

ARTERIES of the upper limb

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ARTERIES OVERVIEW

- The main arterial stem of the upper limb passes through the root of the neck, the axilla and the arm before dividing into two in the forearm.

→ من الـ Left side
ولكن من الـ Right side
والـ للتفسير لايد ③

- Subclavian artery
- Axillary artery
- Brachial artery
- Radial artery
- Ulnar artery

THE ARTERY changes its name in each of the regions as it crosses particular bony or muscular landmarks

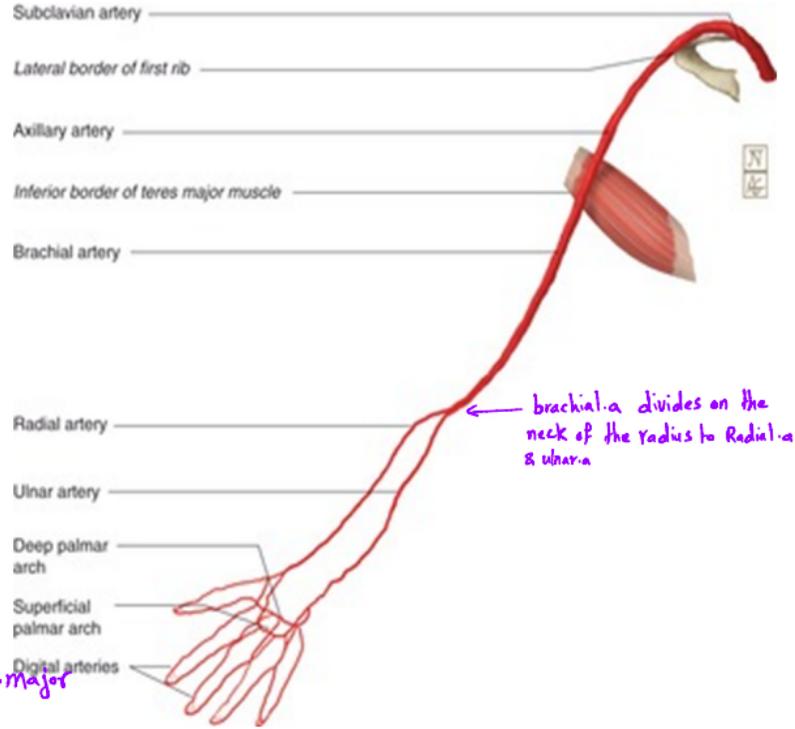
- The subclavian artery becomes the axillary artery after crossing the 1st rib

- The axillary artery becomes the brachial artery

after crossing the posterior axillary fold (at the lower boarder of teres major or pectoralis major)

- The brachial artery divides just distal to the

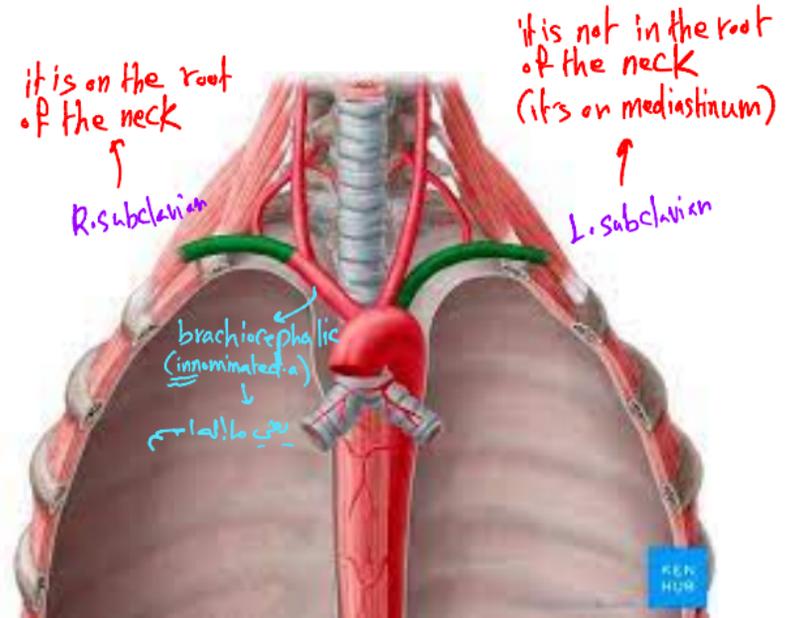
elbow into the radial and ulnar arteries: -opposite of the neck of the radius → ويمكن الأكثره تستبدلها
-in the cubital fossa



Clavicle → the only horizontal long bone

Subclavian Artery

- The arterial supply to the upper limb begins as the **subclavian artery**. **RIGHT** : from the brachiocephalic trunk.
LEFT: directly from the arch of aorta.
- The subclavian artery travels laterally towards the axilla.
→ or after passing the 1st rib
→ or at the outer border of 1st rib
- At the lateral border of the first rib, the subclavian artery enters the axilla – and is renamed the **axillary artery**.



Branches of the Axillary Artery

From the first part (1 branch):

- The superior (highest) thoracic artery

From the second part (2 branches):

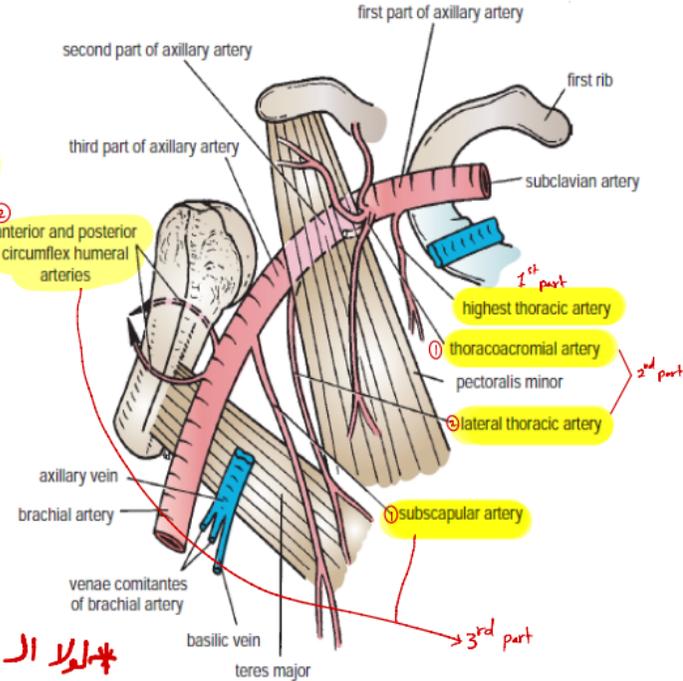
- The thoracoacromial artery → supplies thoracic and acromial region
- The lateral thoracic artery → supplies pectoral region

