



Vessels Of Upper Limb

Department of human Anatomy and Embryology
Faculty of Medicine
Mansoura National University, Egypt

by
dr/ Fekry Shata



Intended Learning Outcomes (ILOs)

1. **Describe** arteries of the Upper Limb (Axillary, Brachial, Radial & Ulnar arteries)..
2. **Describe** veins of the Upper Limb (Dorsal venous network, Cephalic vein, Basilic vein, Median Cubital vein, Median vein of the forearm, Axillary vein).

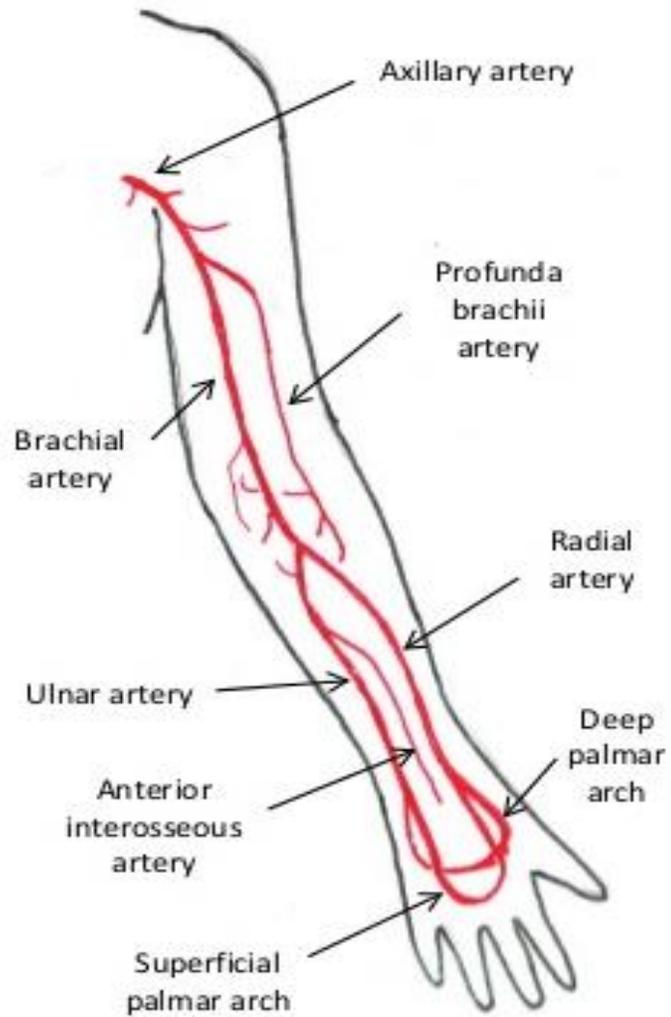


Agenda

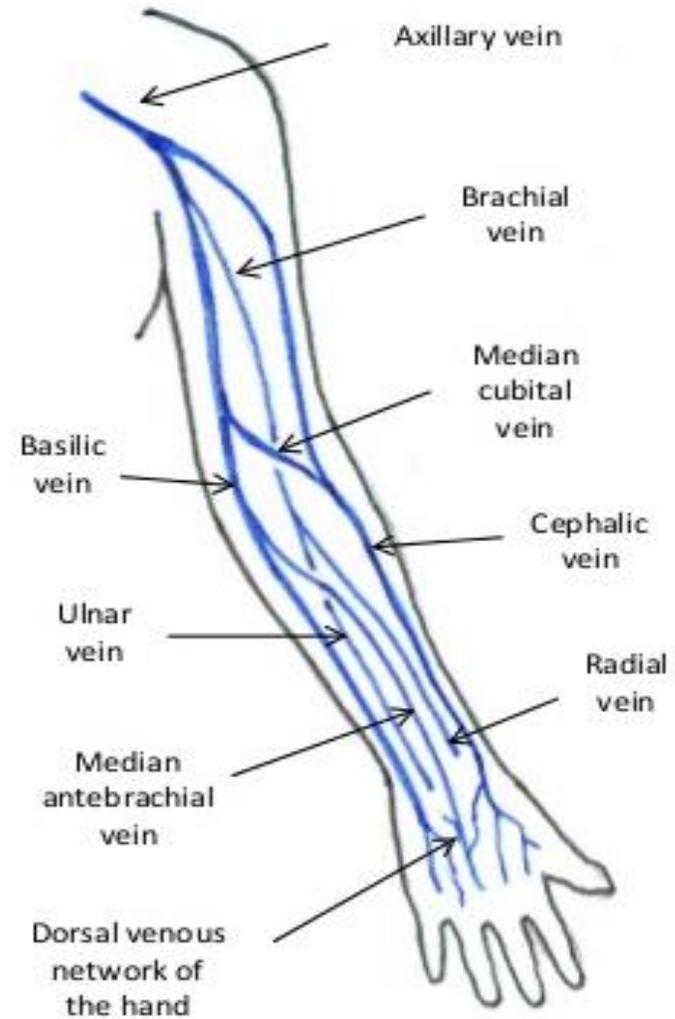
1. Arteries of the Upper Limb (Axillary, Brachial, Radial & Ulnar arteries).
2. Veins of the Upper Limb (Dorsal venous network, Cephalic vein, Basilic vein, Median Cubital vein, Median vein of the forearm, Axillary vein).



Arteries of the Upper Limb



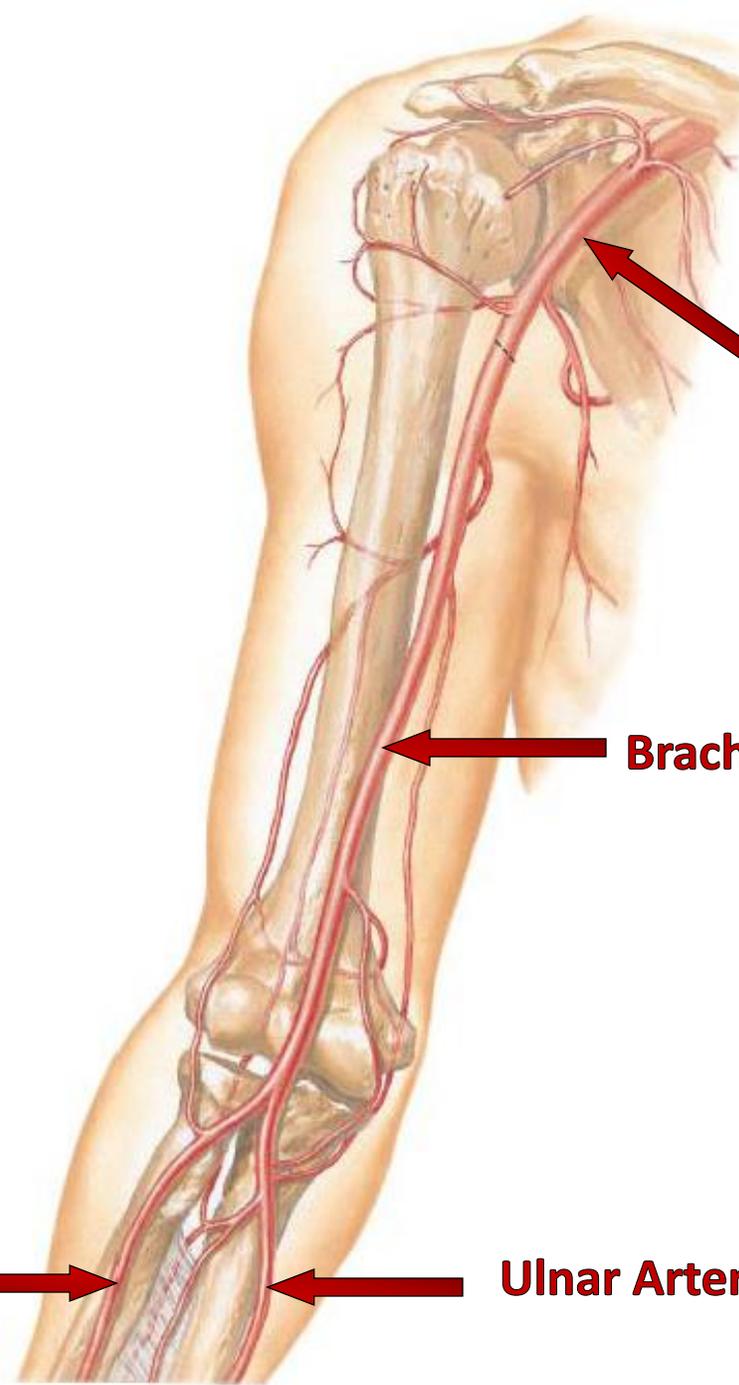
Veins of the Upper Limb





Arteries of Upper Limb



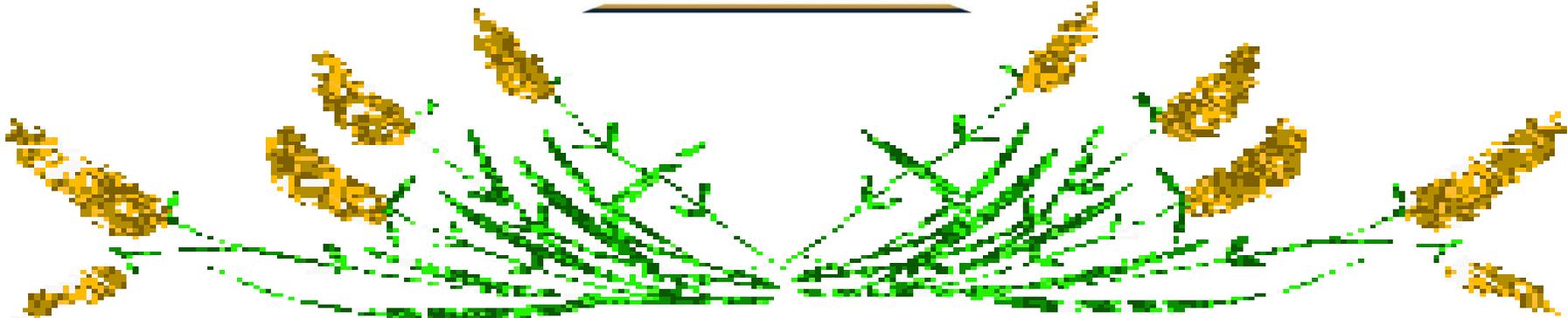


Axillary Artery

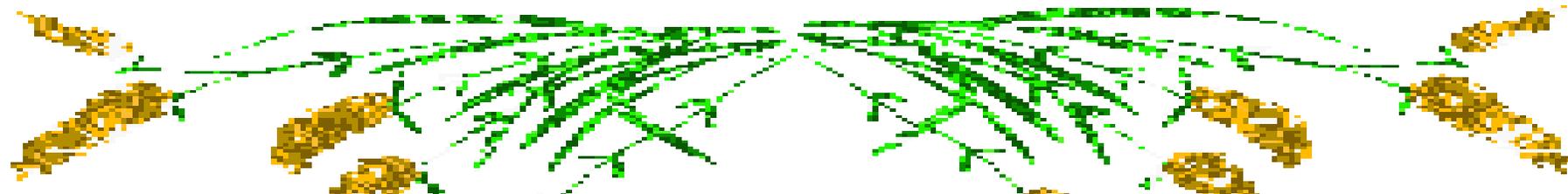
Brachial Artery

Radial Artery

Ulnar Artery



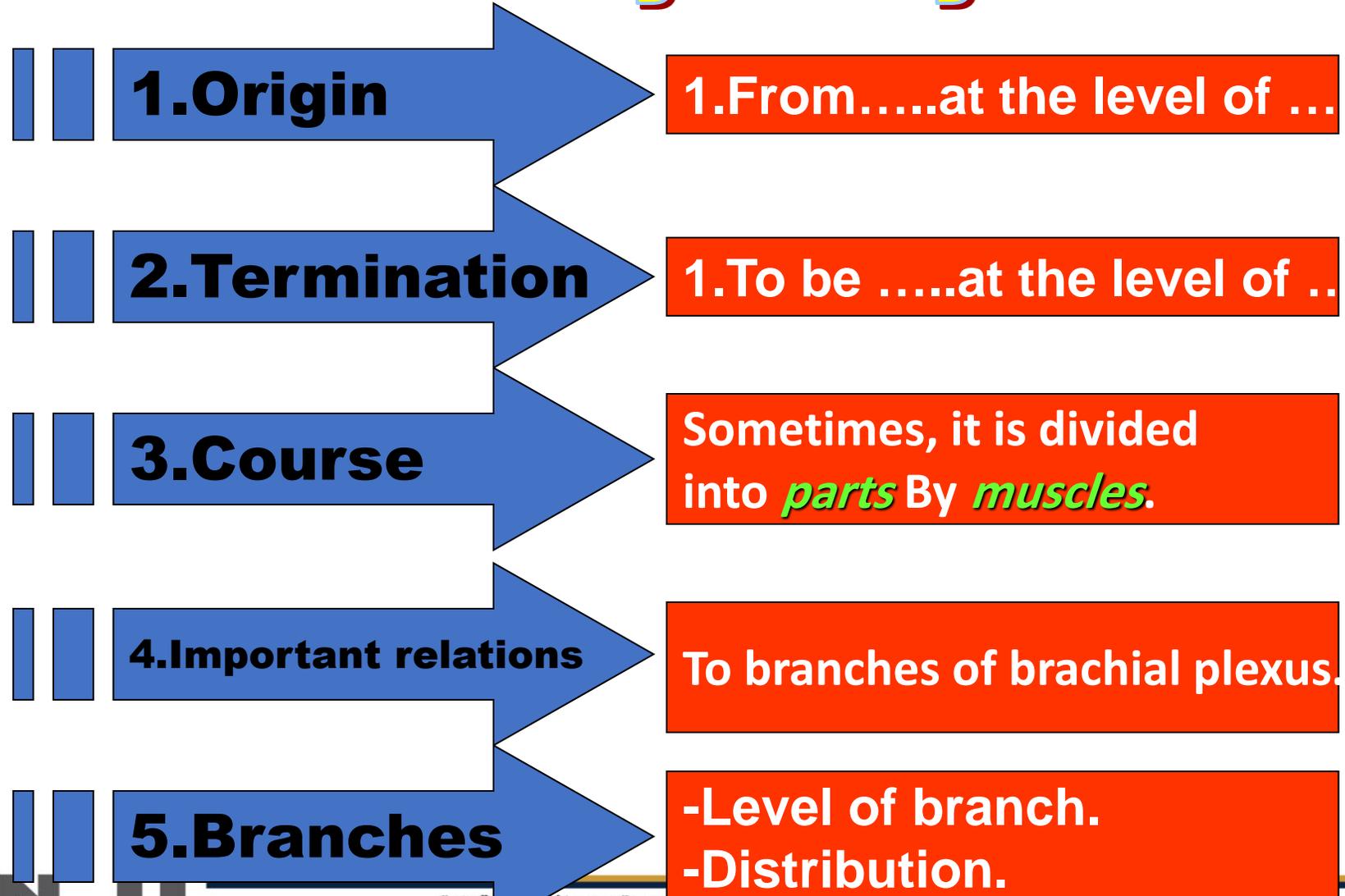
AXILLARY ARTERY



M N U

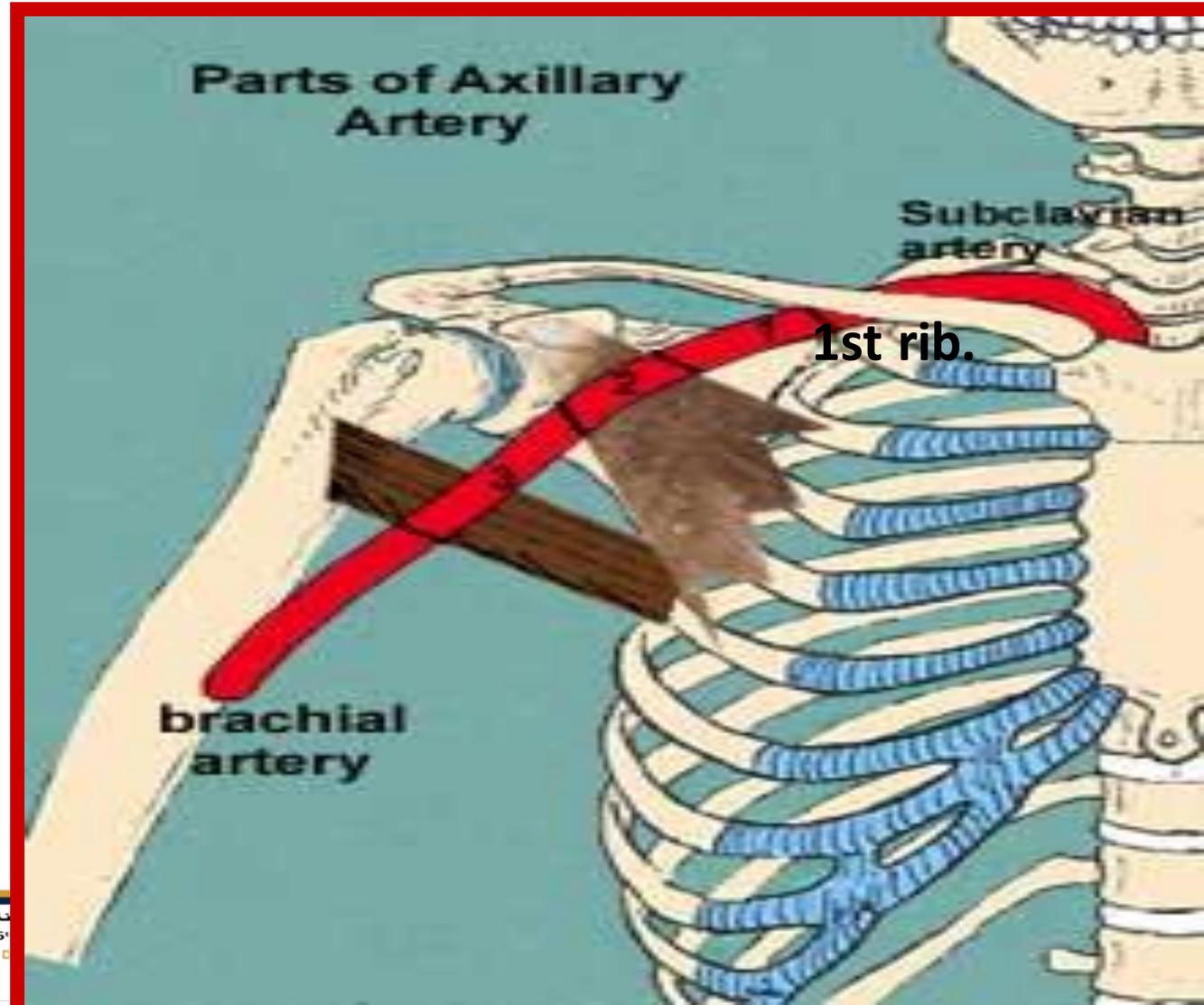


To discuss any artery:



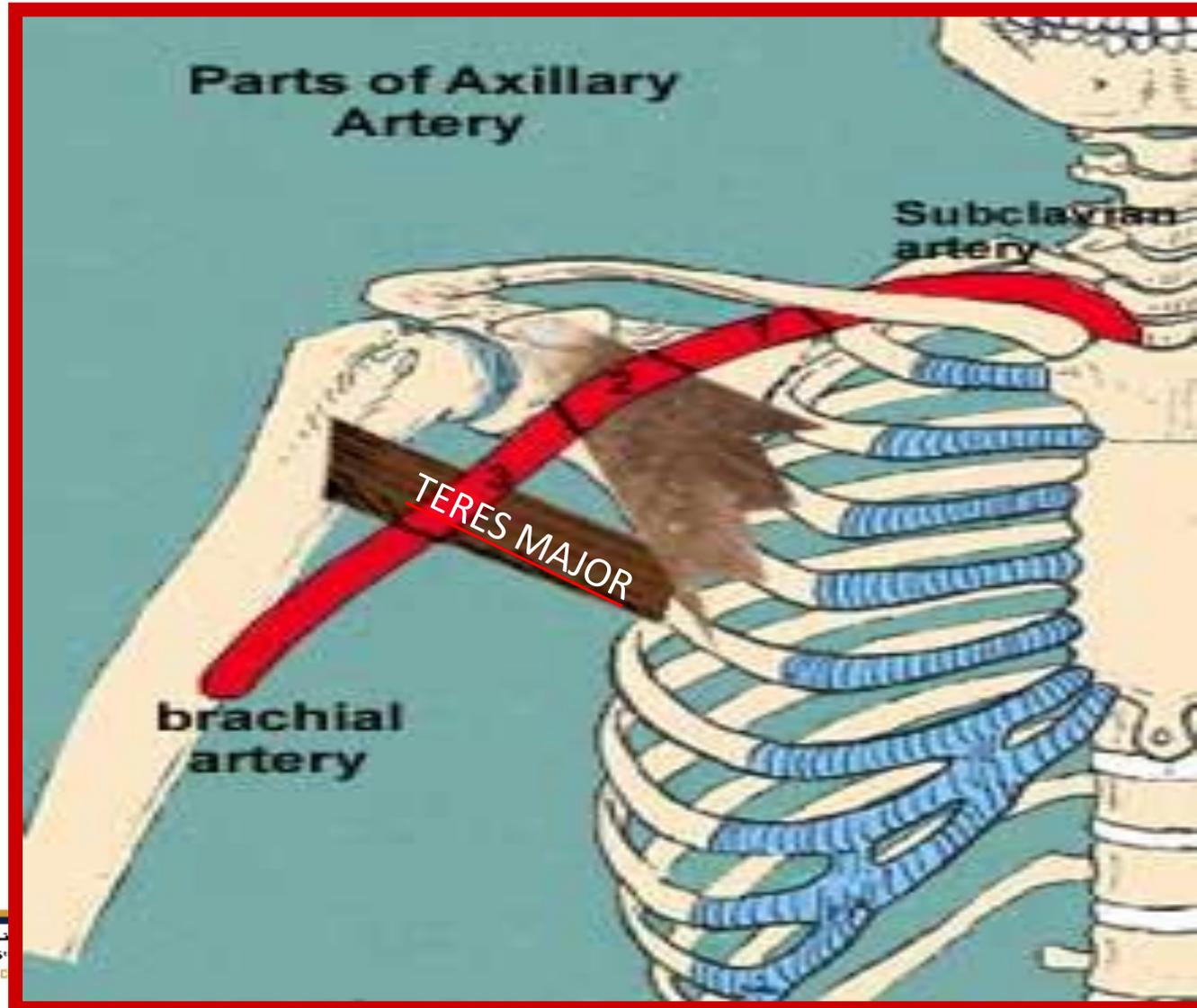
ORIGIN

Continuation of
subclavian artery at the
**outer border of the 1st
rib.**

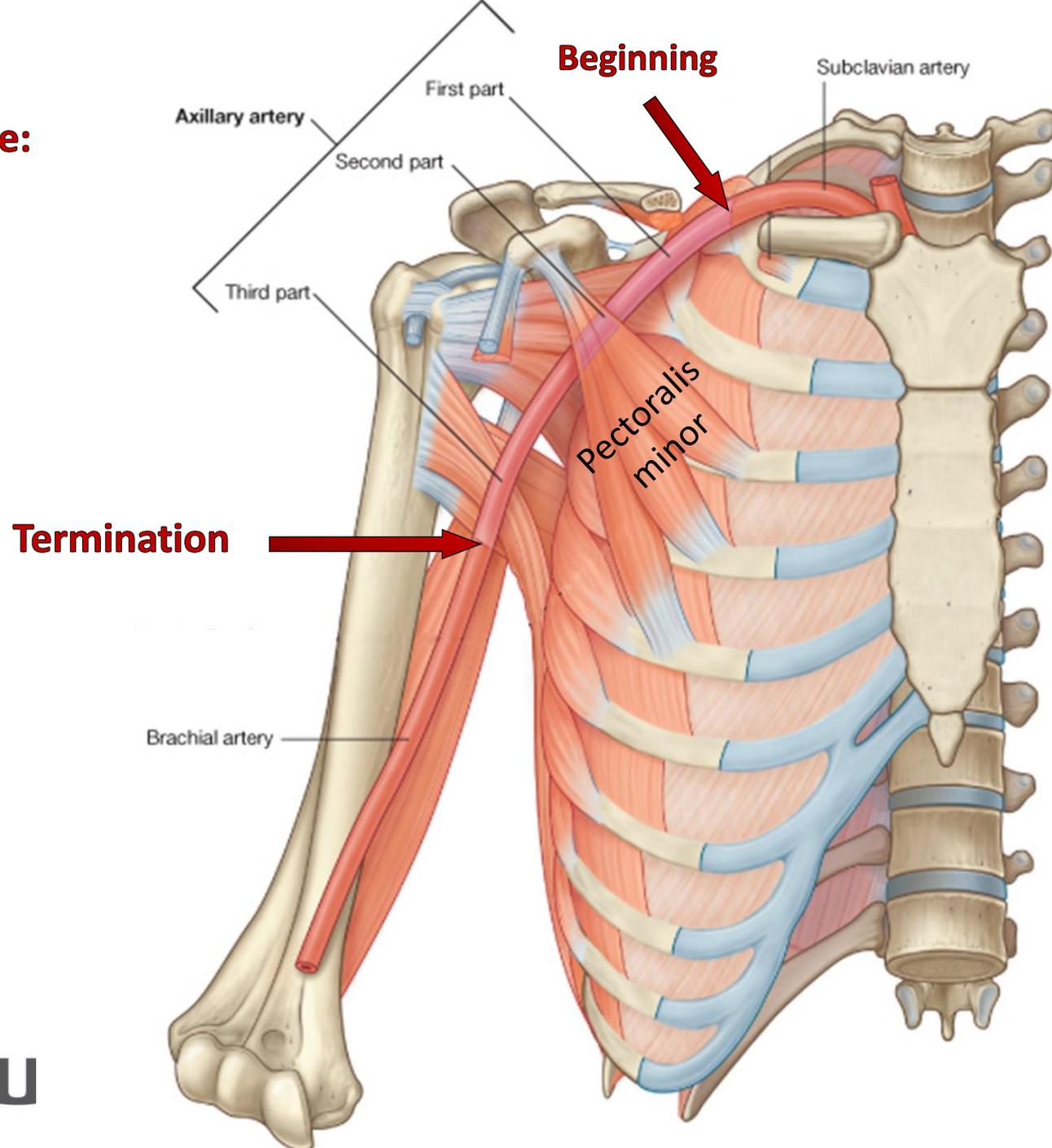


TERMINATION

Continues as brachial artery at the lower border of **TERES MAJOR**



Course:

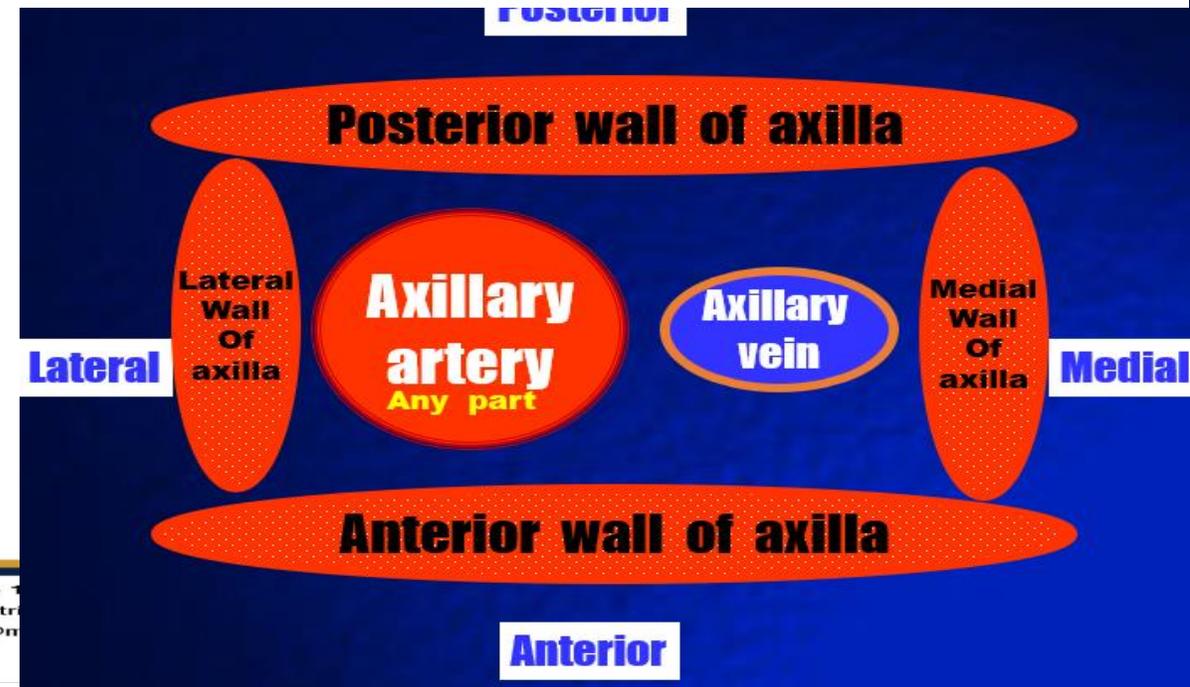
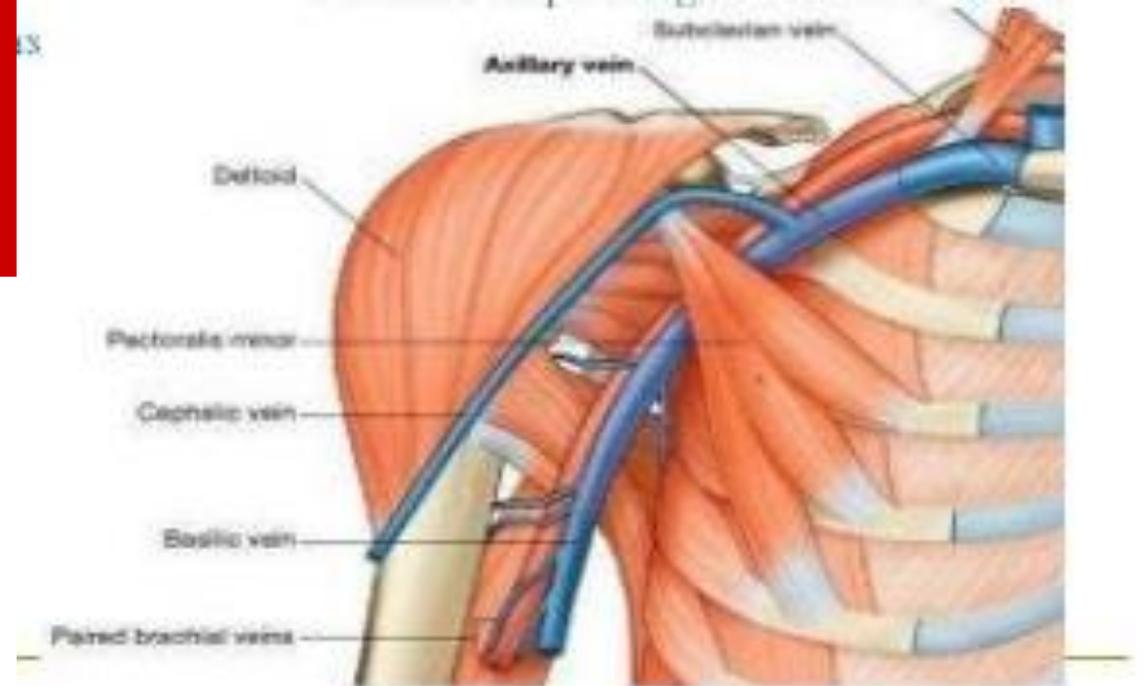


Important Relations

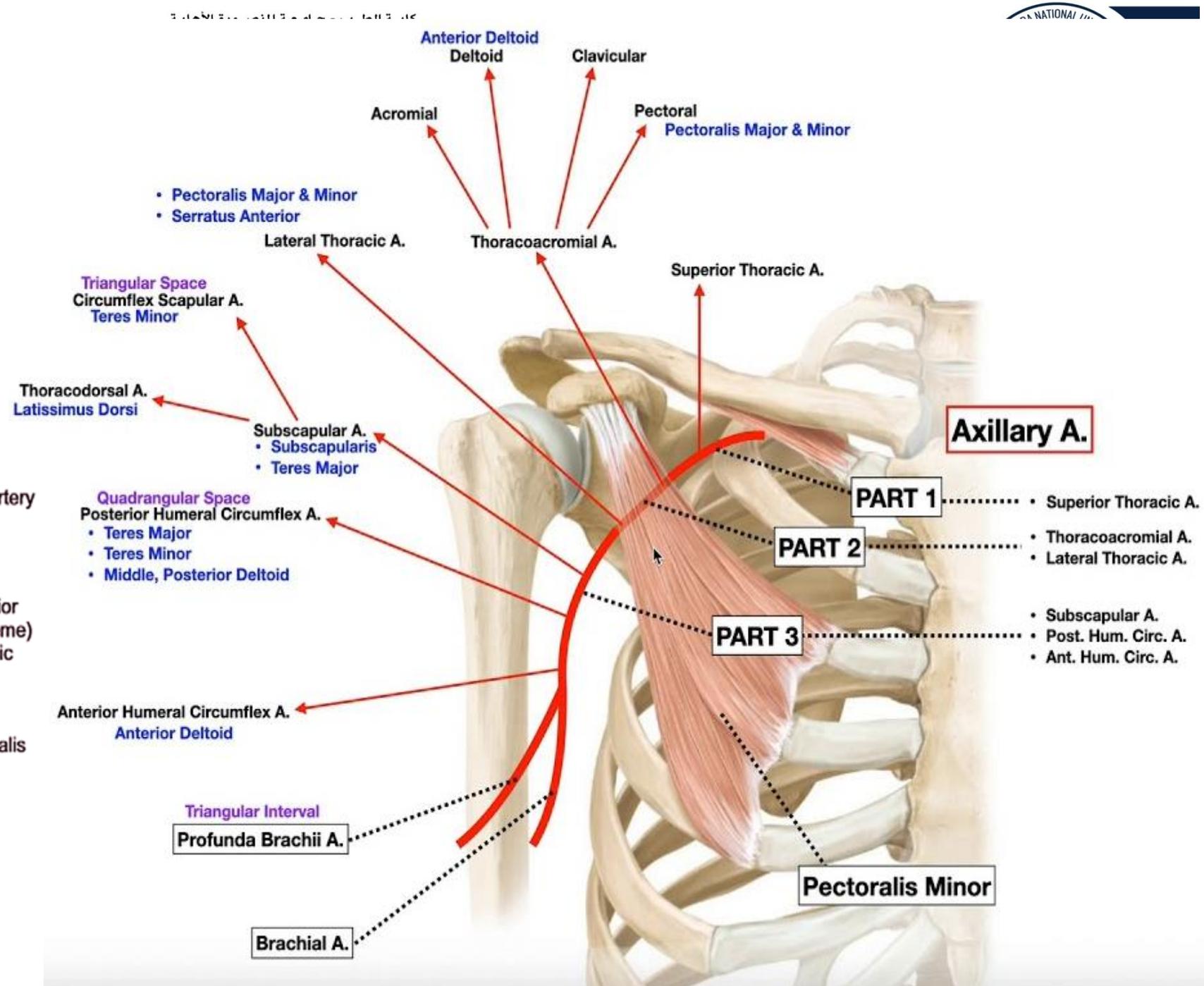
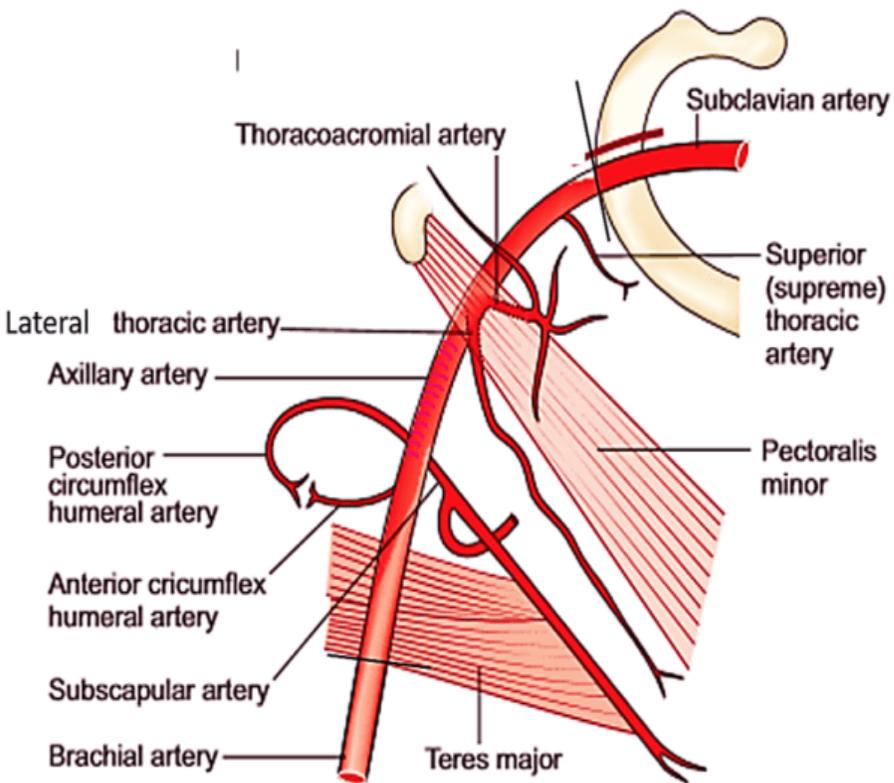
Special relations:-

