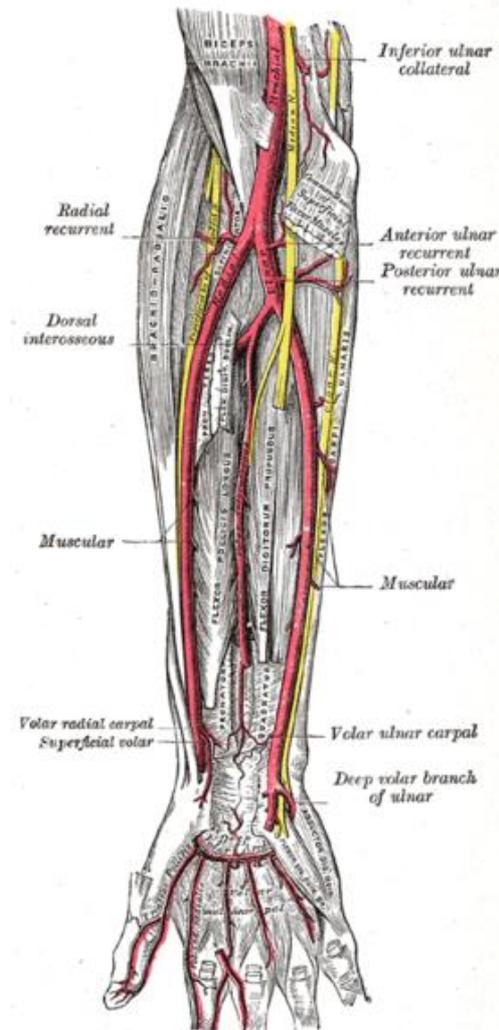


Arterial anastomosis of the elbow



Radial artery

Radial artery lies to the lateral side along the radius bone. It is the smaller of the two terminal branches of the brachial artery. It arises from the brachial artery in the elbow region at the level of the head of the radius bone. It lies on the lateral side on the forearm and ends by taking part in the formation of the deep palmar arch of hand. It runs inferolaterally under cover of brachioradialis muscle. Then it lies lateral to flexor carpi radialis tendon in distal forearm and finally it winds around lateral aspect of radius and crosses the floor of anatomical snuff box to pass between the two heads of first dorsal interosseous muscle.

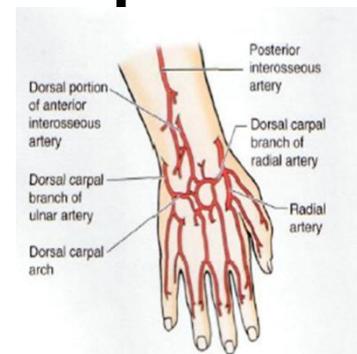


Before penetrating the back of the hand, the radial artery gives **Dorsal carpal branch** which form **the dorsal carpal arch**.

The radial artery gains the palm by passing between the oblique and transverse heads of adductor pollicis muscle, and runs across the palm and forms the **deep palmar arch of the hand** (about 1 cm proximal to the superficial arch).

The deep palmar arch is an arterial arcade formed by the terminal branch of the radial artery anastomosing with the deep branch of the ulnar artery.

From convexity of **the deep palmar arch**, **three palmar meta-carpal arteries pass distally** and anastomose with the **palmar digital branches of the superficial palmar arch**.



Ulnar artery

The ulnar artery, the larger of the two terminal branches of the brachial artery, begins a little below the bend of the elbow in the **cubital fossa**, and, passing obliquely downward, **reaches the ulnar side of the forearm** at a point about **midway between the elbow and the wrist**. It then runs along the ulnar border to the wrist, crosses the transverse carpal ligament on the radial side of the pisiform bone, and immediately beyond this bone divides into two branches, which enter into the formation of the superficial and deep palmar arches