From the third part (3 branches):

- The subscapular artery → يعني الـ axillary عبر الـ shoulder joint وتشارك بالـ anastomosis ووصول لـ anterior surface of the region
- The anterior and posterior circumflex humeral arteries



Surgical neck of the humerus

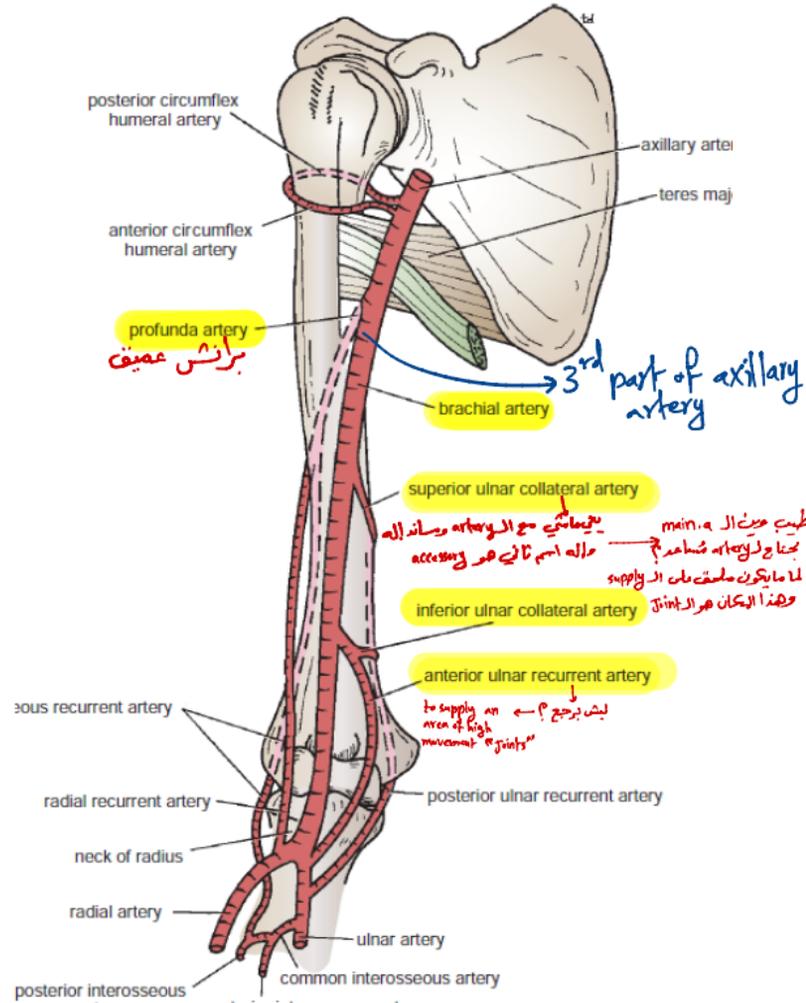


* لولا الـ shoulder anastomosis كان اضطرت اظل عامل
 ايدي بوضعية معينة لانه اذا حركتها غلط رو ليدك compression
 لا B.V و يصيبني ischemia فالـ anastomosis بتحلينا فرك! ايدينا مثل ما بدنا.

Brachial artery

- Begins: at the distal border of the tendon of teres major
- Ends about 1 cm distal to the elbow joint
- terminates by dividing into radial and ulnar arteries.
- **Brachial artery is the site of auscultation of blood pressure**

→ because it's covered only by skin & there's a bone behind it.
 فما يفرق حتى لو كان المشخص ناعم



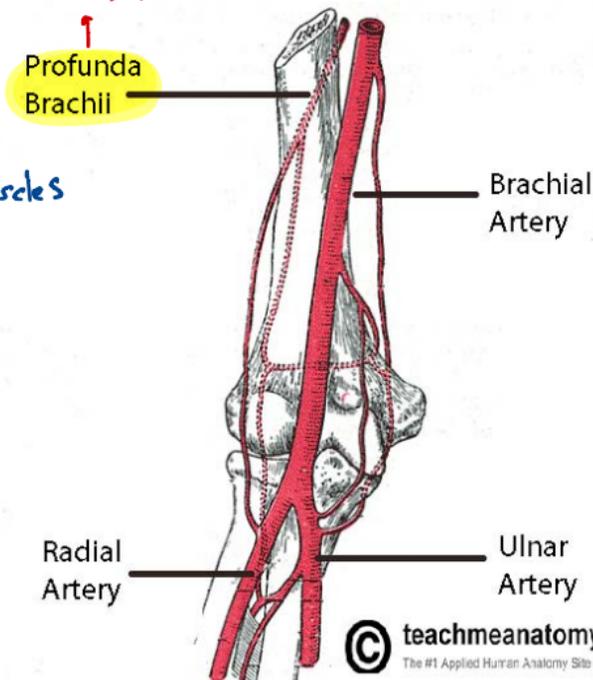
بالعادة Cutaneous artery ← ^{أعلى} من Superficial artery ⇒ Superficial artery وبالعادة ما فيه superficial vein
 ← ^{من} Superficial artery ⇒ Superficial vein

Brachial artery

- 1- Radial Collateral branches
 2- Cutaneous branches
 3- muscular branches
- بنزول نزول عن يلافي

Branches :

- 1- ➤ Profunda brachii artery
- 2- ➤ ~~X~~ Nutrient artery of humerus → for bones & muscles
- 3- ➤ Superior ulnar collateral artery
- 4- ➤ Middle ulnar collateral artery (if present)
- 5- ➤ Inferior ulnar collateral artery
- 6- ➤ ~~X~~ Muscular branches



Relations of the brachial artery in the arm

سلايد محذوف
(بس يجي بالامتحانات الدولية)

● Laterally:

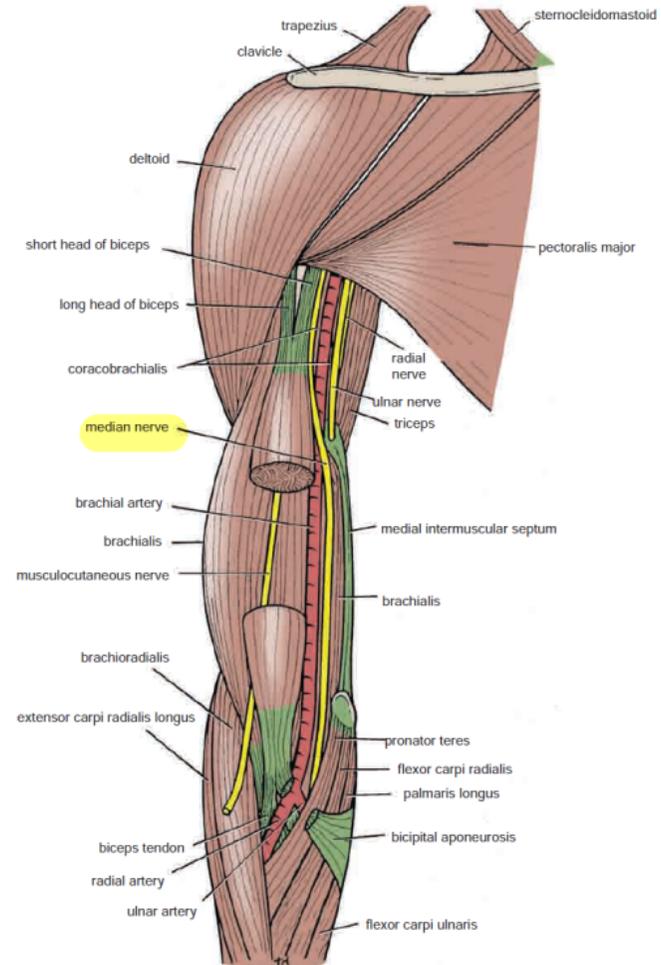
- In the upper half, **median nerve** and musculocutaneous nerve.
- in the lower half, the biceps brachii.

● Medially:

- In the upper half, ulnar nerve and medial cutaneous nerves of the arm and forearm.
- In the lower half , **median nerve** and basilic vein.

● Anteriorly:

- **Median nerve** crosses in front of the artery from lateral to medial.
- **Bicipital aponeurosis** which separates the brachial artery from the median cubital vein.



Radial artery

- **BEGINS:** from the brachial artery near the neck of the radius
- **Course:**
 - passes deep to brachioradialis
 - At the wrist it passes in the **anatomical Radial (snuff) box**
- **ENDS:** in the hand by anastomosis with the **DEEP branch** of the ulnar artery, completing the **deep palmar arch**

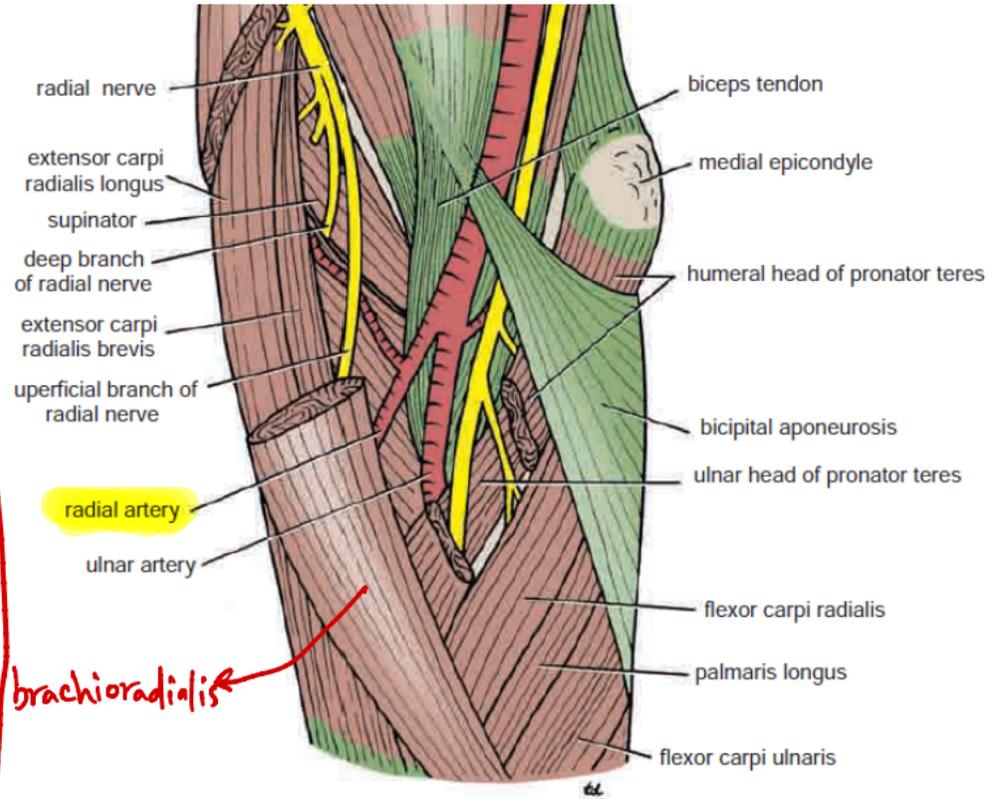
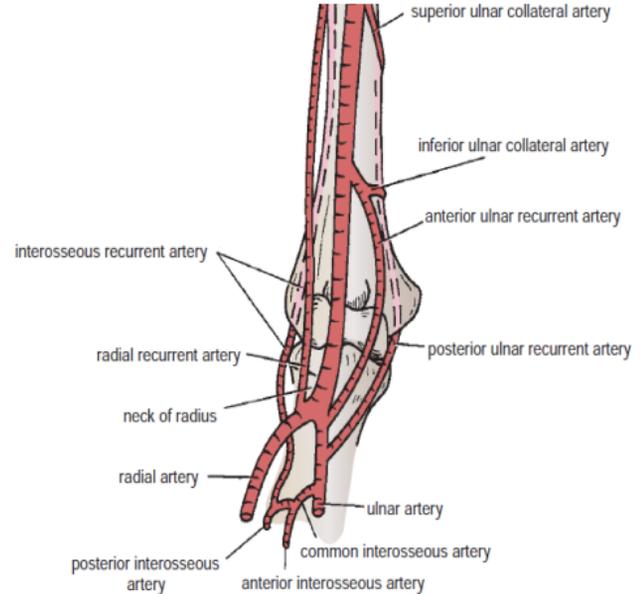


FIGURE 9.47 Right cubital fossa.