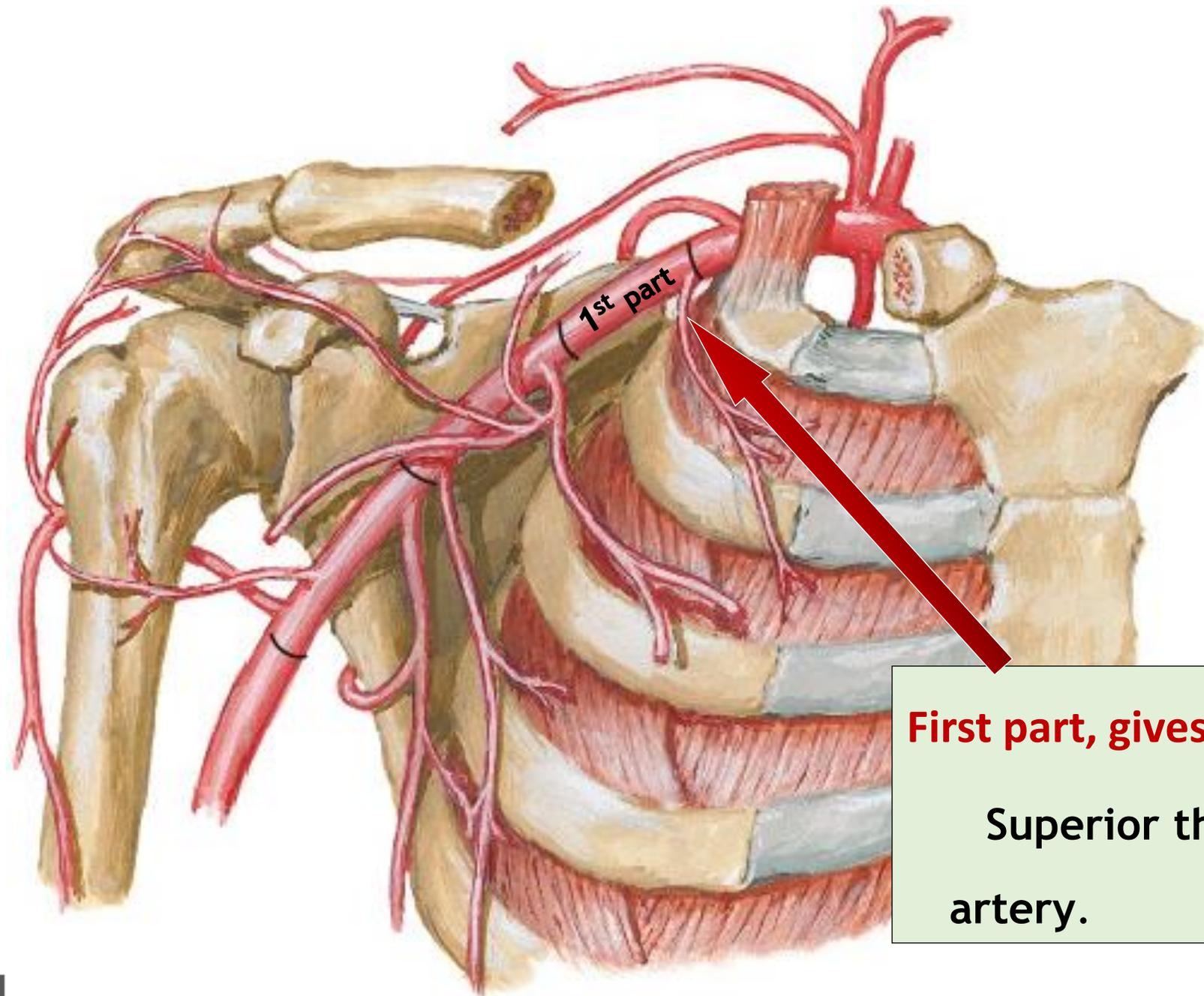
☐ Relations to brachial plexus only.

☐ **Axillary vein** is medial to **axillary artery** along its course



Branches





First part, gives 1 branch:
Superior thoracic artery.

Second part , gives 2

branches:

1) Thoracoacromial artery:

divides into 4 branches:

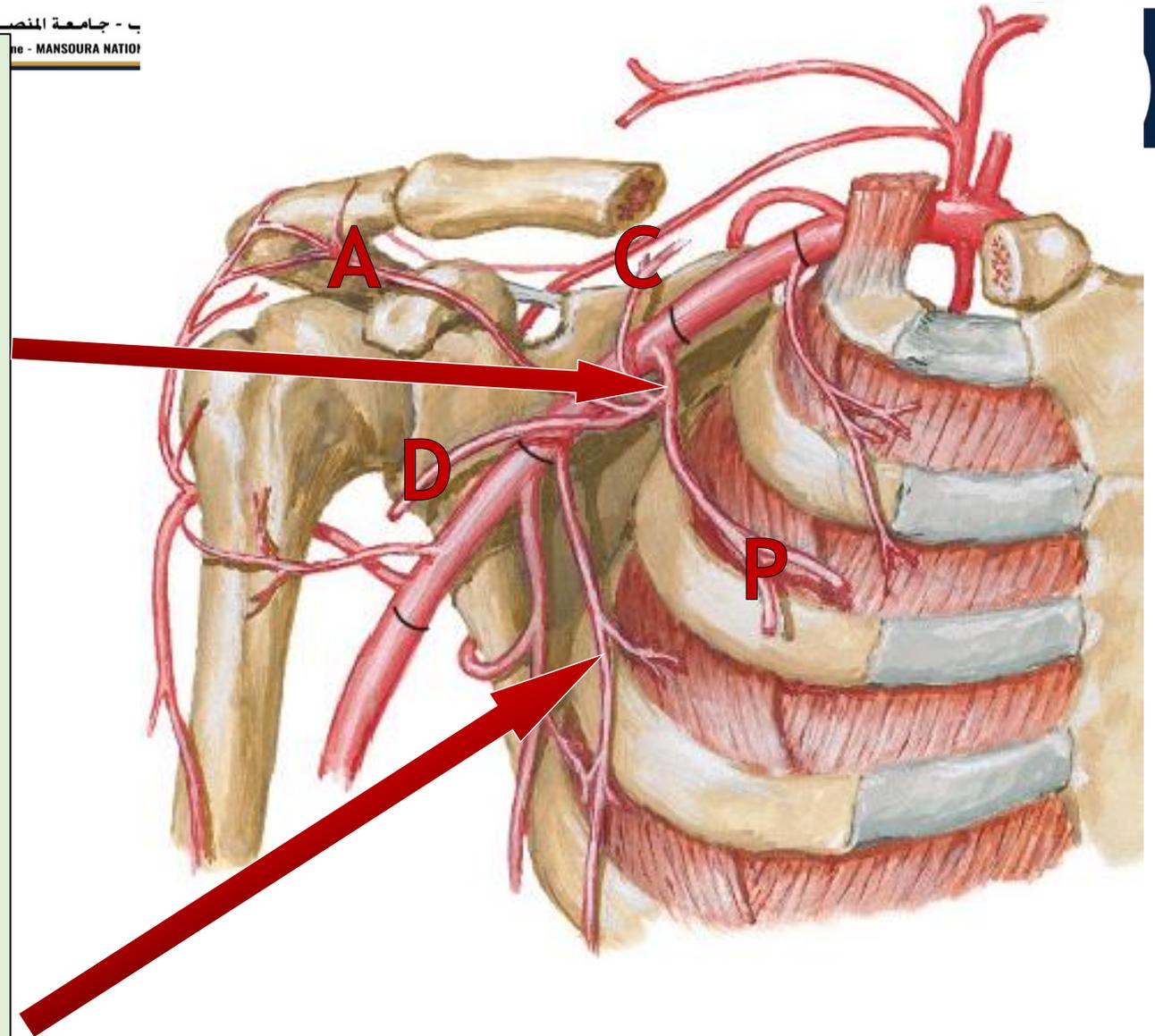
A. Acromial.

P. Pectoral.

C. Clavicular.

D. Deltoid.

2) Lateral thoracic artery.



Third part, gives 3 branches:

1. Subscapular artery: divides

into:

Circumflex scapular a.

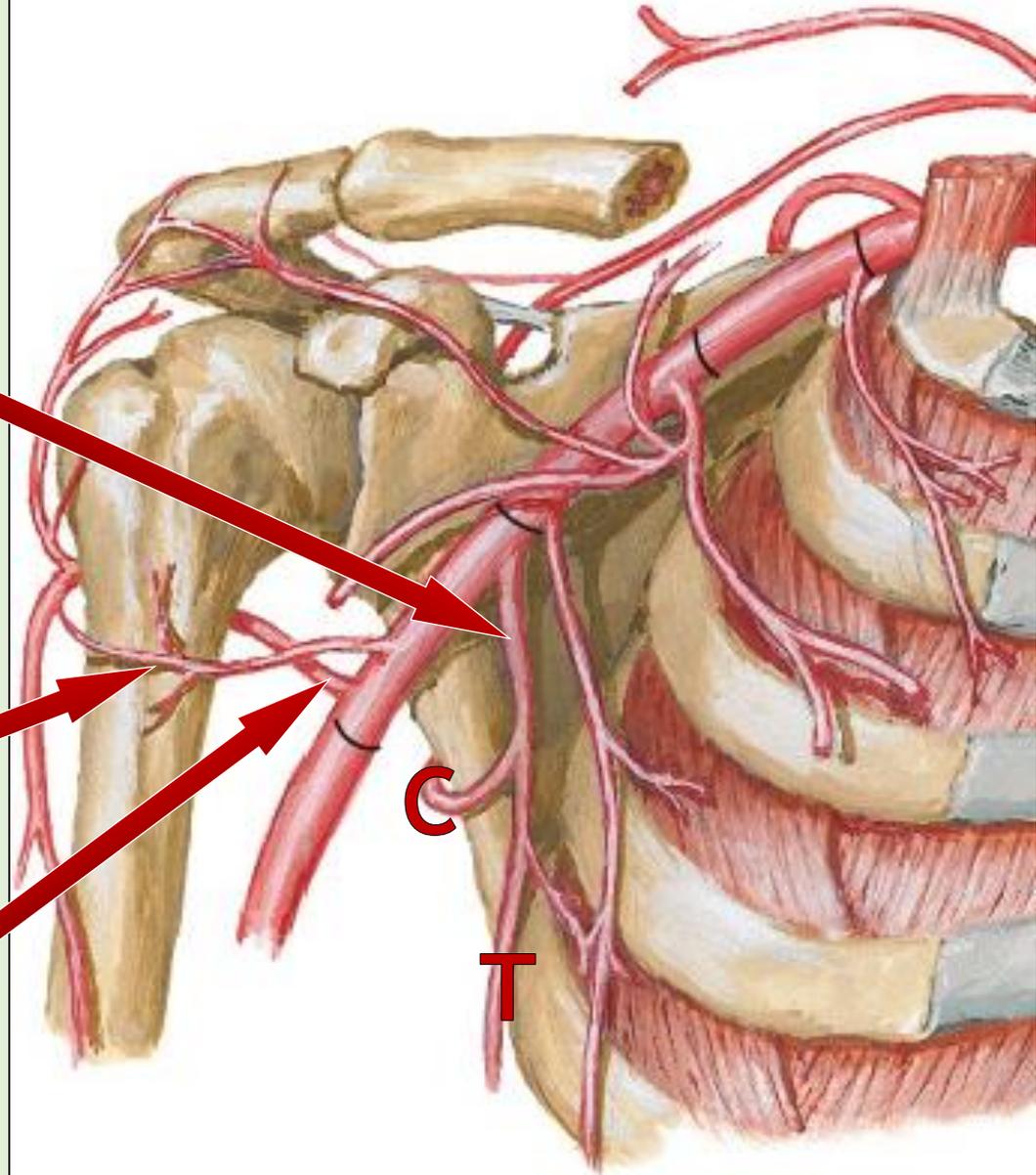
Thoracodorsal artery.

2. Anterior circumflex

humeral artery:

3. Posterior circumflex

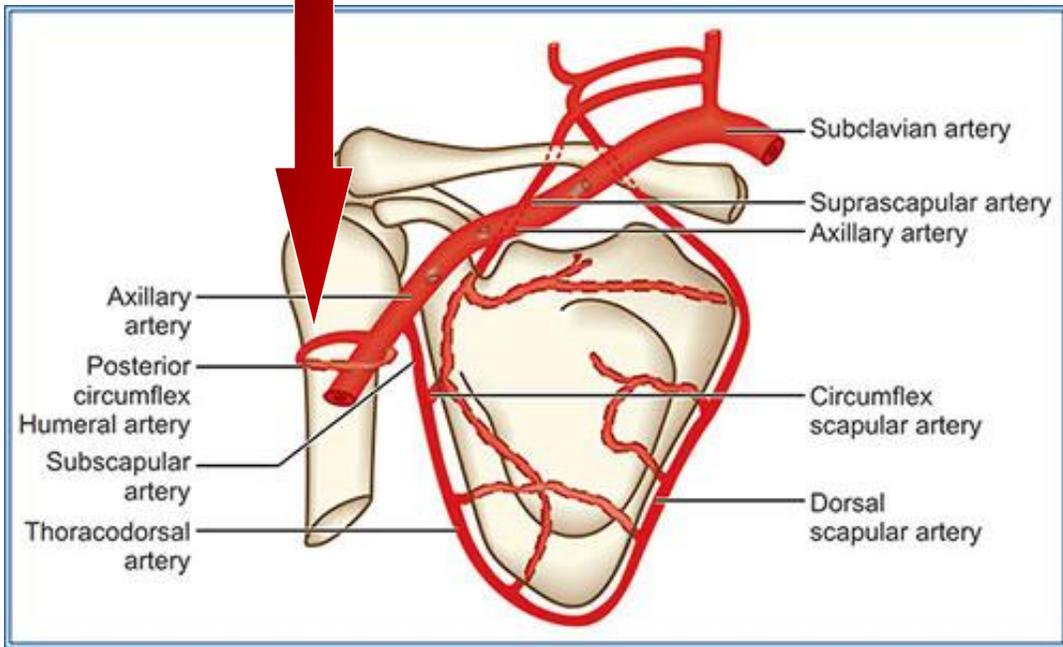
humeral artery:



Anastomosis In relation to axillary artery

1. Around scapula
2. Around surgical neck

ARTERIAL ANASTOMOSIS AROUND SHOULDER



Anterior & posterior circumflex humeral (3rd part of axillary)

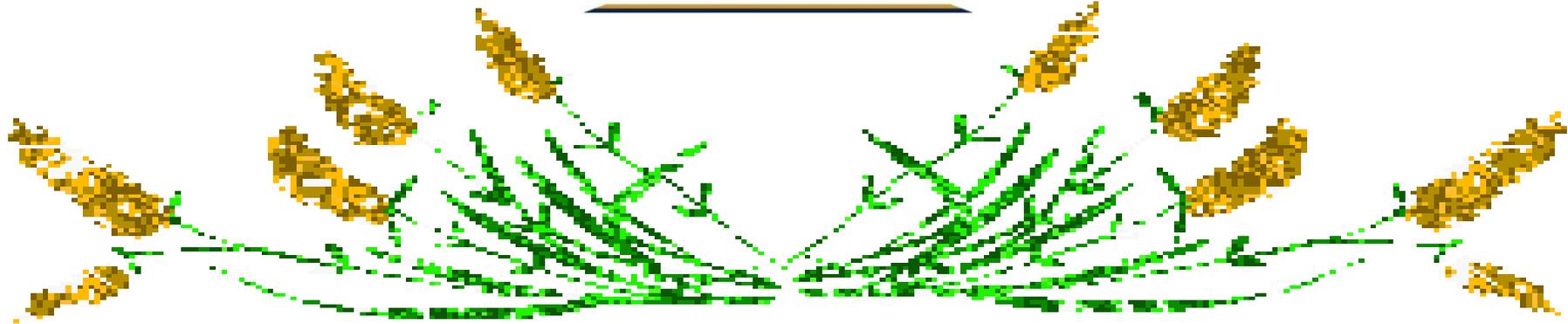
Subscapular (3rd part of axillary)

Thoracodorsal

Suprascapular (1st part of subclavian)

Dorsal scapular (2nd part of subclavian)

Circumflex scapular



BRACHIAL ARTERY



M N U



Brachial artery

Origin

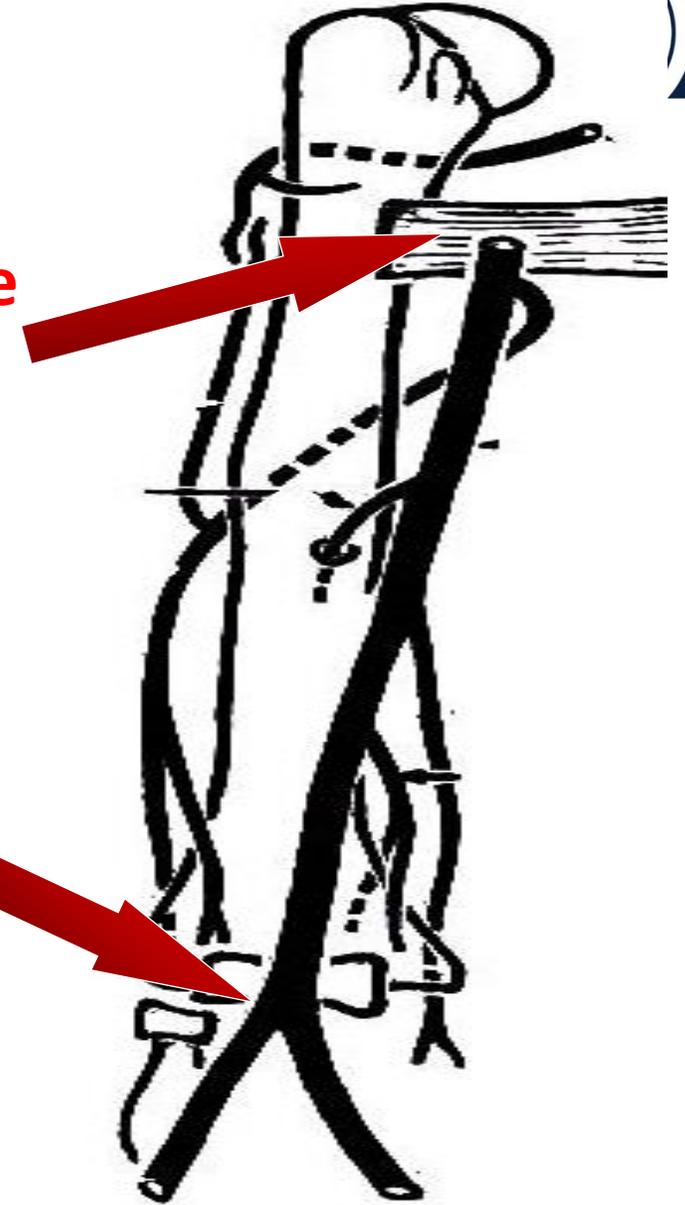
Continuation of axillary artery at the lower border of TERES MAJOR.

Course

Downward and laterally, from the medial side of the humerus to the front of the arm (important site for brachial artery pulsation).

Termination

Opposite the neck of the radius, by dividing into ulnar & radial art.