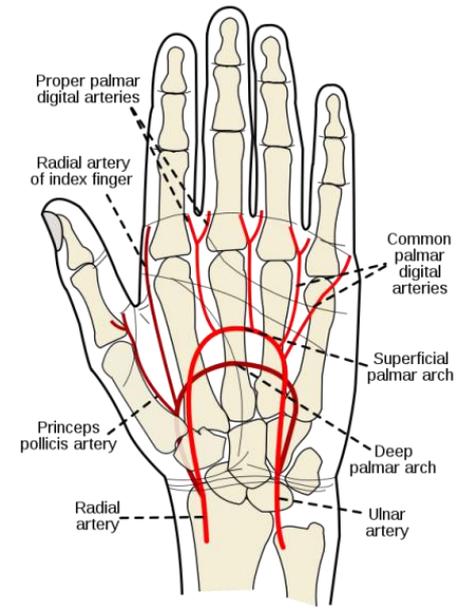
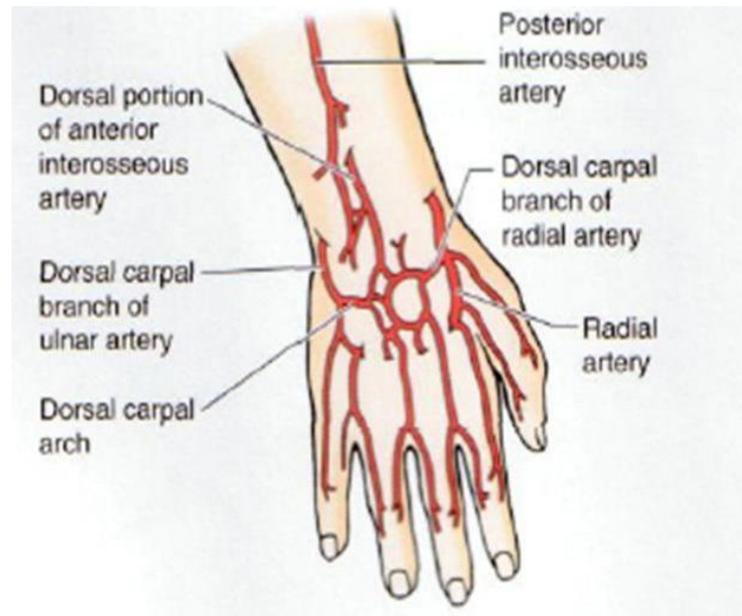
Branches