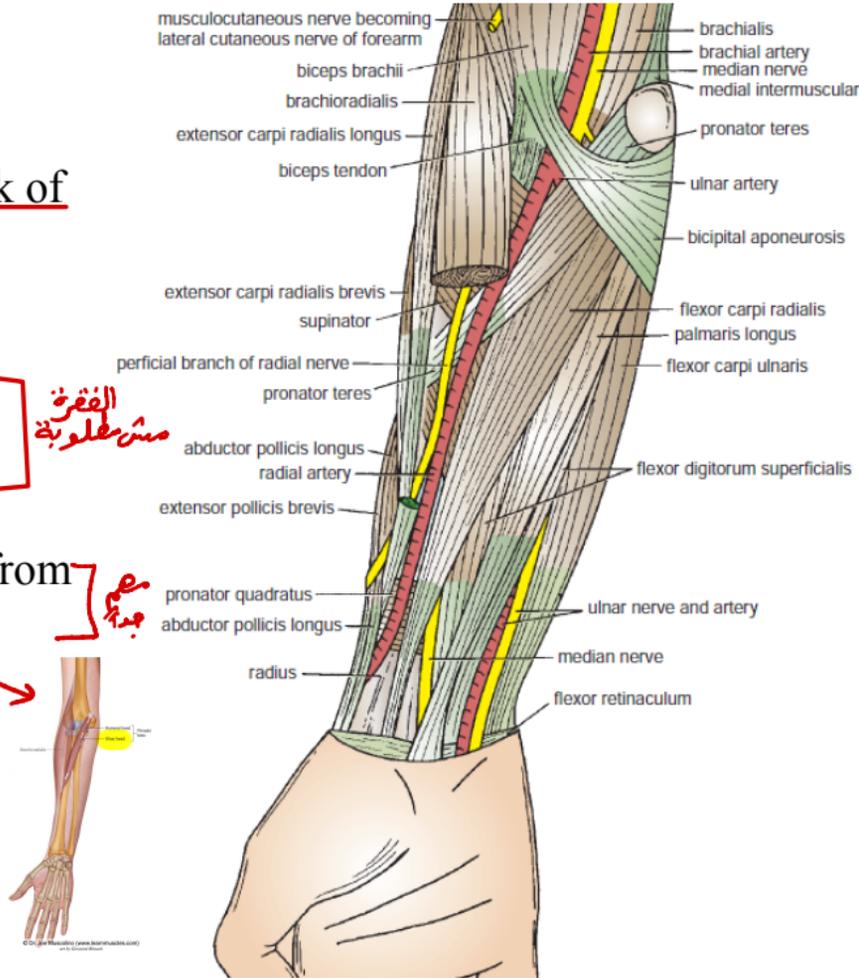
Branches of the Radial artery

- ① Radial recurrent artery
- ② Radial collateral (anastomoses with the radial collateral branch of the profunda brachii)
- ③ Muscular branches
- ④ Cutaneous branches



Ulnar artery

- **BEGINS** from the brachial artery near the neck of the radius
- Course:
 - passes **DEEP** to pronator teres, flexor carpi radialis, palmaris longus and flexor digitorum superficialis
 - The **ulnar head of pronator teres** separates it from the median nerve
 - **ENDS** in the hand by anastomosis with the superficial palmar branch of the radial artery, completing the **superficial palmar arch**.



Ulnar artery

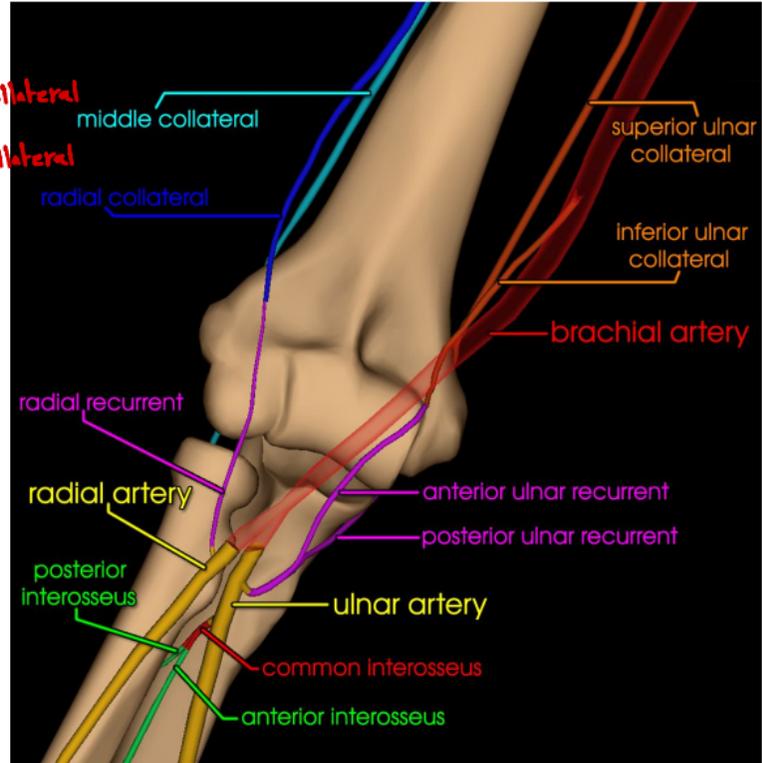
Branches

- 1- Anterior ulnar recurrent → anastomoses with inferior ulnar collateral of brachial artery
- 2- Posterior ulnar recurrent → anastomoses with superior ulnar collateral of brachial artery
- 3- Common interosseous artery, which divides into anterior interosseous and posterior interosseous artery (which gives rise to the posterior interosseous recurrent artery) which will share on anastomosis around the elbow joint
- Muscular branches
- Cutaneous branches along the septum between flexor carpi ulnaris and flexor digitorum superficialis.