Branches:

1. Profunda brachii (follows the radial nerve):

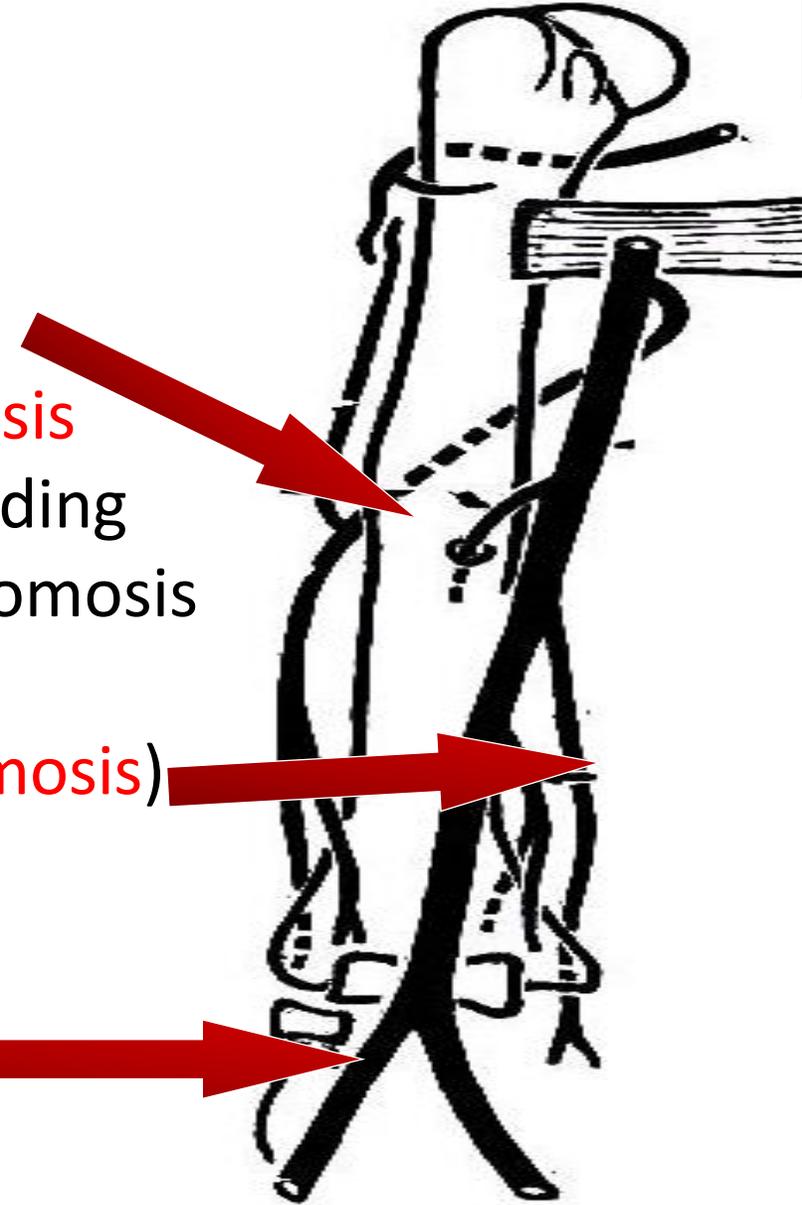
Gives 3 branches: one ascending branch (**anastomosis around surgical neck of the humerus**) and 2 descending branches (one anterior and one posterior for anastomosis around the elbow)

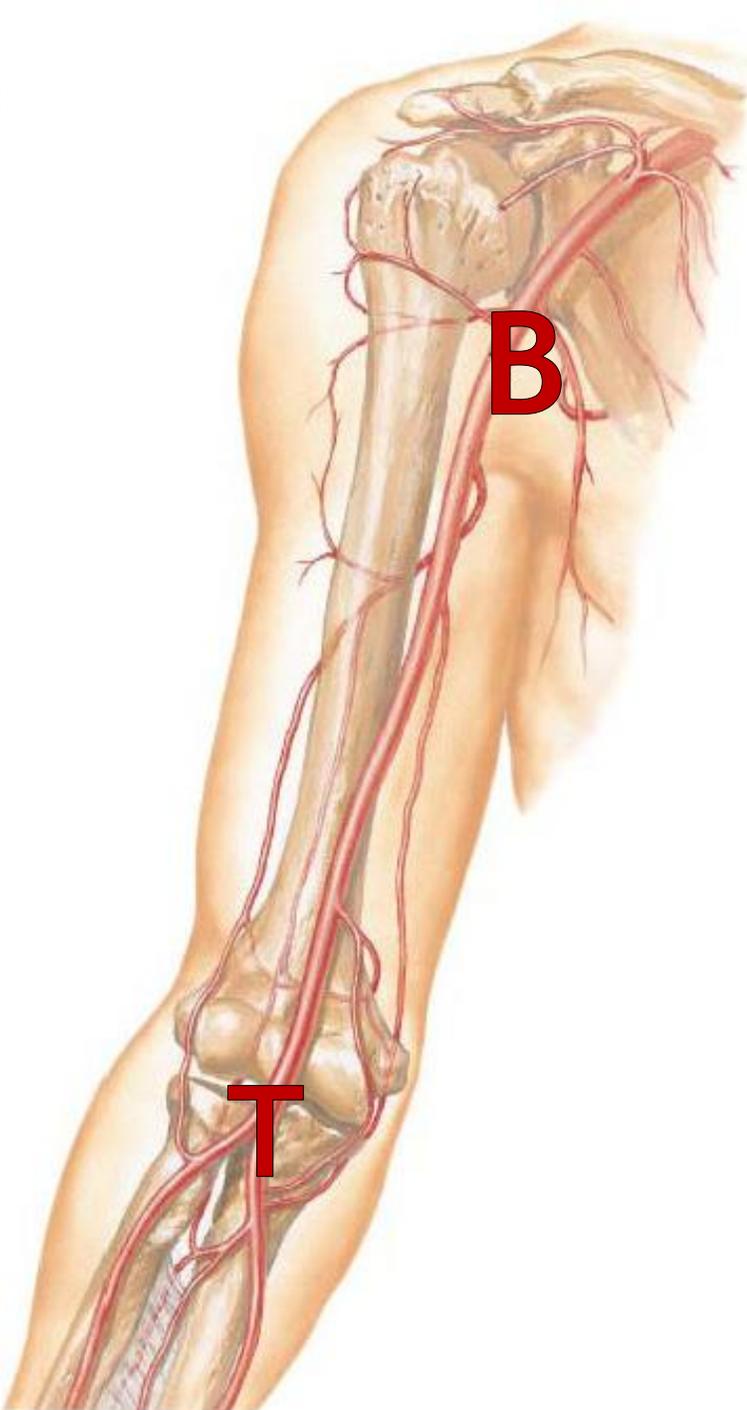
2. Superior and inferior ulnar collaterals (**elbow anastomosis**)

3. Nutrient artery (to the humerus).

4. Muscular branches (to the surrounding muscles).

5. Terminal branches (ulnar and radial).



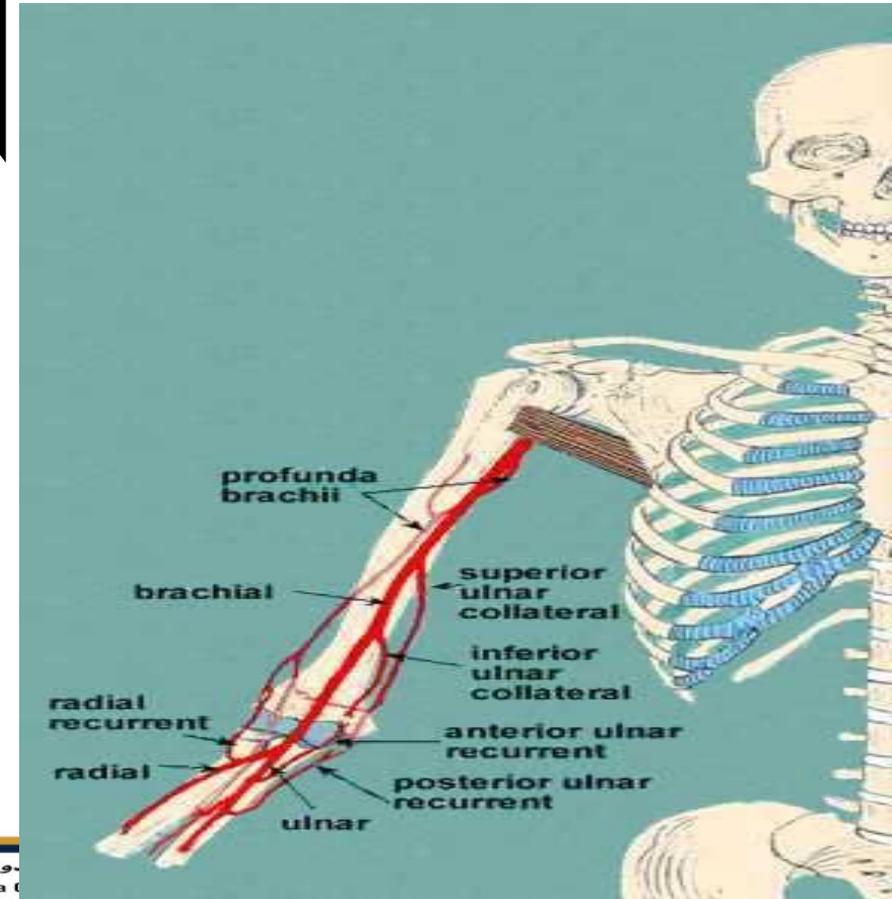


Beginning: Continuation of the axillary artery at the lower border of **Teres Major.**

Termination: It divides into the radial & ulnar arteries **opposite the neck of the radius.**

Origin

- Direct continuation of Ax. A
- At distal border of teres major

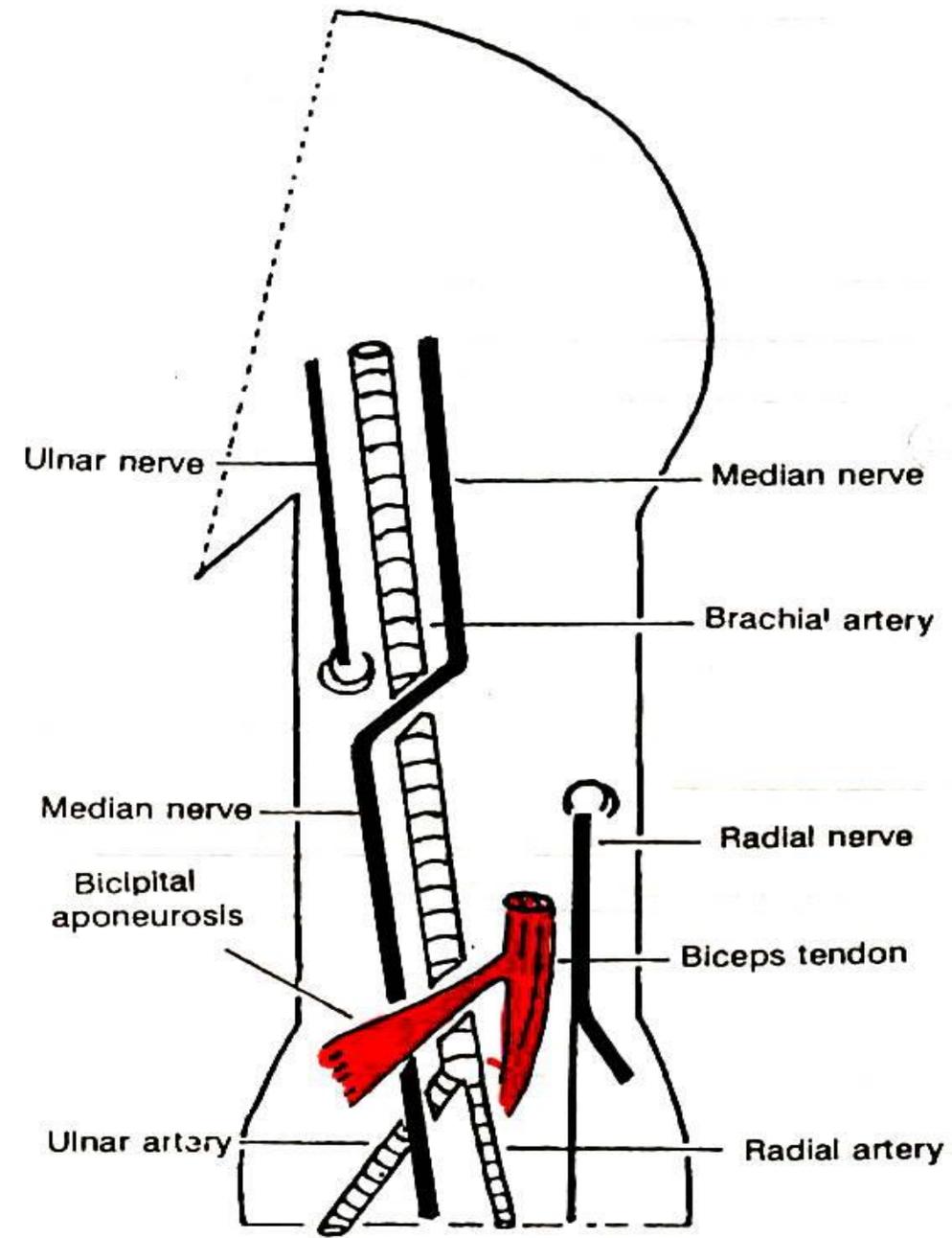


Termination

- At level of neck of radius
- Dividing into:-
 - (1)-Radial artery.
 - (2)-Ulnar artery.

Important relations

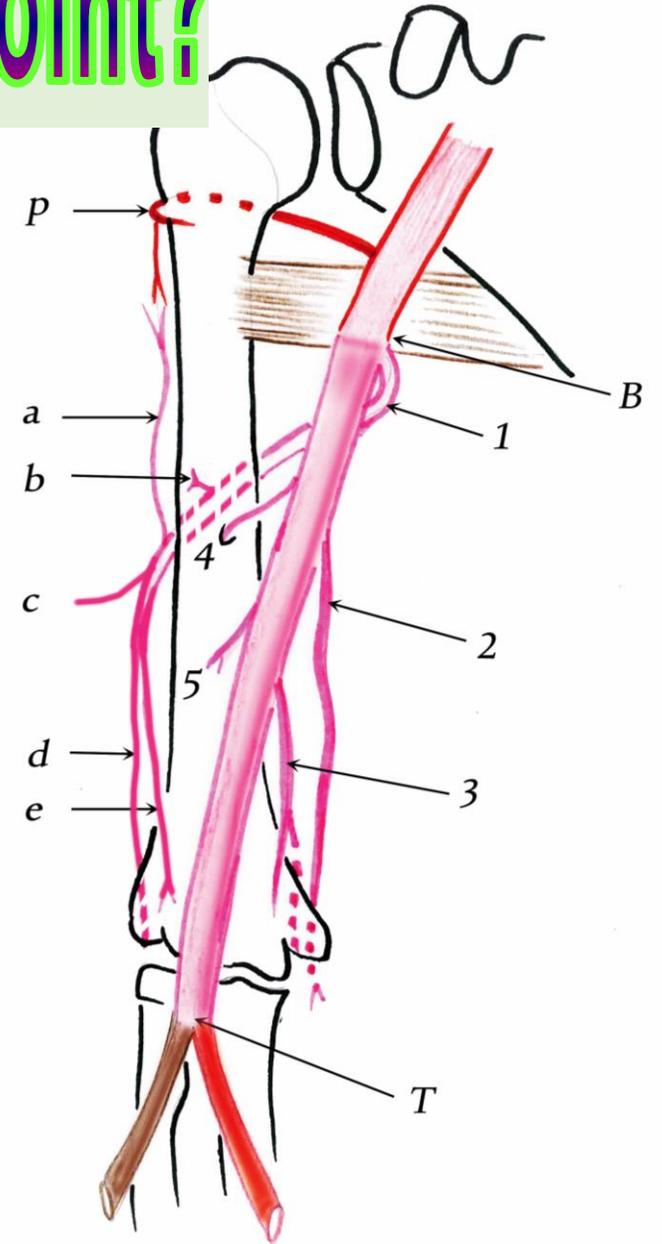
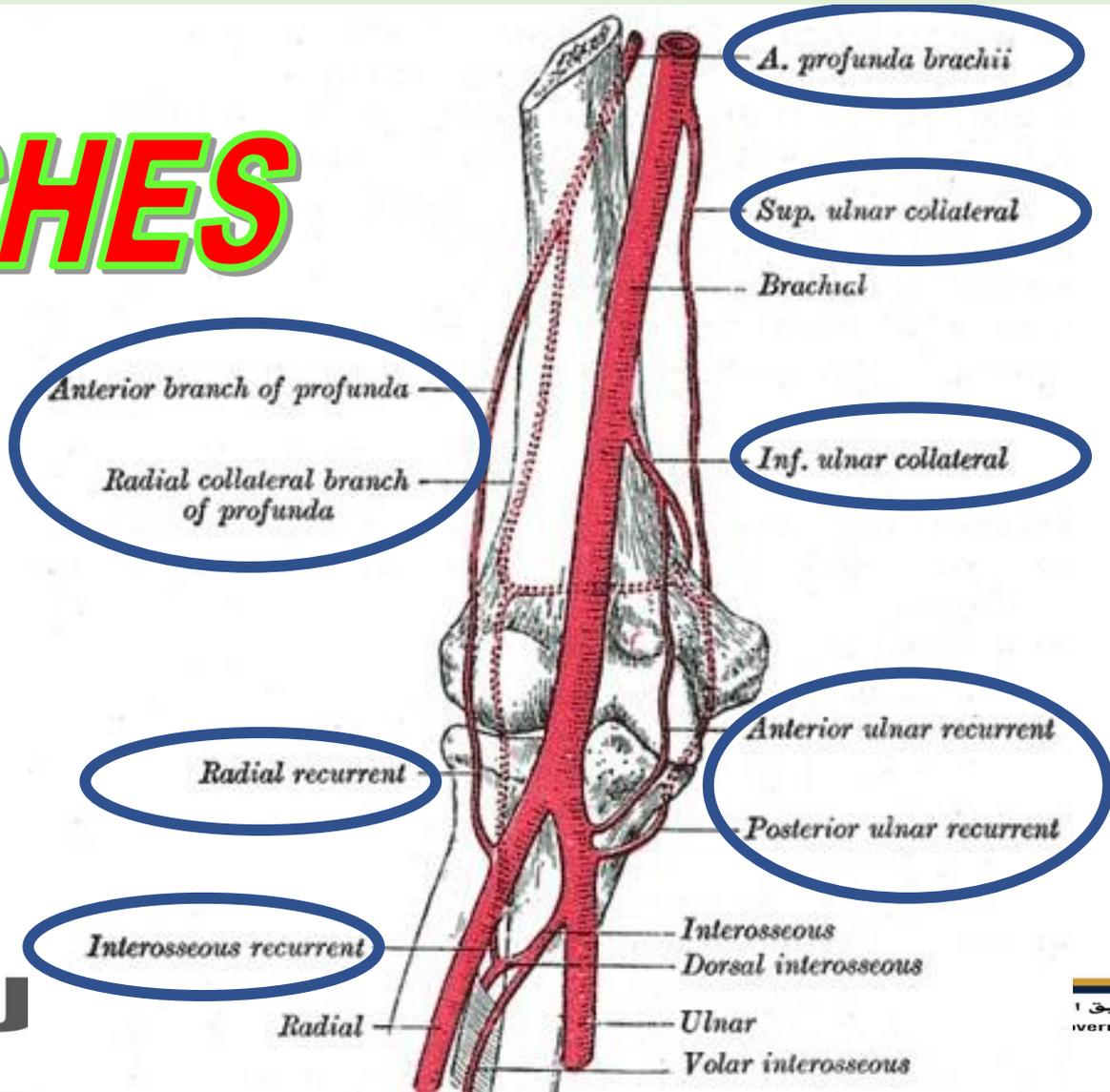
RELATIONS to median nerve