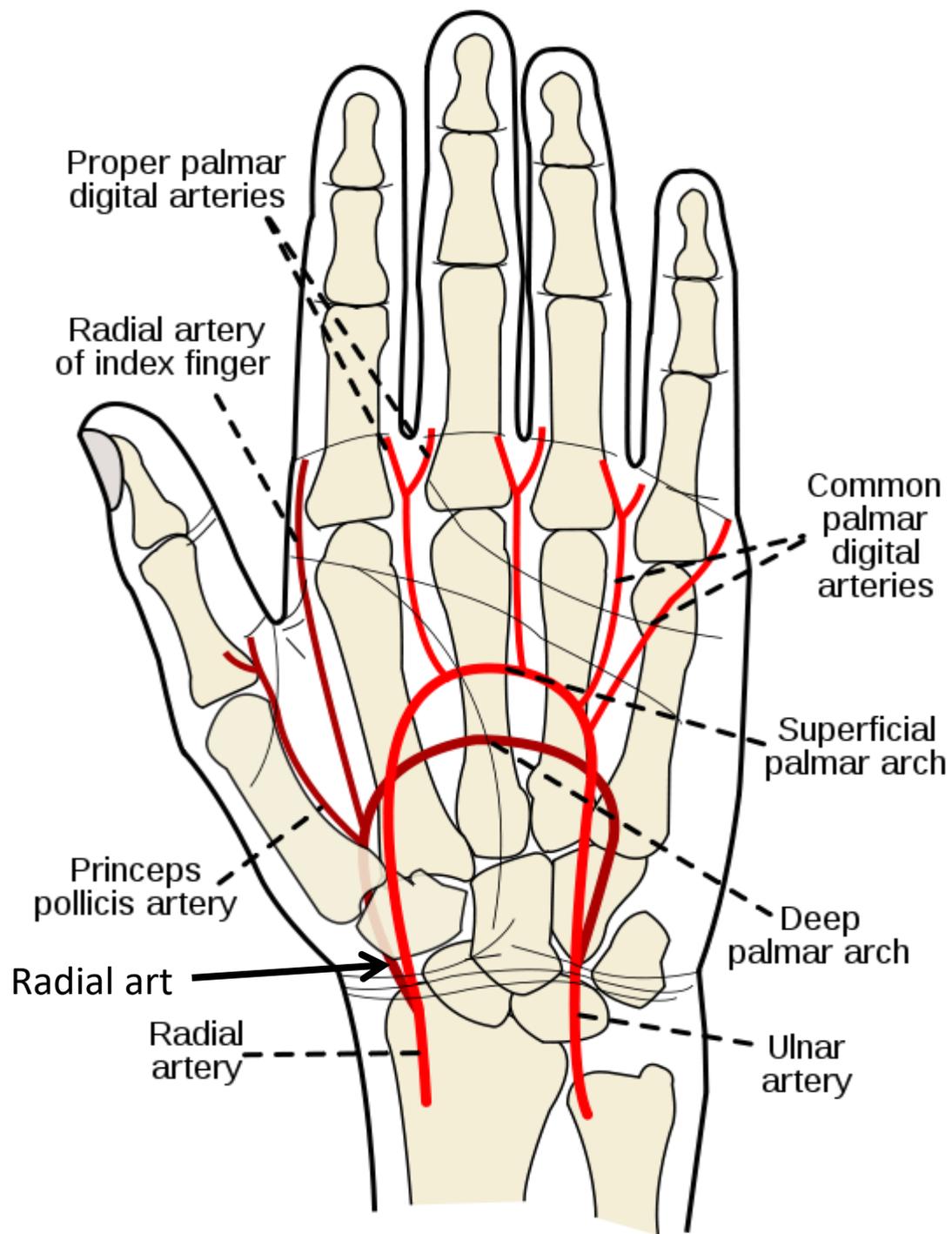
Forearm: **1- Anterior ulnar recurrent artery, 2- Posterior ulnar recurrent artery, 3- Common interosseous** (is very short around 1 cm and gives rise to the **anterior, posterior, and recurrent interosseous arteries**)

Close to the wrist it gives off the **4- dorsal carpal branch** which is the ulnar contribution to dorsal carpal arch

5-Deep palmar branch of ulnar artery which passes through the hypothenar muscles to anastomose with the deep palmar arch which is formed predominantly by the radial artery

6-The terminal branch of the ulnar artery is then to form the superficial palmar arch, which gives rise to four palmar digital arteries