لانه يكون من قدام اعلا

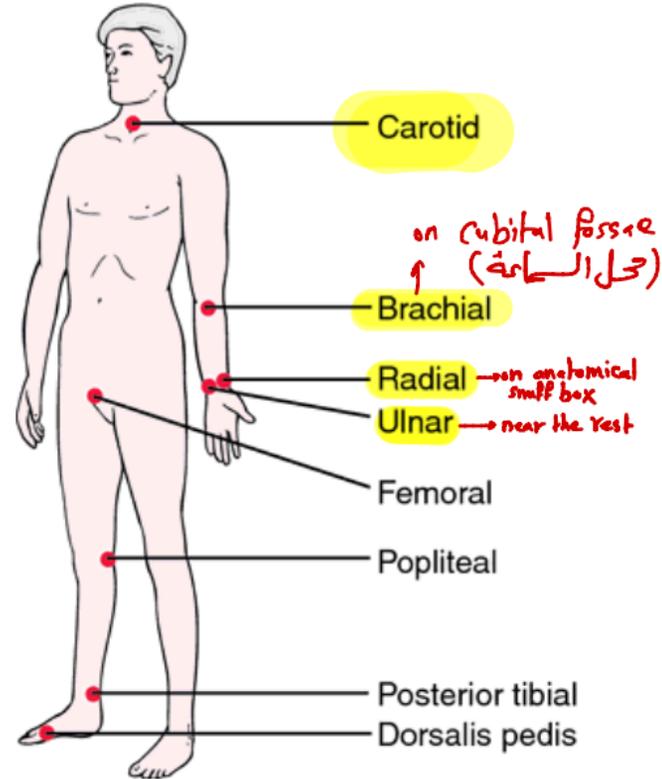
لانه يكون من وراء اعلا

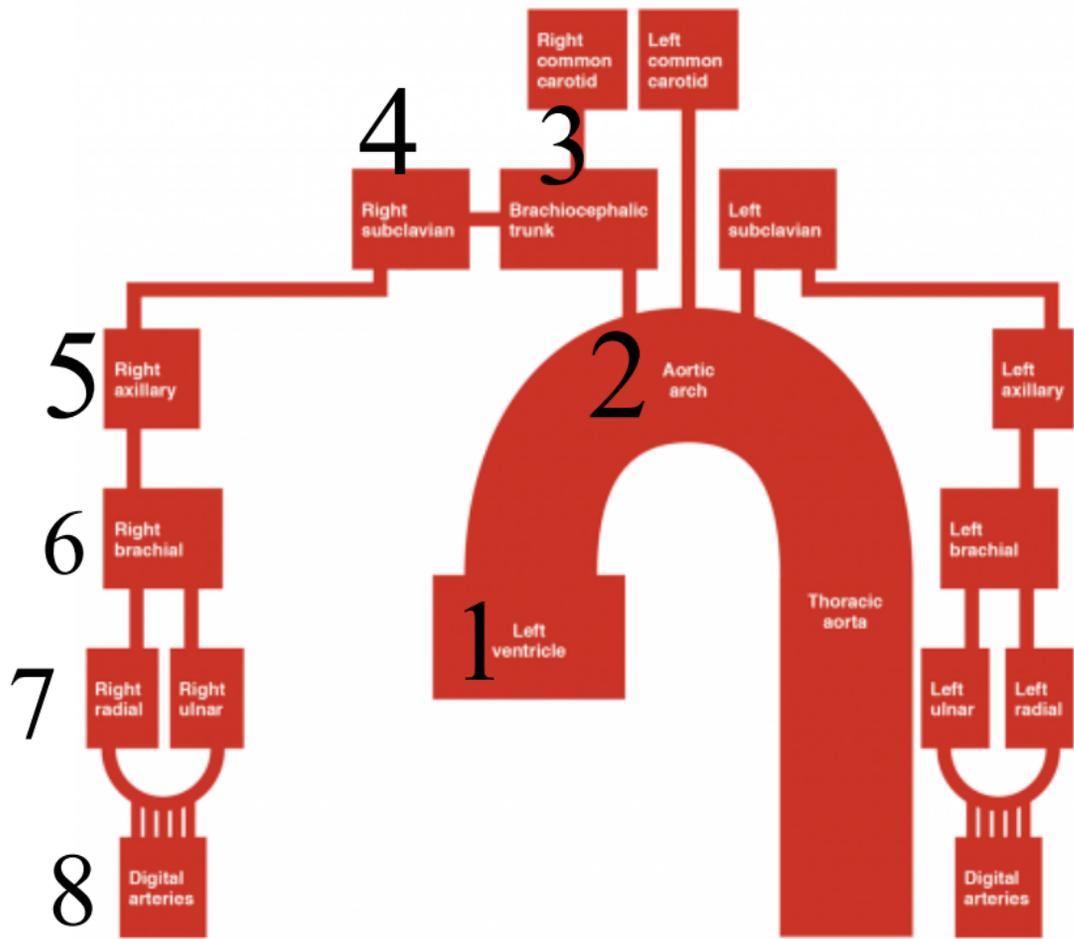
من حاد



pulsation of upper limb

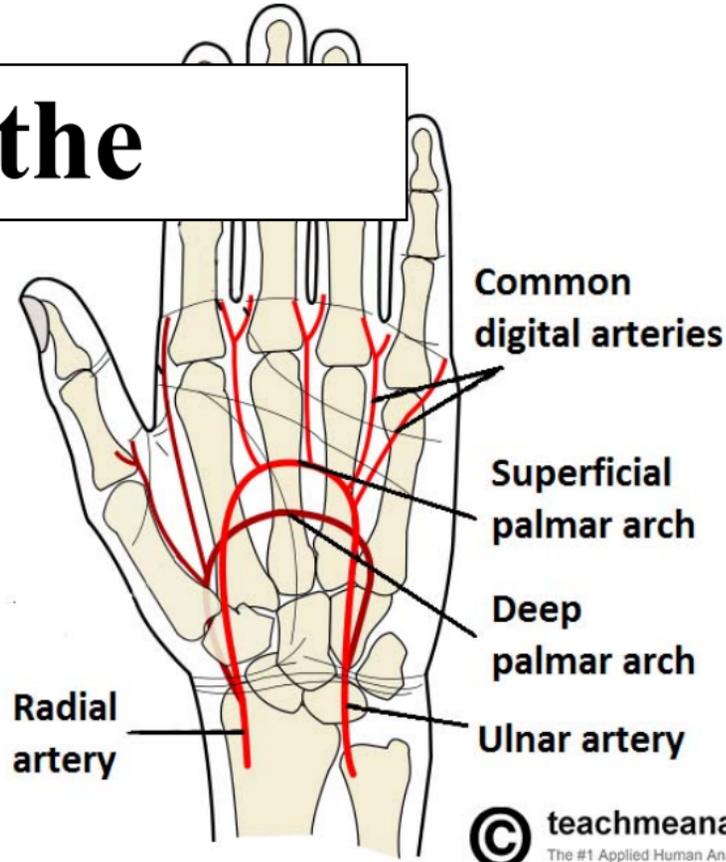
- Pulsations of the brachial artery, radial artery, and ulnar artery are palpable because some parts of these arteries are not covered by the muscles and are close to the skin.