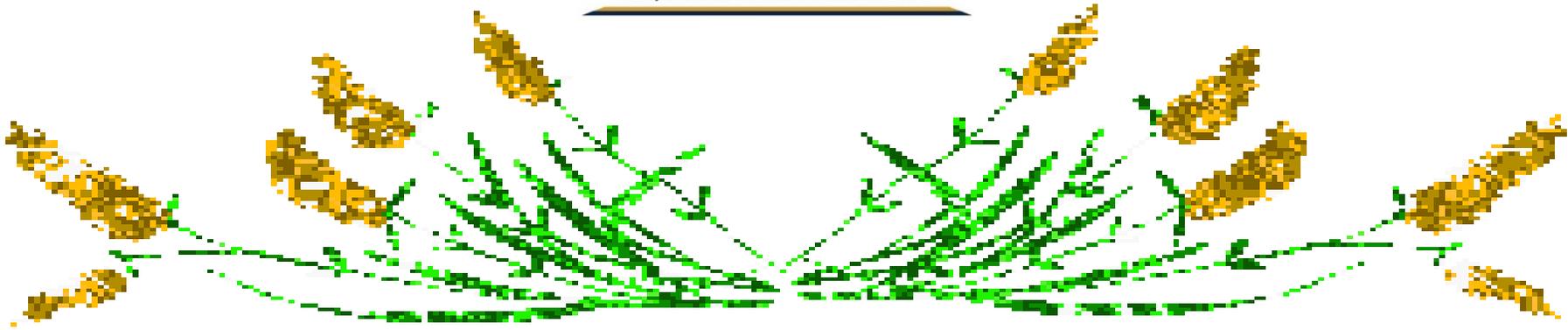


The course and relations of the brachial artery

Q. Anastomosis around elbow joint?

BRANCHES





ULNAR

ARTERY



M N U



ORIGIN

Opposite the neck of the radius, the larger of the 2 terminal branches of the brachial artery

COURSE

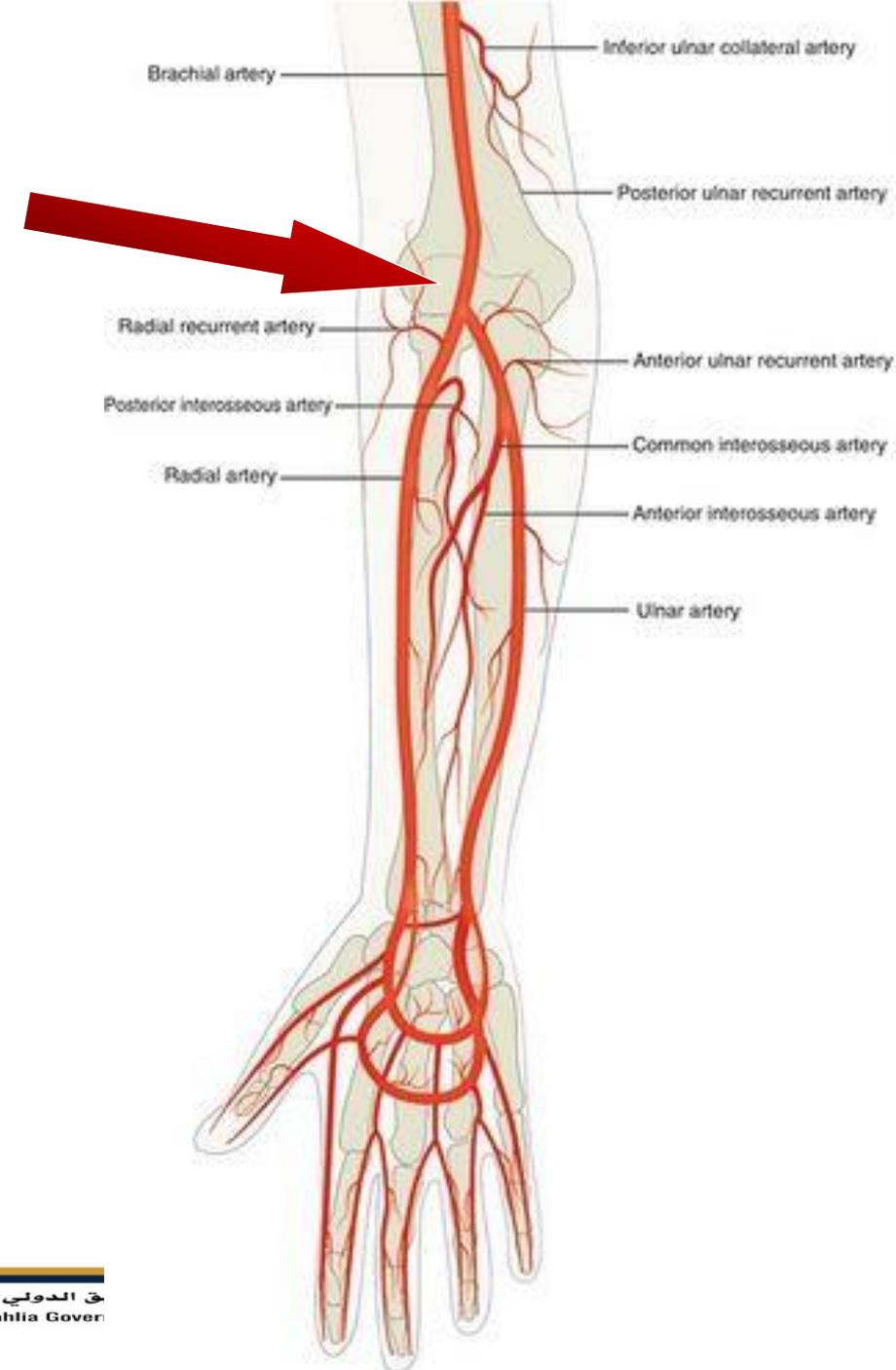
In the forearm:

upper 1/3: medially downward (deep part).

lower 2/3: vertically downward to reach the front of the wrist (superficial).

In the hand:

It enters the hand in front of the flexor retinaculum.

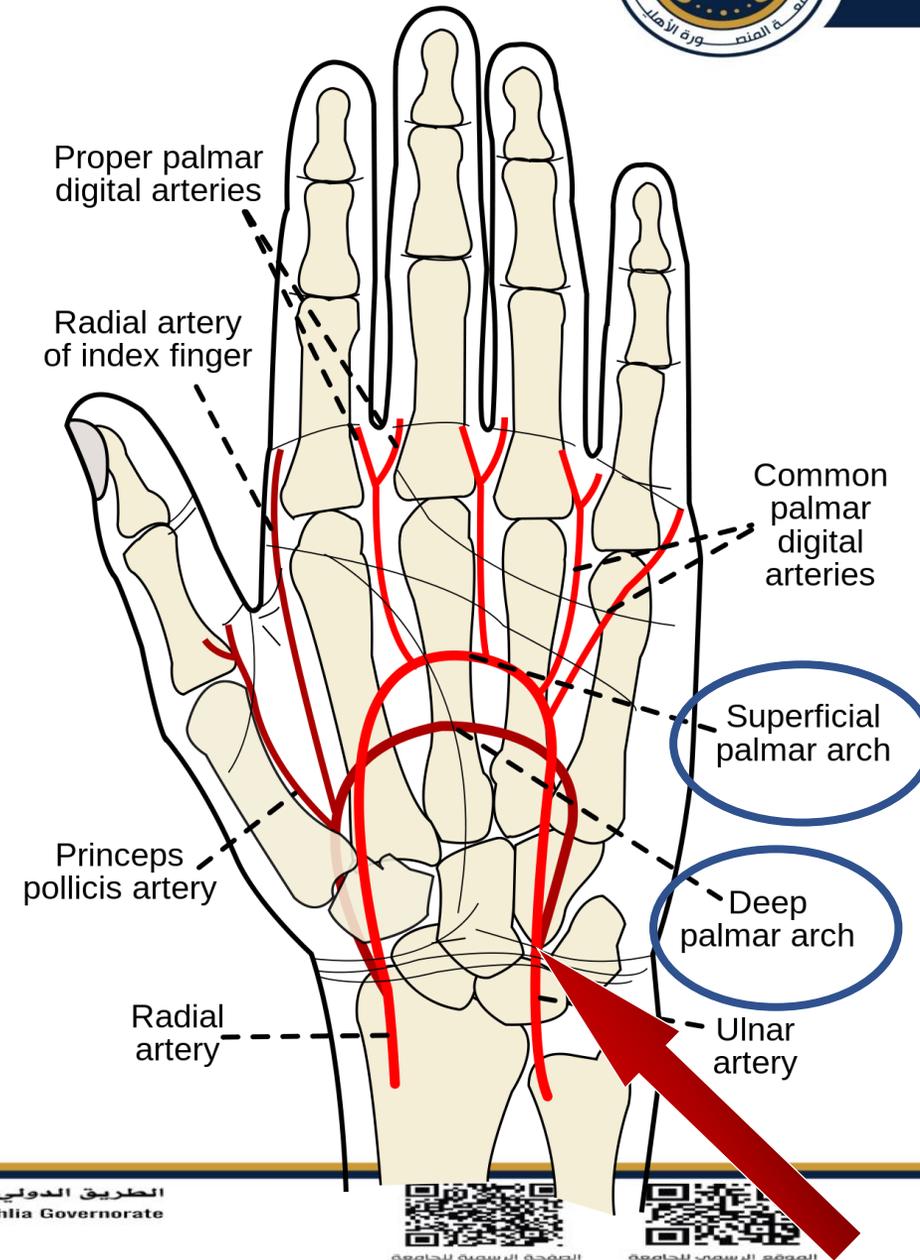


TERMINATION

By dividing into **Deep and Superficial divisions**.

1. The **deep division** anastomose with the end of the **Deep palmar arch** of the radial artery.

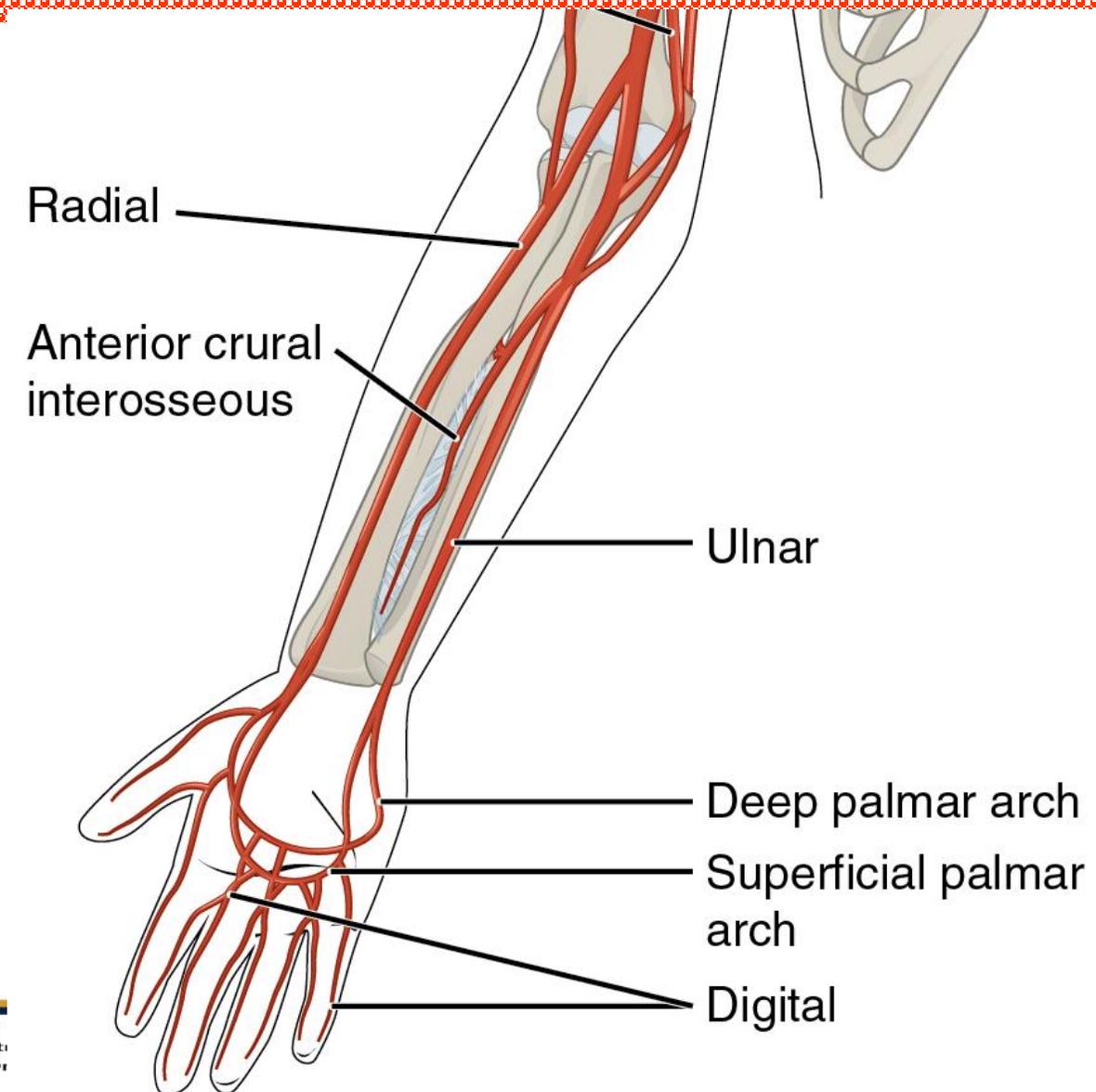
2. The **superficial division** forms the **Superficial palmar arch** which ends by joining superficial palmar branch of the radial artery.



Details of branches of ulnar artery

In the forearm:

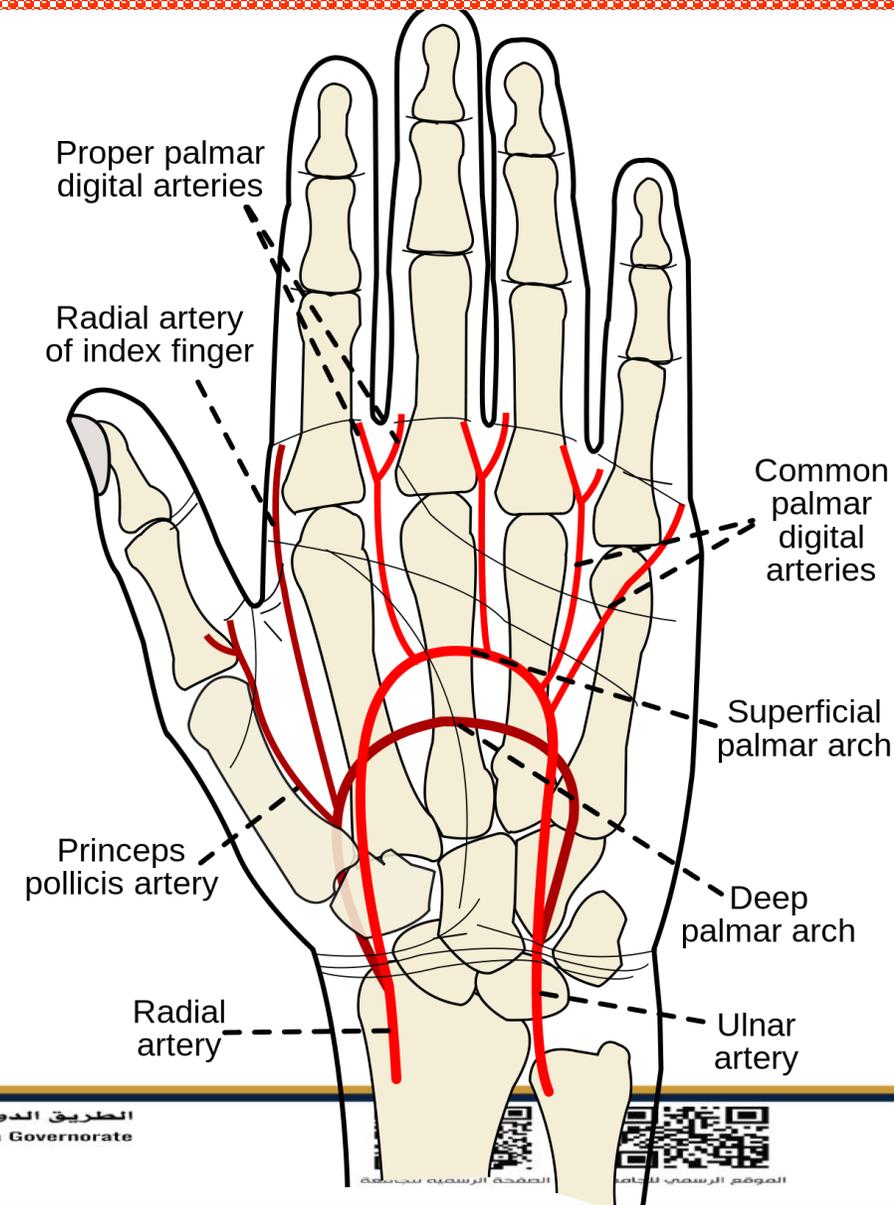
1. **Anterior and posterior ulnar recurrent arteries** (anastomosis around the elbow).
2. **Common interosseous artery:**
 - **Anterior interosseous--> median artery** (accompany and supply the median nerve).
 - **Posterior interosseous--> interosseous recurrent artery** (anastomosis around the elbow).
3. **Dorsal carpal branch** (join dorsal carpal arch).
4. **Palmar carpal branch** (join palmar carpal arch).
5. **Muscular branches:** (to the surrounding muscles).