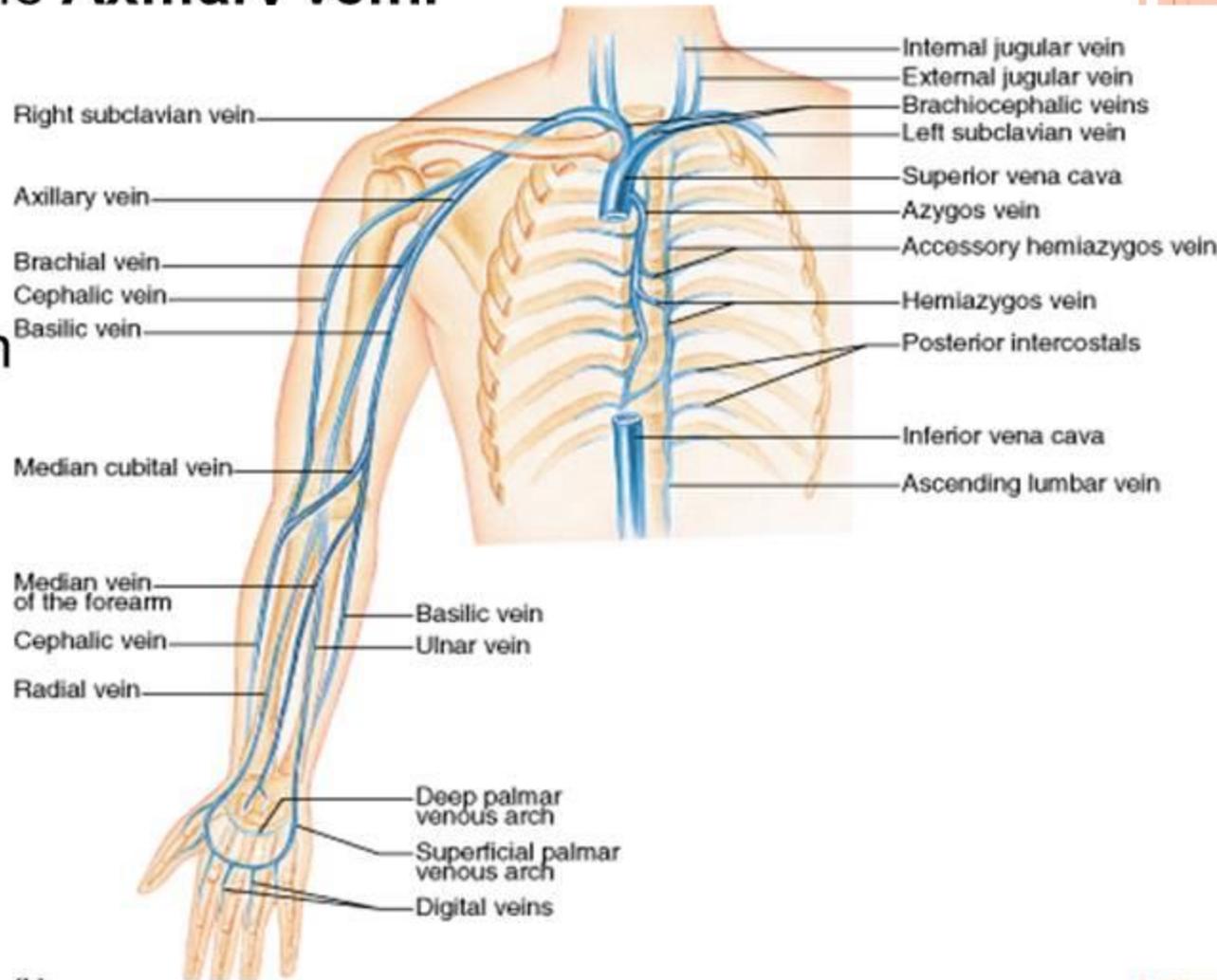
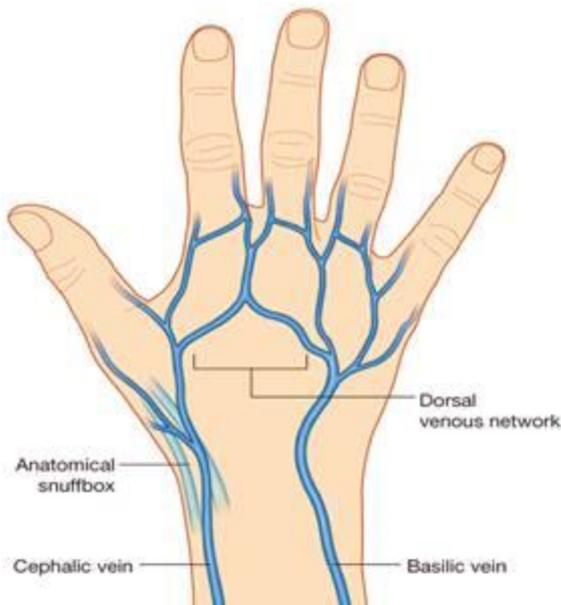




Veins of the Upper Limb

SUPERFICIAL VEINS OF THE UPPER LIMB

- *Dorsal venous arch of the hand
- *Cephalic vein, joins the **Axillary vein**.
- *Basilic vein joins the **Brachial vein**
- *Median vein of the forearm, joins the Basilic or cephalic vein
- At elbow joint