من هون بيد أ العلي

Arteries in the hand



teachmeanatomy

The #1 Applied Human Anatomy Site on the Web.

- The blood supply to the hand is provided by the radial and ulnar arteries
- radial and ulnar arteries give rise to a superficial and a deep palmar arch and to smaller tributaries as they travel distally to the tips of the fingers.



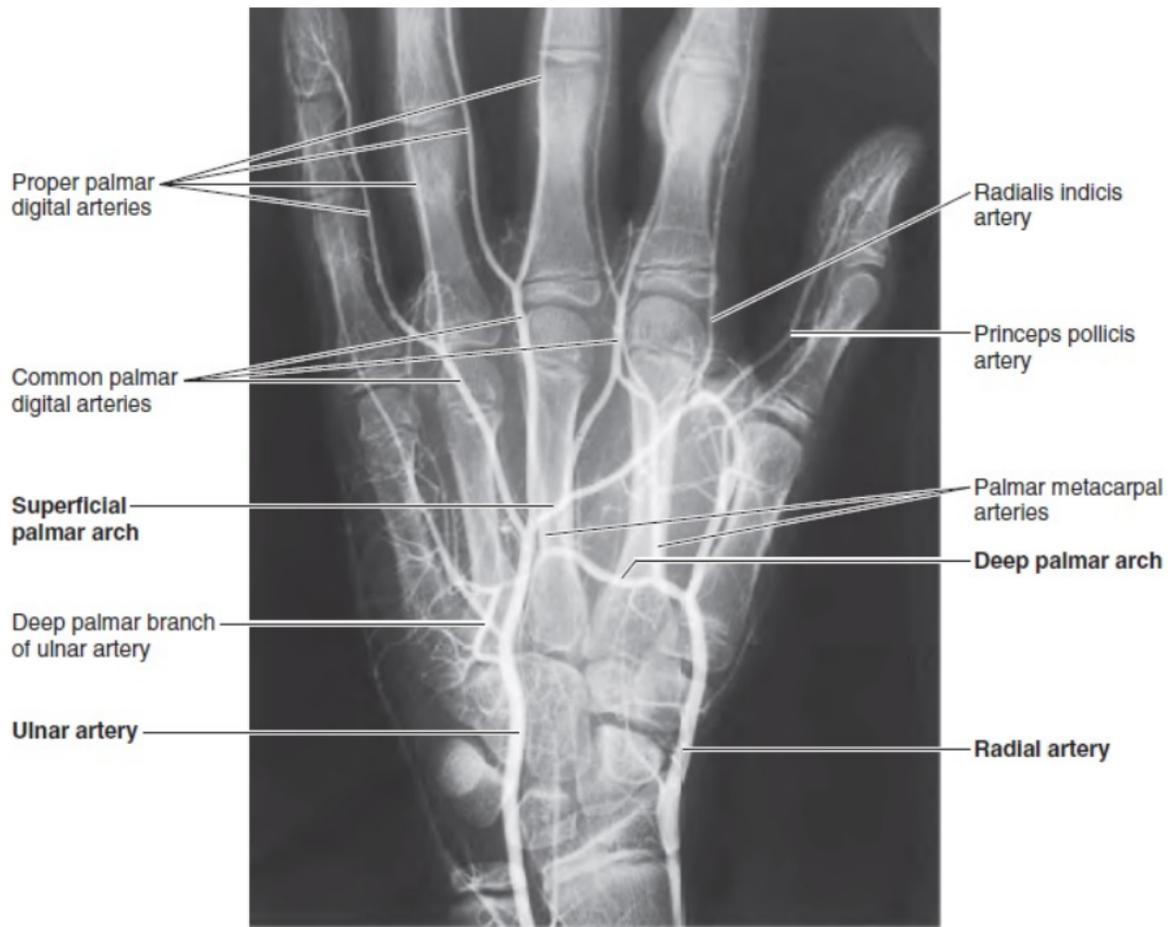
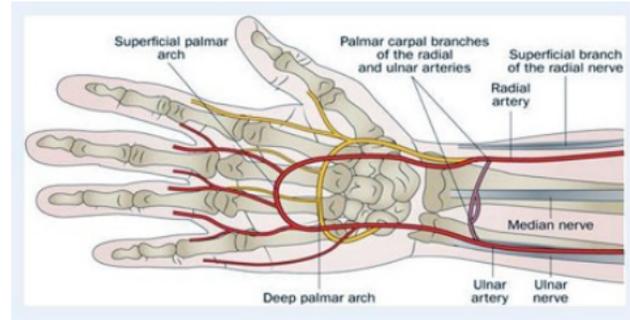


FIGURE 6.83. Arteriogram of wrist and hand. The carpal bones are fully ossified in this teenage hand, but the epiphyseal plates (growth plates) of the

ULNAR ARTERY

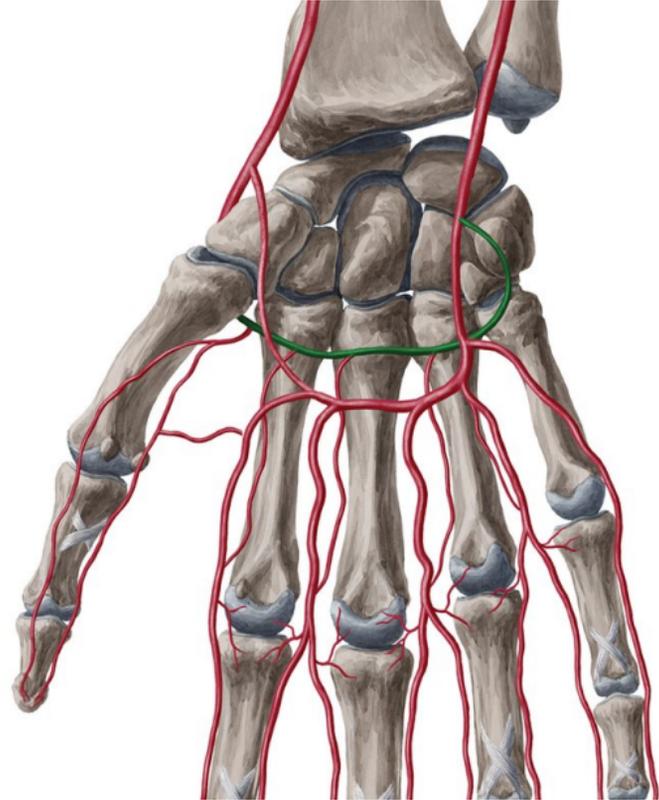
- The ulnar artery, with the ulnar nerve, enters the hand lateral to the pisiform and anterior to the flexor retinaculum.
- The artery divides into two terminal branches, the superficial palmar arch and the deep palmar branch