Details of branches of ulnar artery

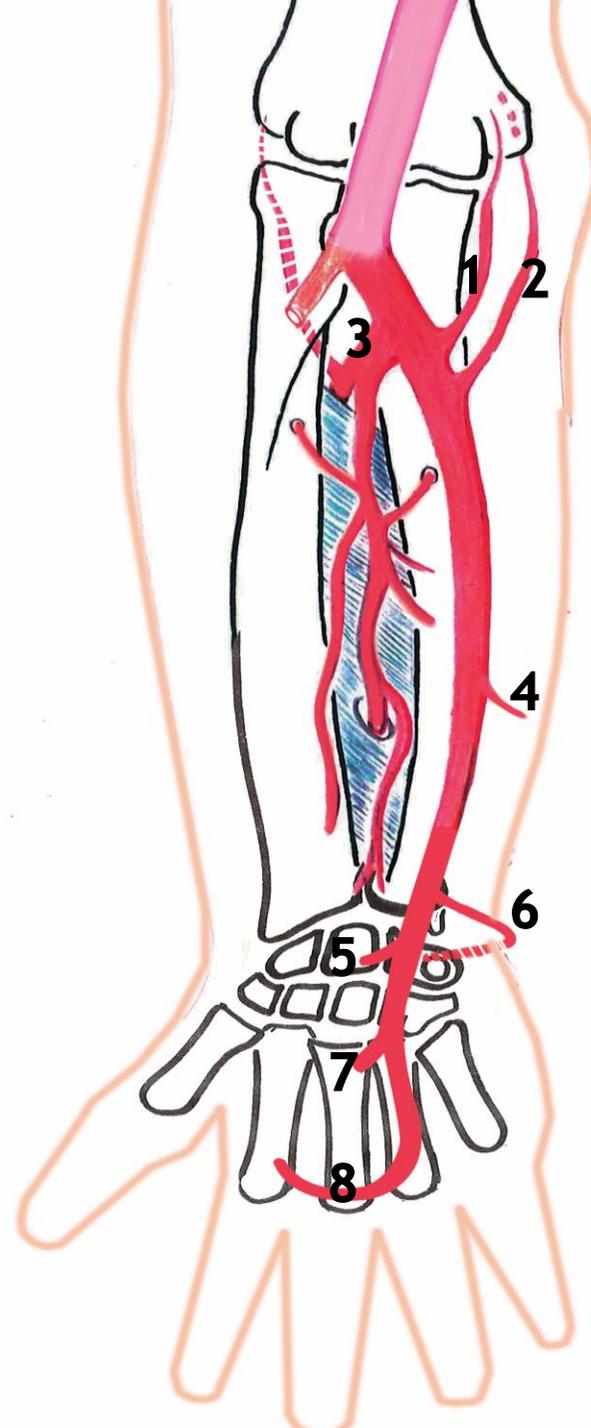
In the Hand: Branches of the superficial palmar arch:

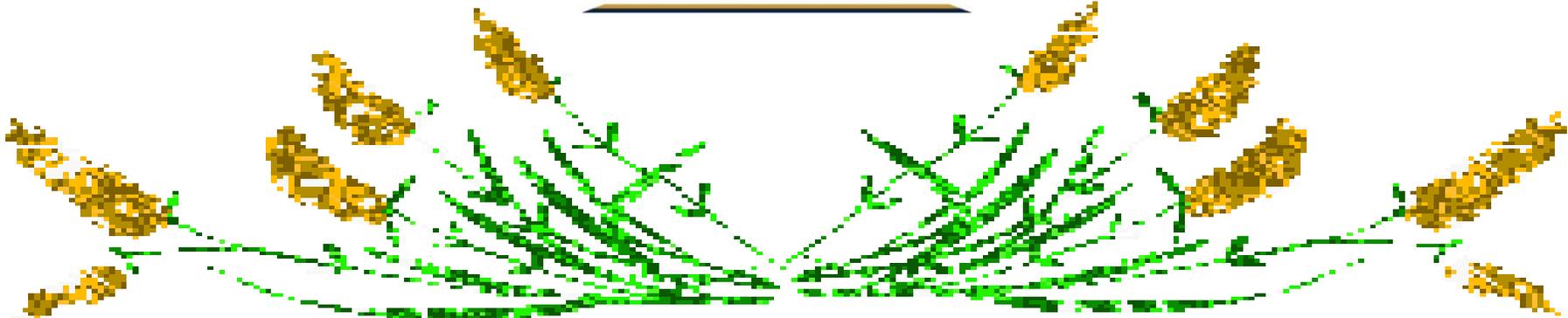
1. Palmar digital artery (to the medial side of the little finger)
2. 3 common palmar digital arteries



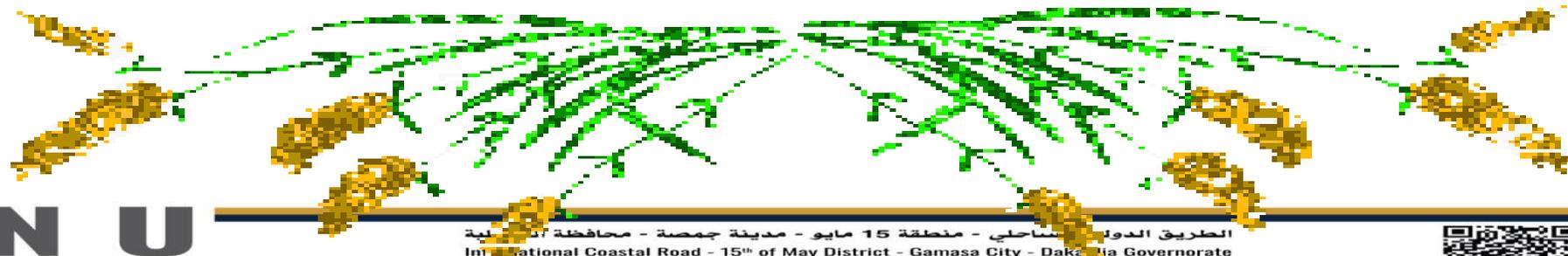
QUIZ 1

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.





RADIAL ARTERY



M N U

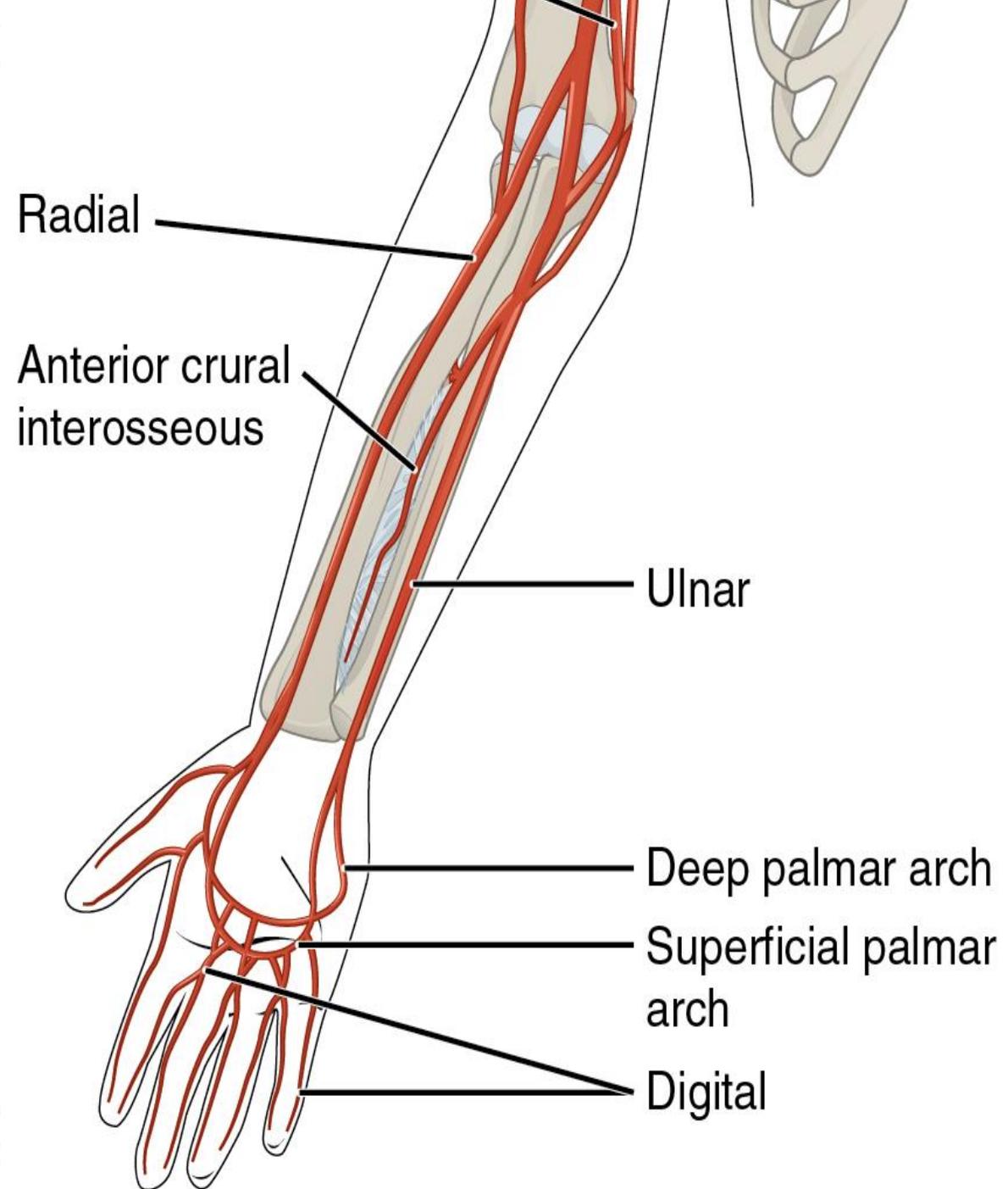


ORIGIN

Opposite the neck of the radius, the smaller of the 2 terminal branches of brachial artery

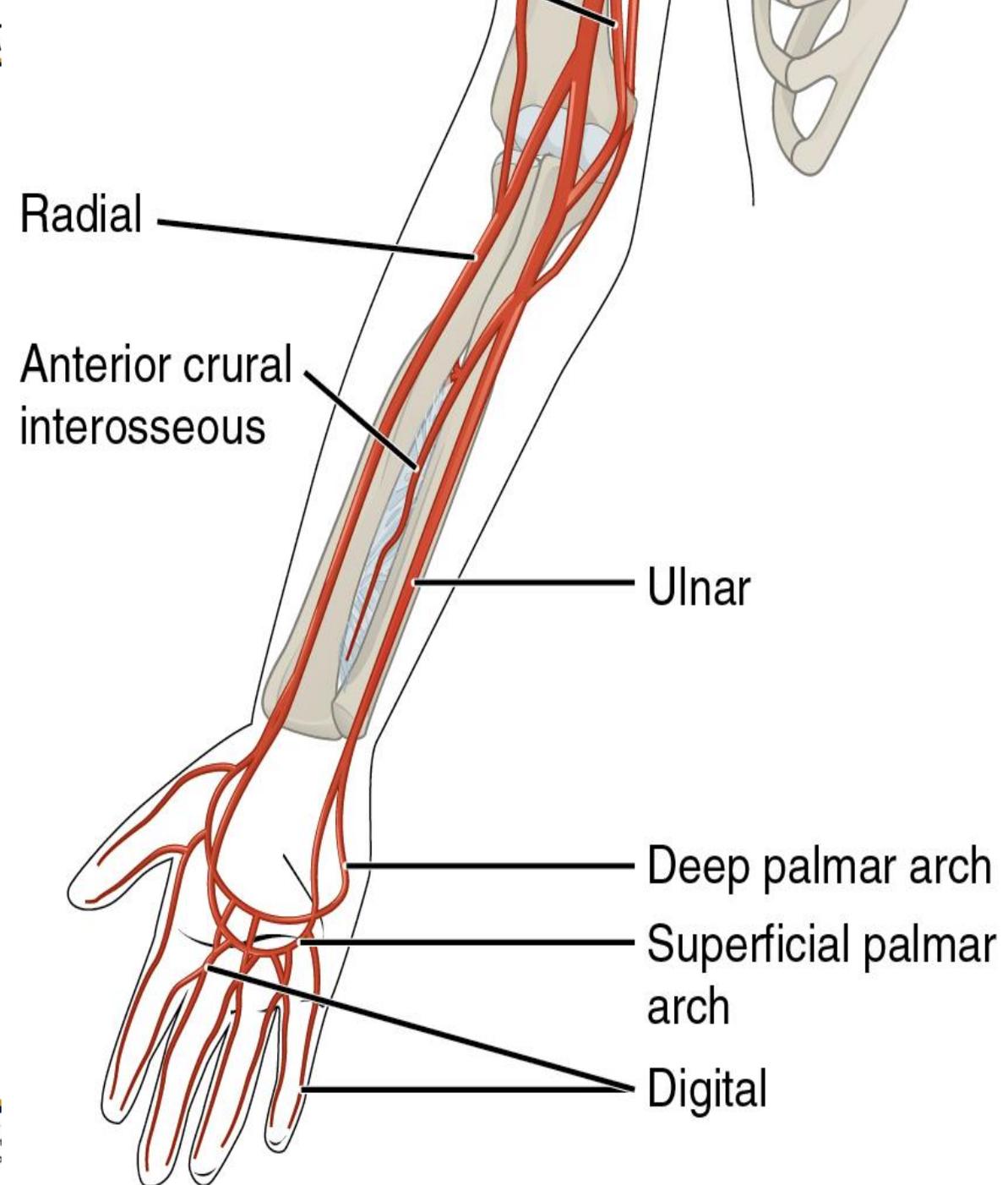
COURSE

- ▶ runs along **lateral side of forearm till front of lower end of radius** where its **pulsations are palpable**.
- ▶ by winding backwards round **lateral side of wrist in floor of anatomical snuff box**
- ▶ to enters ***dorsum*** of hand



TERMINATION

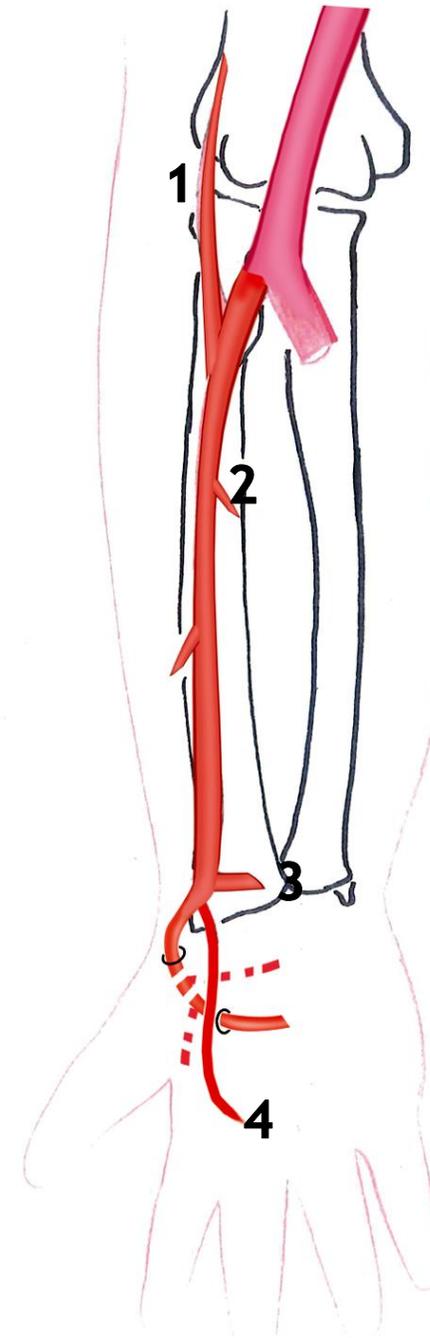
By deep branch of the ulnar artery at the base of the 5th joining the 1st metacarpal bone to form **Deep Palmar Arch**



Branches:

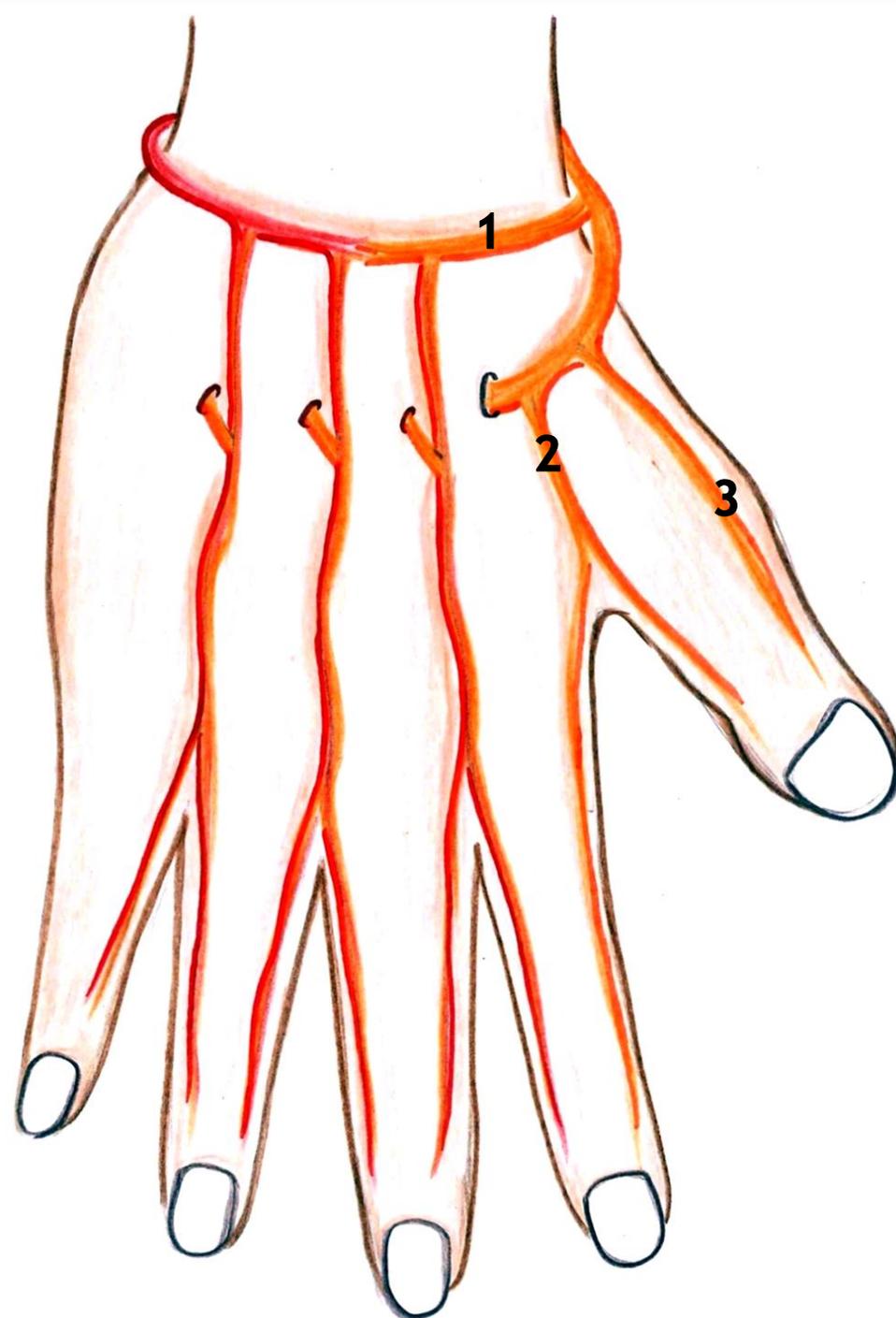
A) In the forearm:

1. Radial recurrent artery.
2. Muscular branches.
3. Palmar carpal branch.
4. Superficial palmar branch.



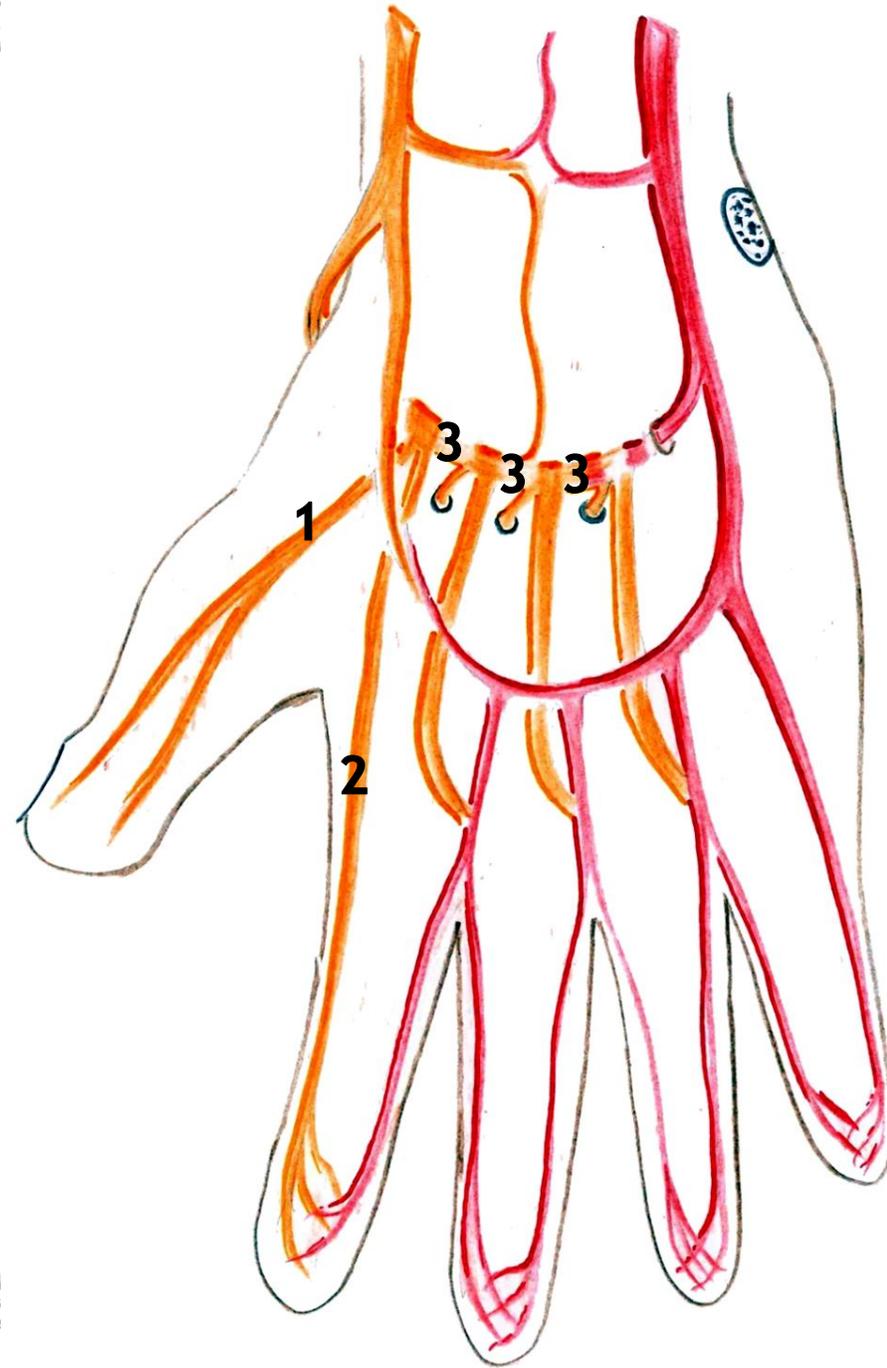
**B) On dorsum of the hand
(In the anatomical snuff box):**

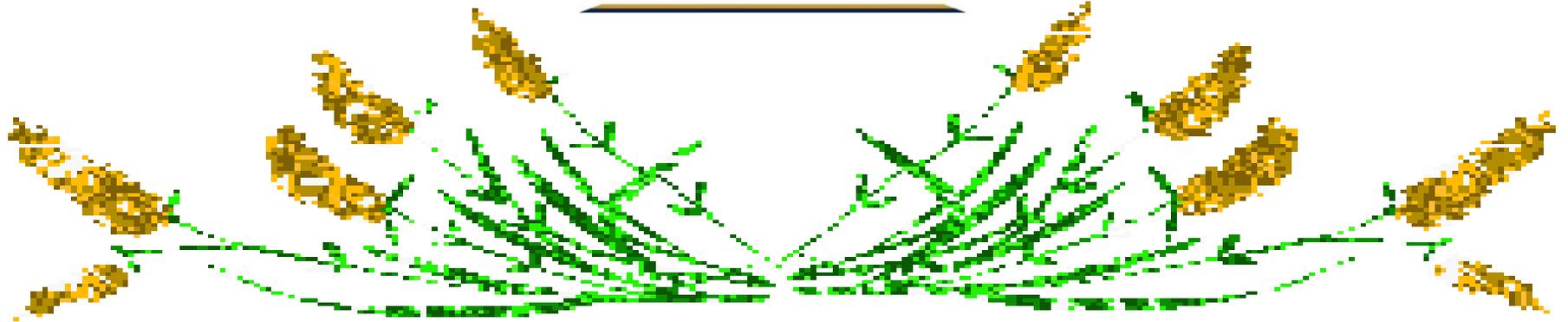
1. Dorsal carpal artery
2. 1st dorsal metacarpal artery
3. Dorsal digital artery of the thumb.



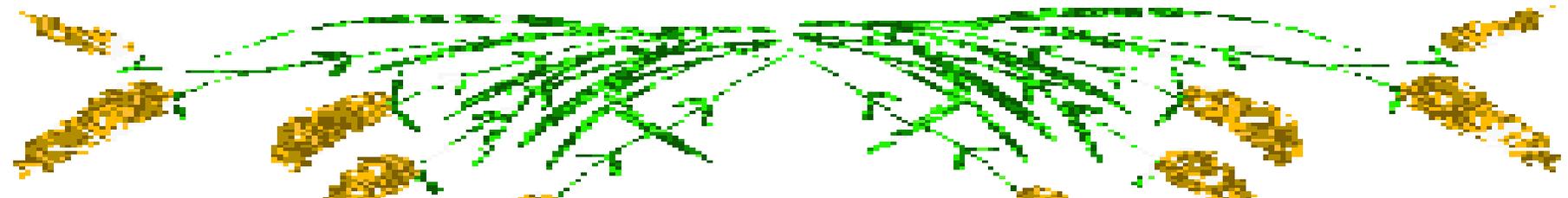
C) Branches in the Palm:

1. Princips pollicis.
2. Radialis indicis.
3. Deep palmer arch.



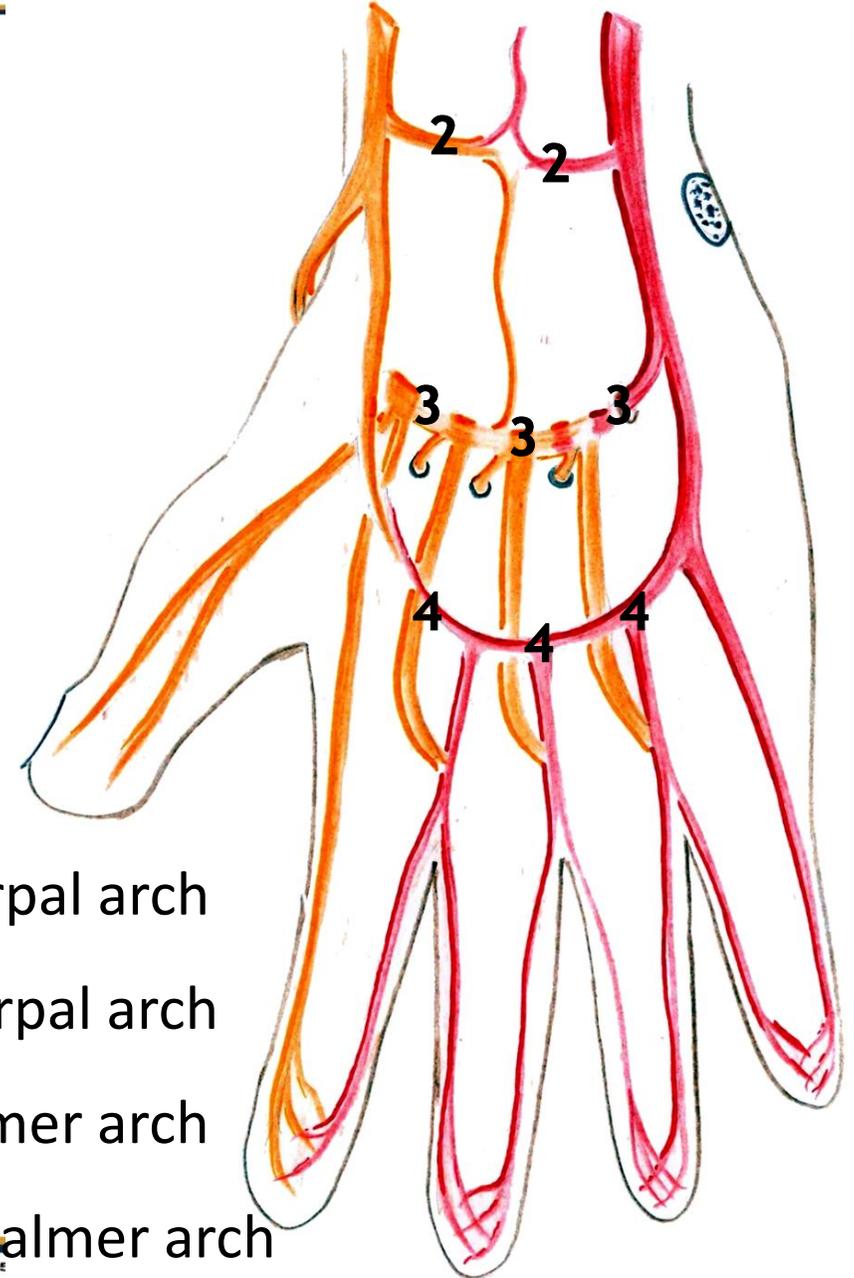
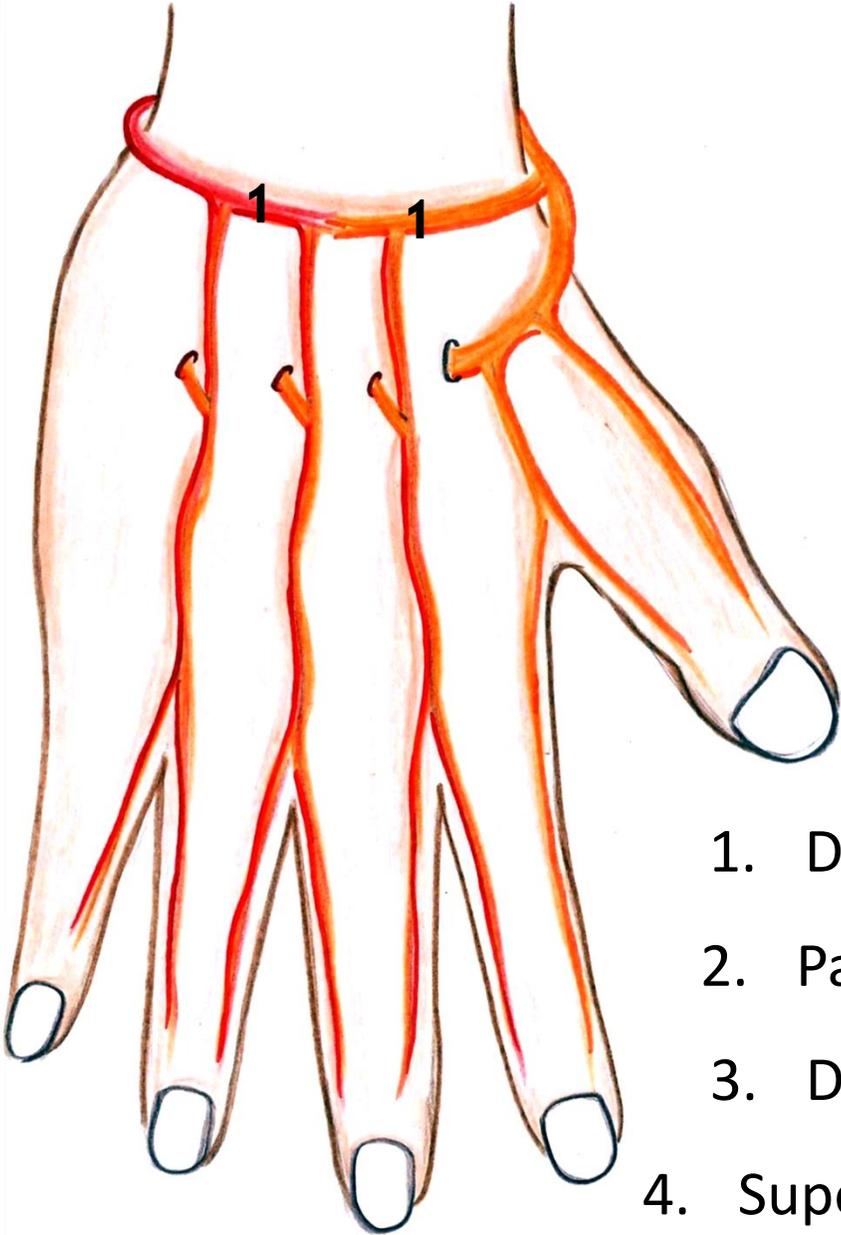


ARCHES OF THE HAND

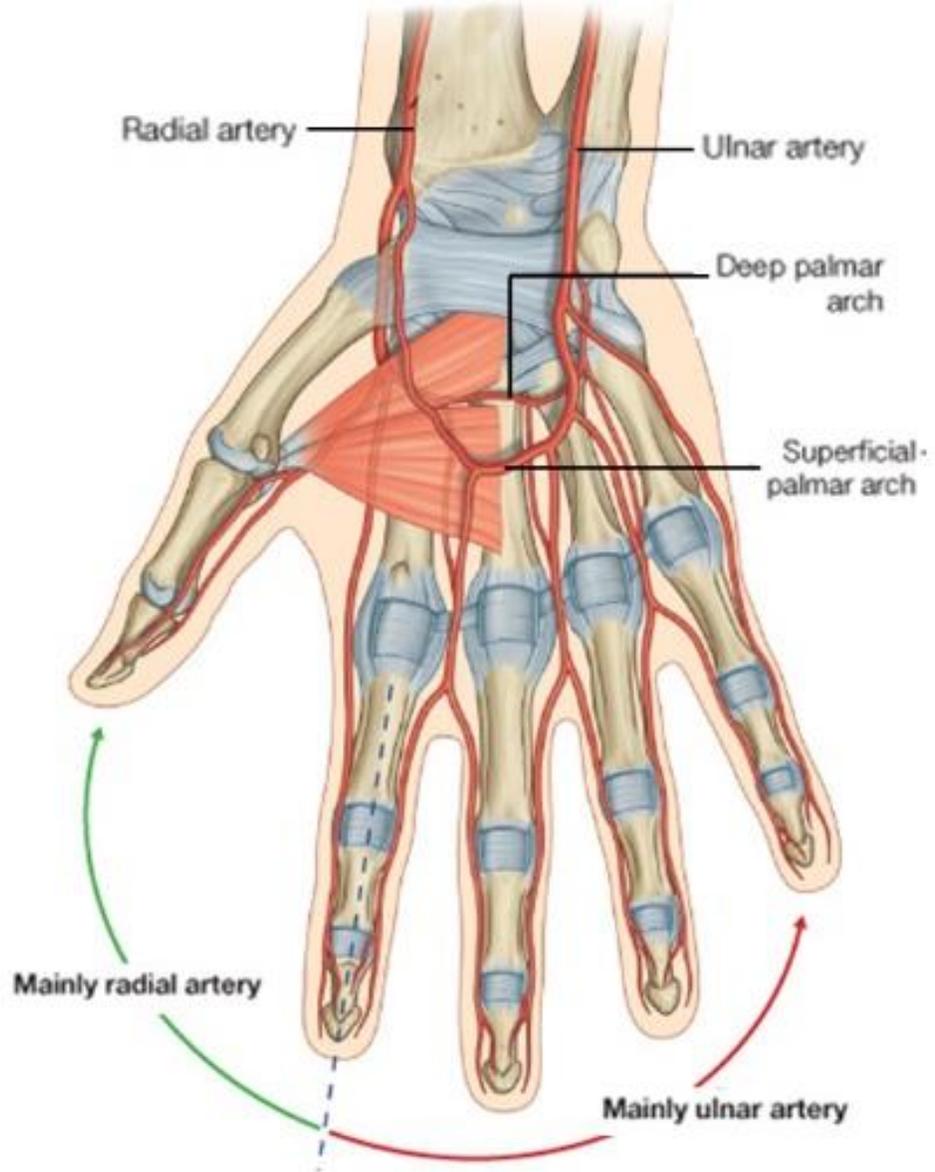


M N U





1. Dorsal carpal arch
2. Palmar carpal arch
3. Deep palmar arch
4. Superficial palmar arch



Radial Artery:

Supply lateral 1½ fingers

Ulnar Artery:

Supply medial 3½ fingers



Veins of Upper Limb



VEINS OF THE UPPER LIMB

Deep veins

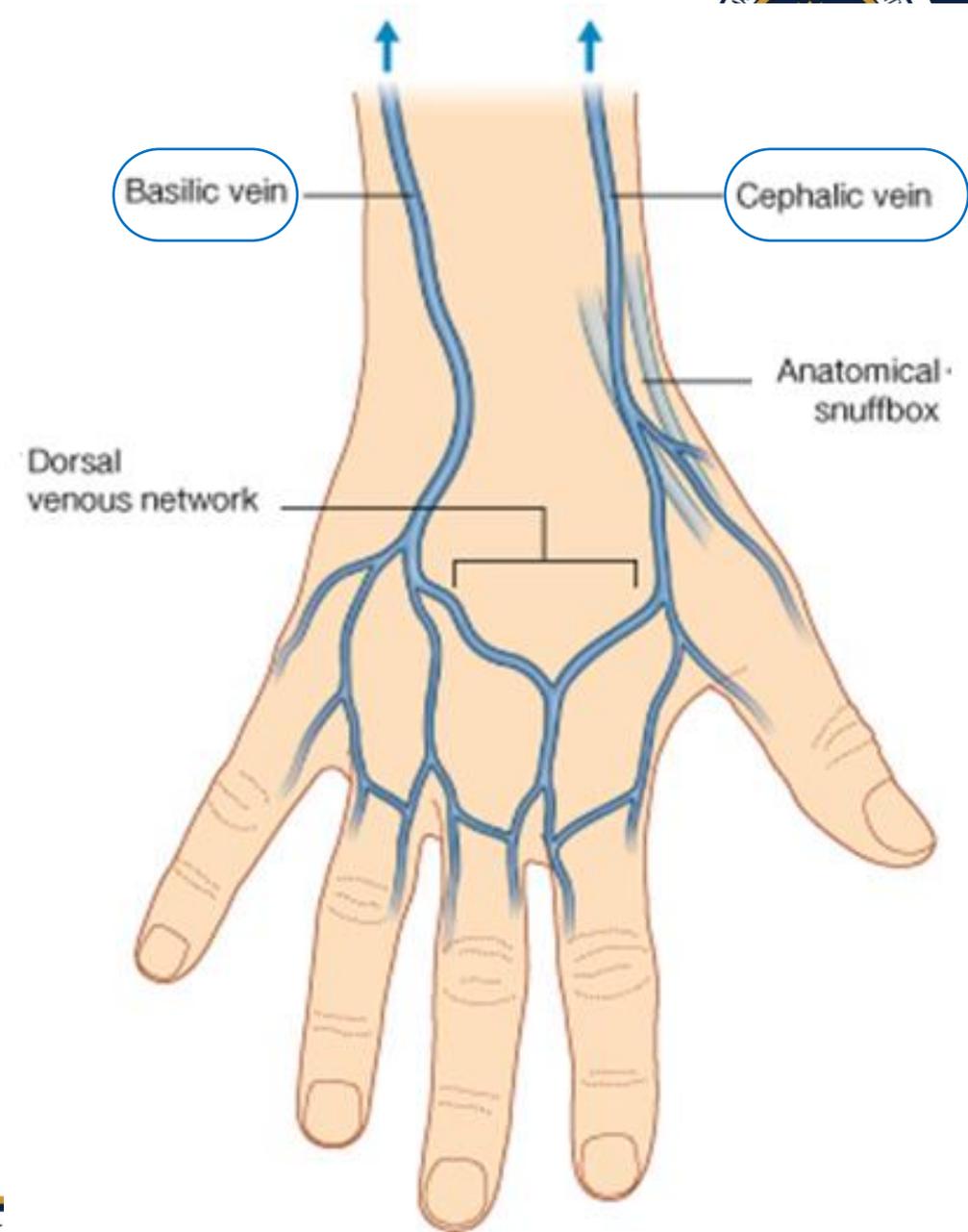
1. Venae comitantes of radial & ulnar a.
2. Venae comitantes of brachial a.
3. Axillary vein.