Deep Venous supply of the upper limb seen on anterior surface

*Deep and superficial palmar venous arches

*Radial vein on radial side

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*ulnar vein on ulnar side

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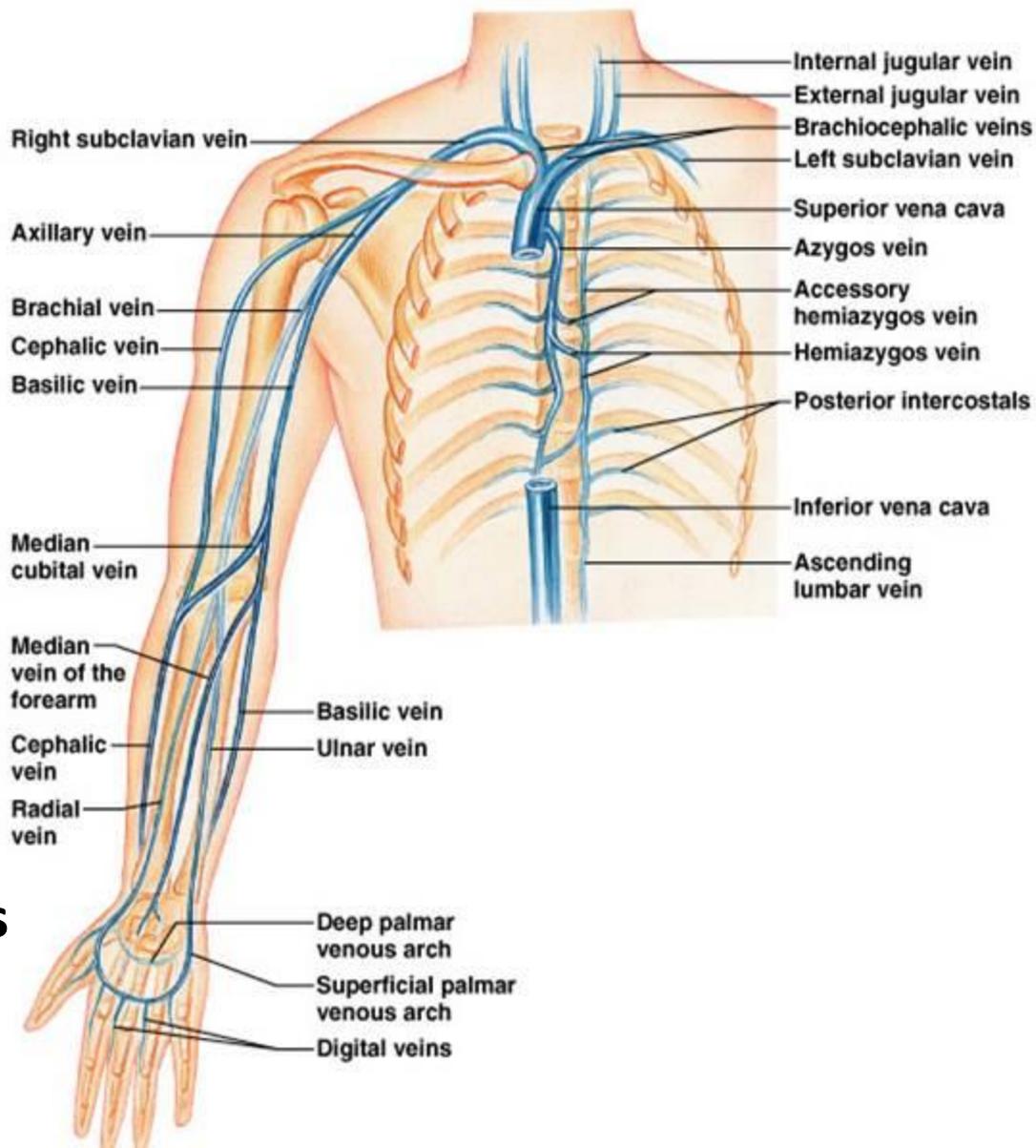
*brachial vein



*Axillary vein



*Subclavian vein



In the cubital fossa there is a vein called the Median cubital Vein; it is Connect the cephalic and basilic veins and used for intravenous Injection of drugs and fluids



Thank You