Ulnar artery

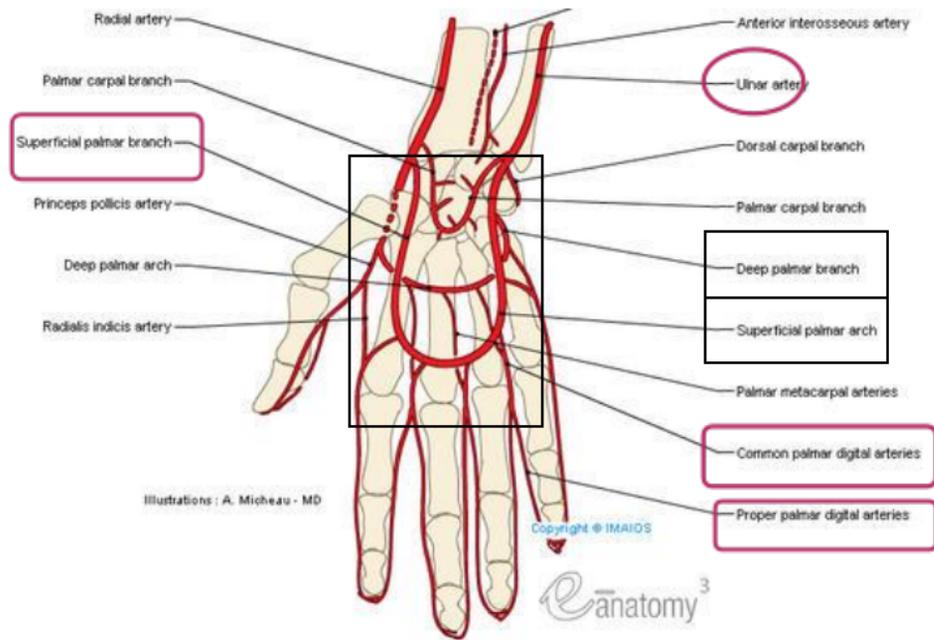
- Deep palmar branch. Curves medially around the hook of the hamate to the deep layer of the palm.
- it anastomoses with the deep palmar arch of the radial artery.
- It also gives rise to the **palmar metacarpal** arteries.
- which in turn anastomose with the **common palmar digital** arteries.

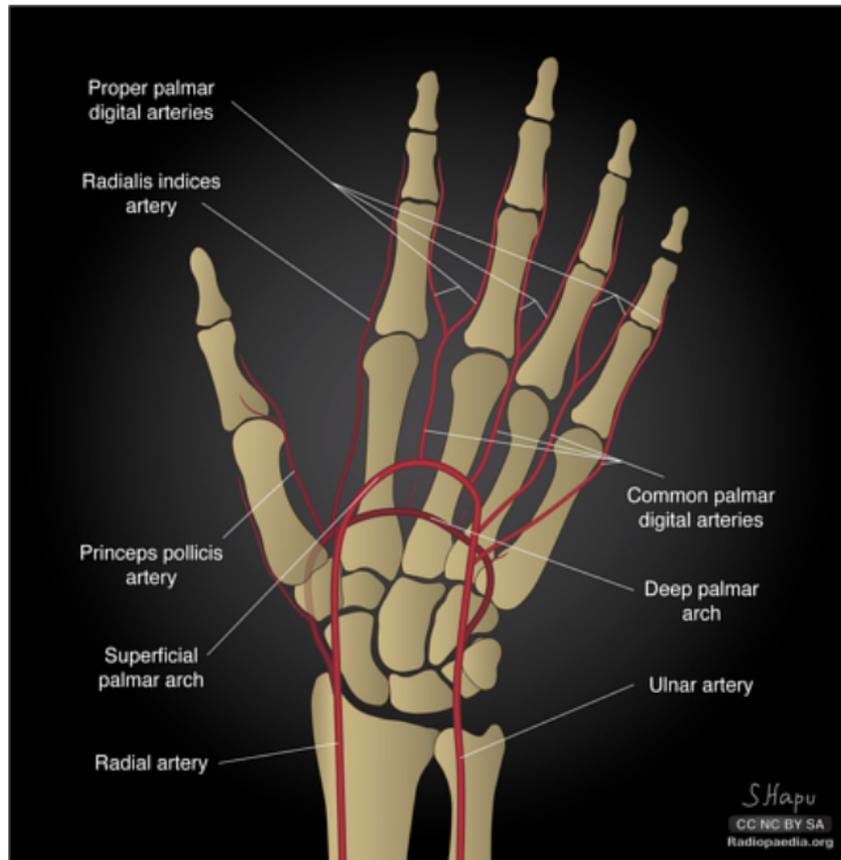


Ulnar artery

Superficial palmar arch.