Superficial veins

- 1-Dorsal venous arch
- 2-Cephalic vein
- 3-Basilic vein
- 4- Median cubital vein
- 5- Median vein of the forearm

Beginning of hands vein

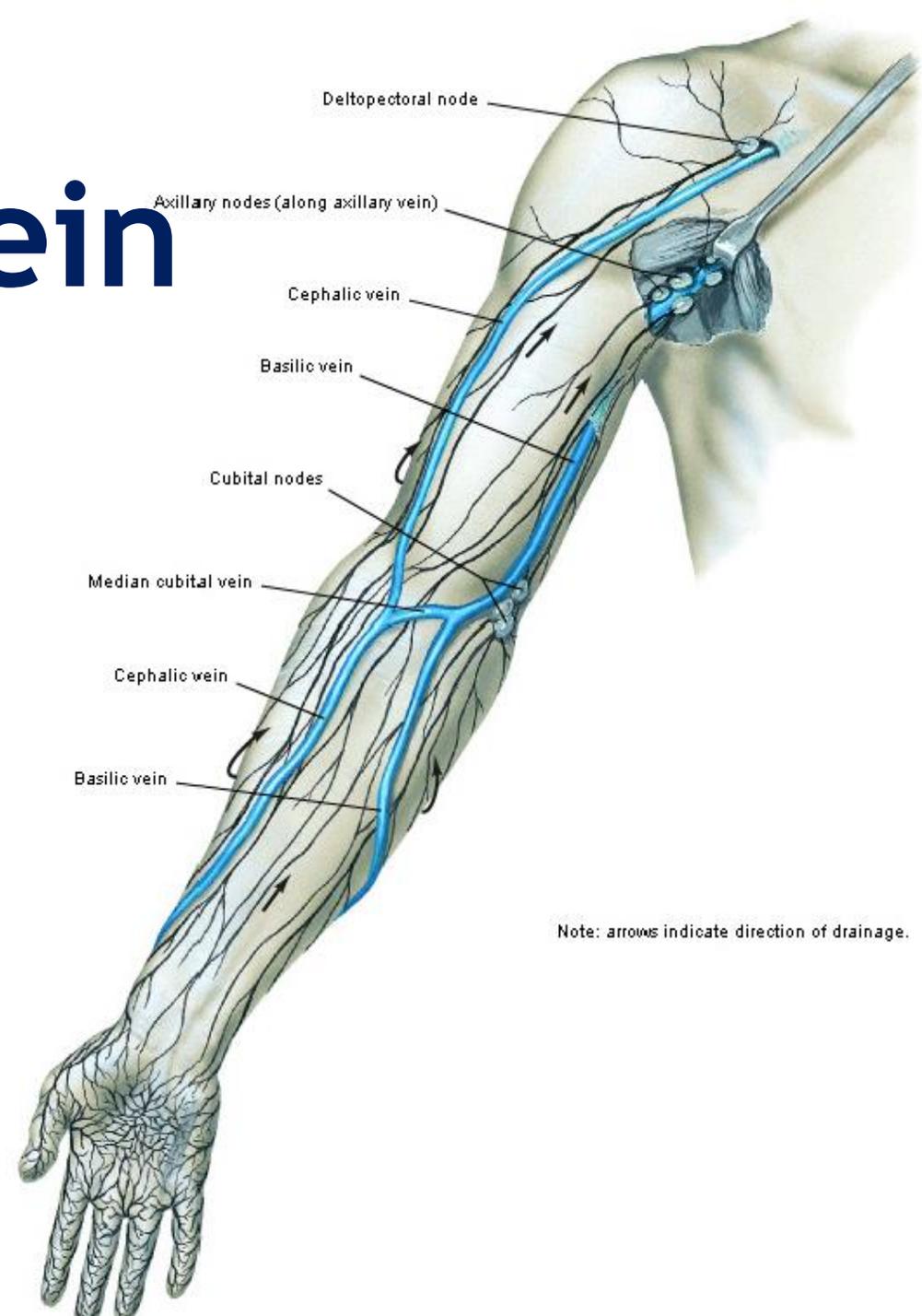
1. Basilic vein
2. Cephalic



Cephalic vein

Beginning: lateral end
of the dorsal venous
arch.

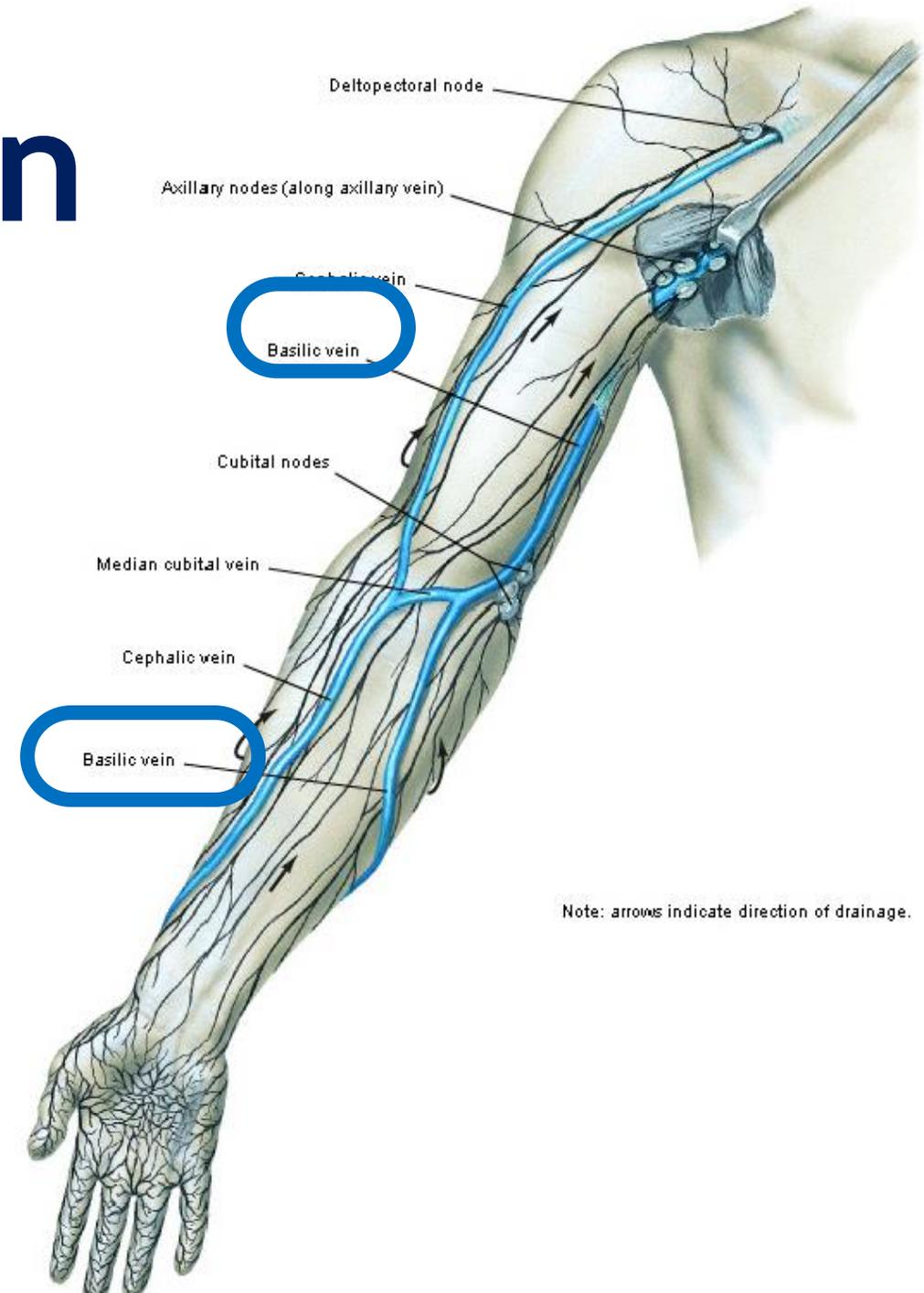
Termination: drain
into the **axillary vein**.



Basilic vein

Beginning: medial end of the dorsal venous arch.

Termination: continue as axillary vein.



THE SUPERFICIAL SYSTEM

1-Dorsal venous arch

2-Cephalic vein:

Beginning: lateral end of the dorsal venous arch.

Termination: drain into the axillary vein.

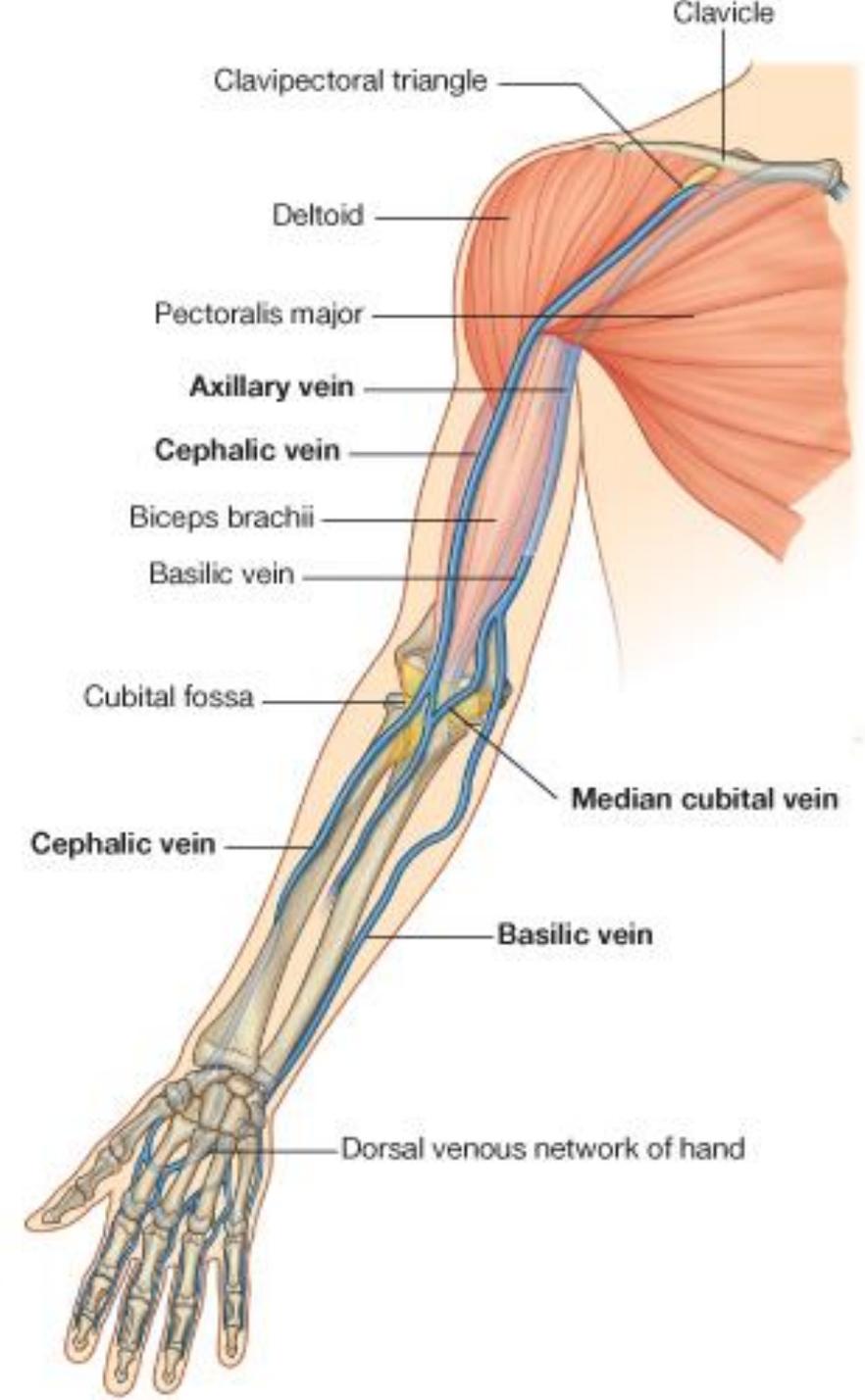
3-Basilic vein:

Beginning: medial end of the dorsal venous arch.

Termination: continue as axillary vein.

4- Median cubital vein: between cephalic & basilic veins.

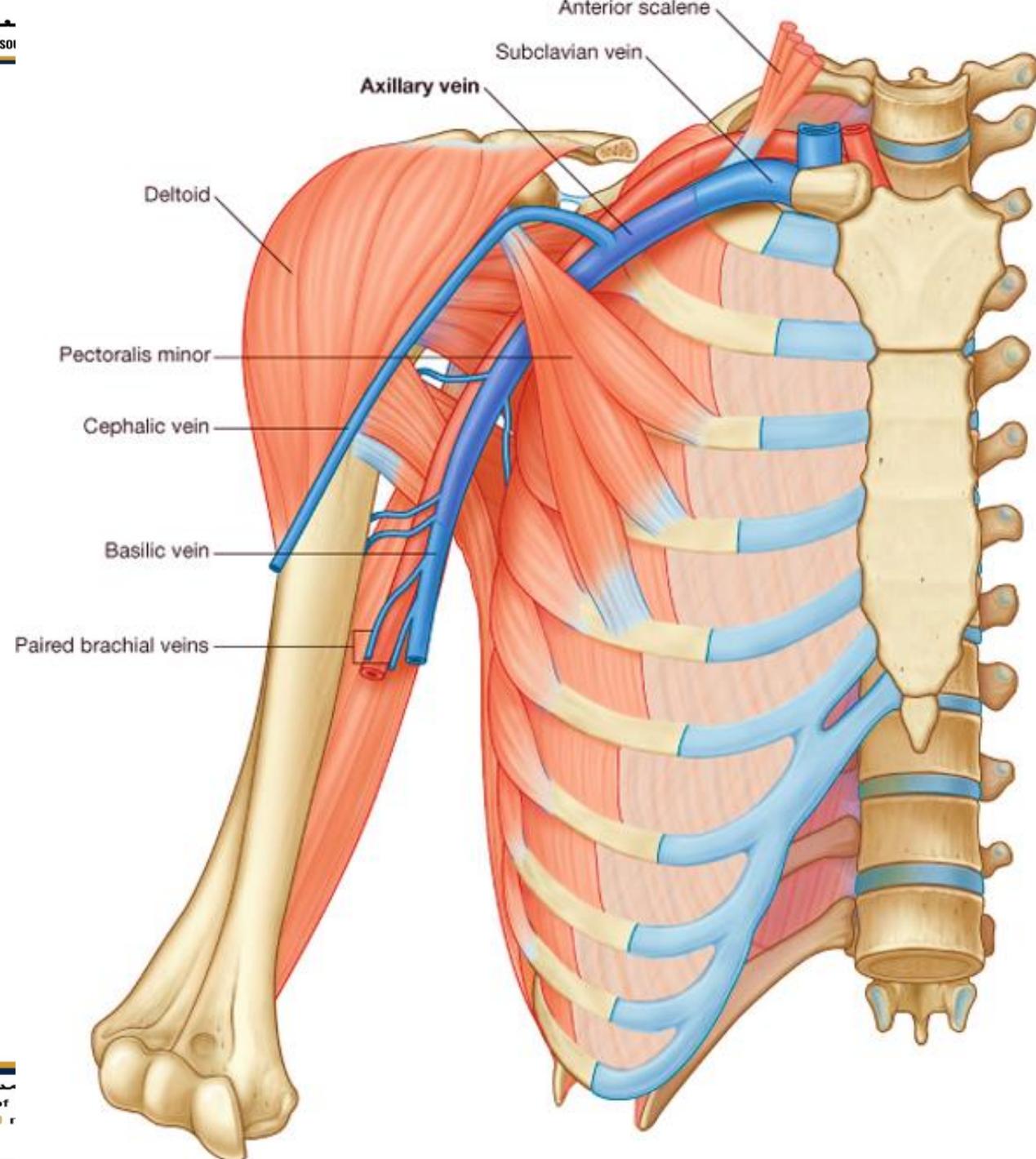
5- Median vein of the forearm.



THE DEEP VEINS

Consist of venae comitantes that accompany arteries.

- Venae comitantes of radial & ulnar arteries
- Venae comitantes of the brachial artery
- Axillary vein.



Quiz 2

Is the level of beginning of axillary artery?

- A) opposite the neck of first rib
- B) opposite the inner surface of first rib
- C) opposite the outer surface of first rib
- D) behind the sternoclavicular joint
- E) behind the sternal angle

Answer: C

Quiz 3

Is the level of beginning of brachial artery?

- A) opposite the neck of first rib
- B) opposite the inner surface of first rib
- C) opposite the outer surface of first rib
- D) lower border of TERES MAJOR
- E) upper border of TERES MAJOR

Answer: D





References

1. [Fundamentals of Anatomy & Physiology \(11th Edition\)](#)
2. [Gray's Anatomy for Students - 4th Edition - Elsevier](#)