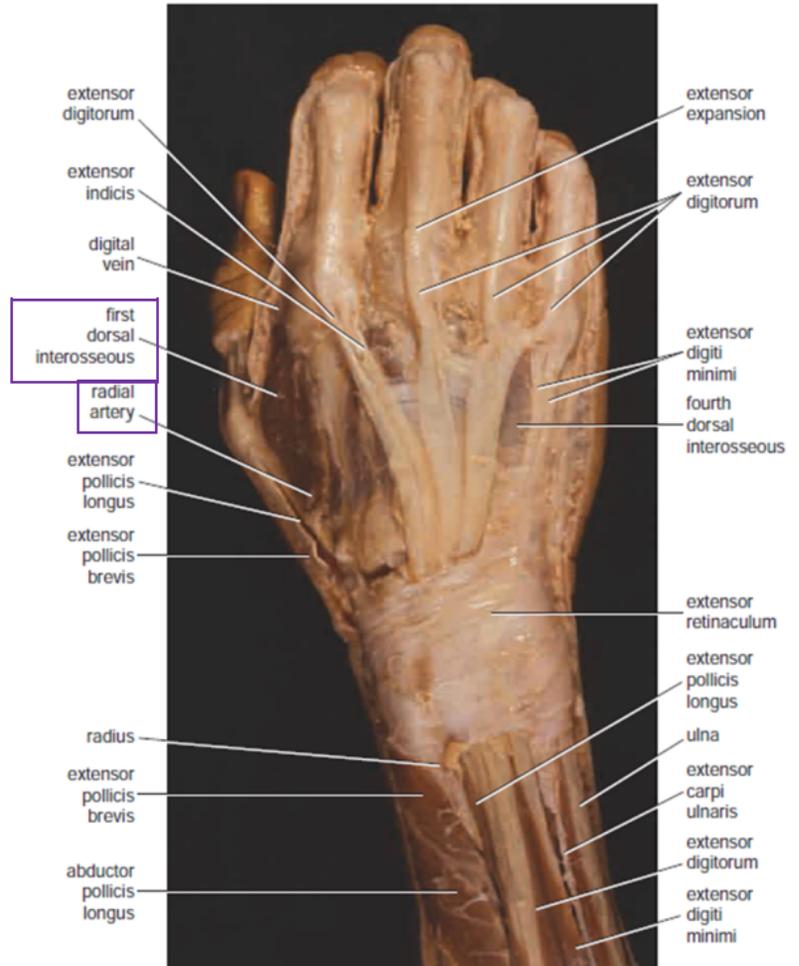
- The superficial palmar arch, the main termination of the ulnar artery.
- gives rise to three common palmar digital arteries that anastomose with the **palmar metacarpal arteries** from the deep palmar arch.
- Each common palmar digital artery divides into **A PAIR** of **proper palmar digital arteries**, which run along the adjacent sides of the 2nd–4th digits.
- The superficial palmar arch anastomoses with the palmar branch of the radial artery just deep to the palmar aponeurosis, where it gives rise to the common palmar digital arteries.

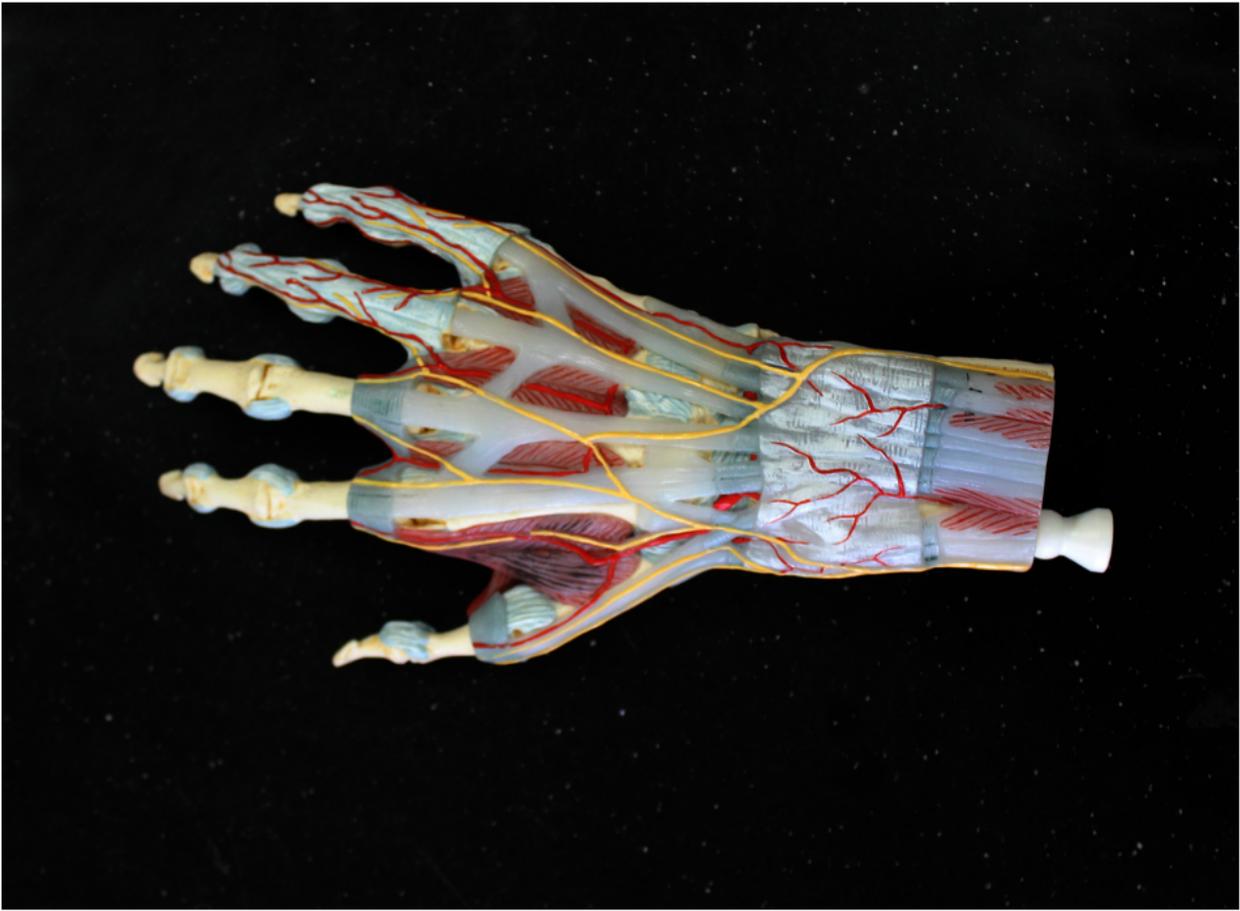




RADIAL ARTERY

- The **radial artery** curves dorsally around the scaphoid and trapezium and crosses the floor of the *anatomical snuff box*
- It enters the palm by passing between the heads of the **1st dorsal interosseous muscle** and then turns medially, passing between the heads of the adductor pollicis.
- The radial artery ends by anastomosing with the **deep branch of the ulnar artery** to form the **DEEP PALMAR ARCH**, which is formed mainly by the radial artery.





RADIAL ARTERY

- The deep palmar arch, which is formed mainly by the radial artery.
- This arch lies across the metacarpals just distal to their bases .
- The deep palmar arch gives rise to three palmar metacarpal arteries and the princeps pollicis artery
- The **radialis indicis** artery passes along the lateral side of the index finger. It usually arises from the **radial artery**, but it may originate from the **princeps pollicis**.

