



Student Notes

ANATOMY

1st Edition

UPPER LIMB



INDEX – UPPERLIMB – ESSAYS:

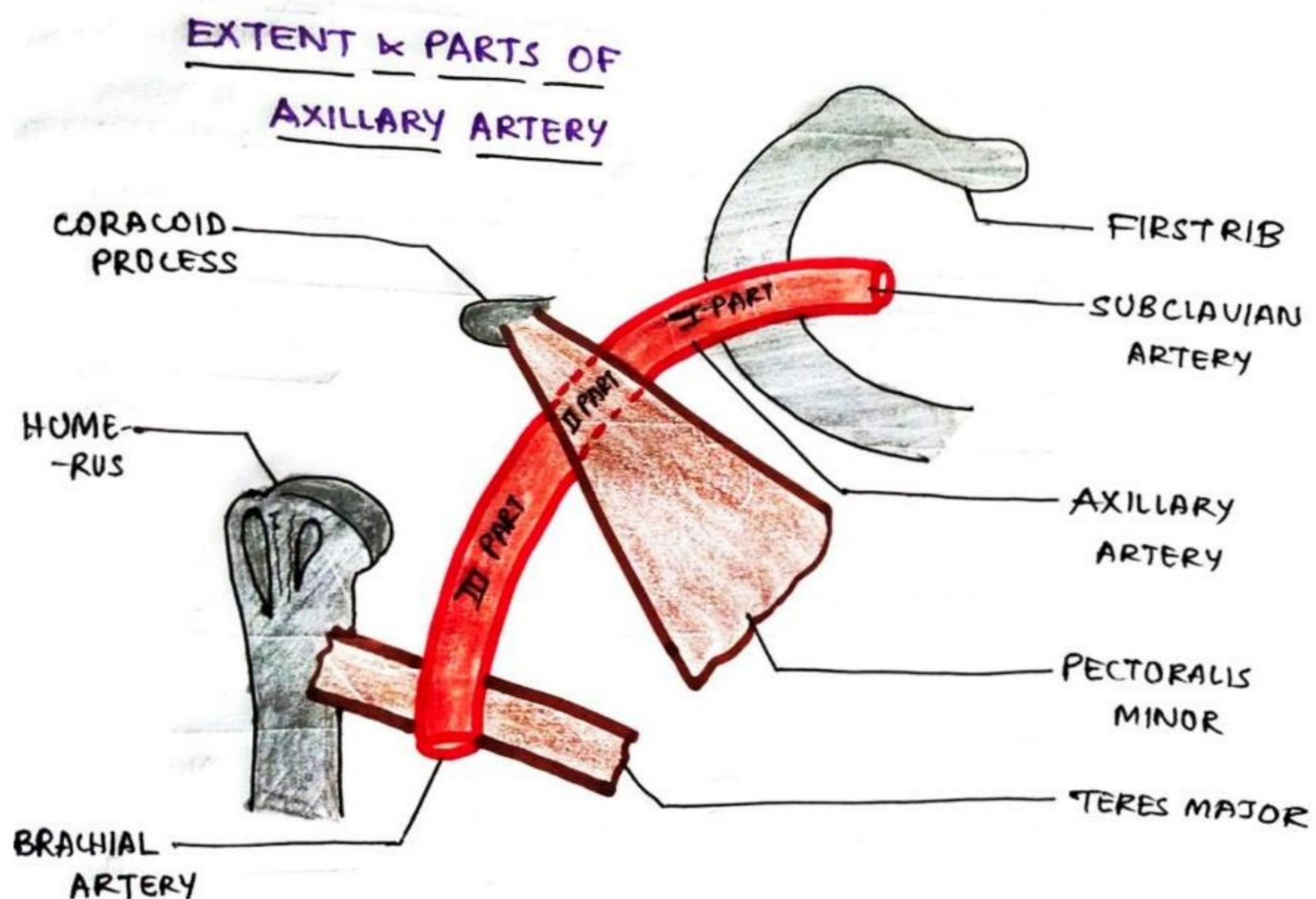
SR. NO.	NAME OF THE QUESTION	PAGE NO.
1.	AXILLARY ARTERY	2
2.	BRACHIAL PLEXUS	9
3.	SHOULDER JOINT	15
4.	ELBOW JOINT	22
5.	BRACHIAL ARTERY	28
6.	MEDIAN NERVE	31
7.	RADIAL NERVE	33
8.	ULNAR NERVE	38
9.	MAMMARY GLAND	42

1. . AXILLARY ARTERY

- **COMMENCEMENT** – upper border of first rib, continuation of subclavian artery
- **COURSE** – in axilla, runs along lateral wall nearer to anterior wall.
- In axilla – crossed superficially by pectoralis minor muscle

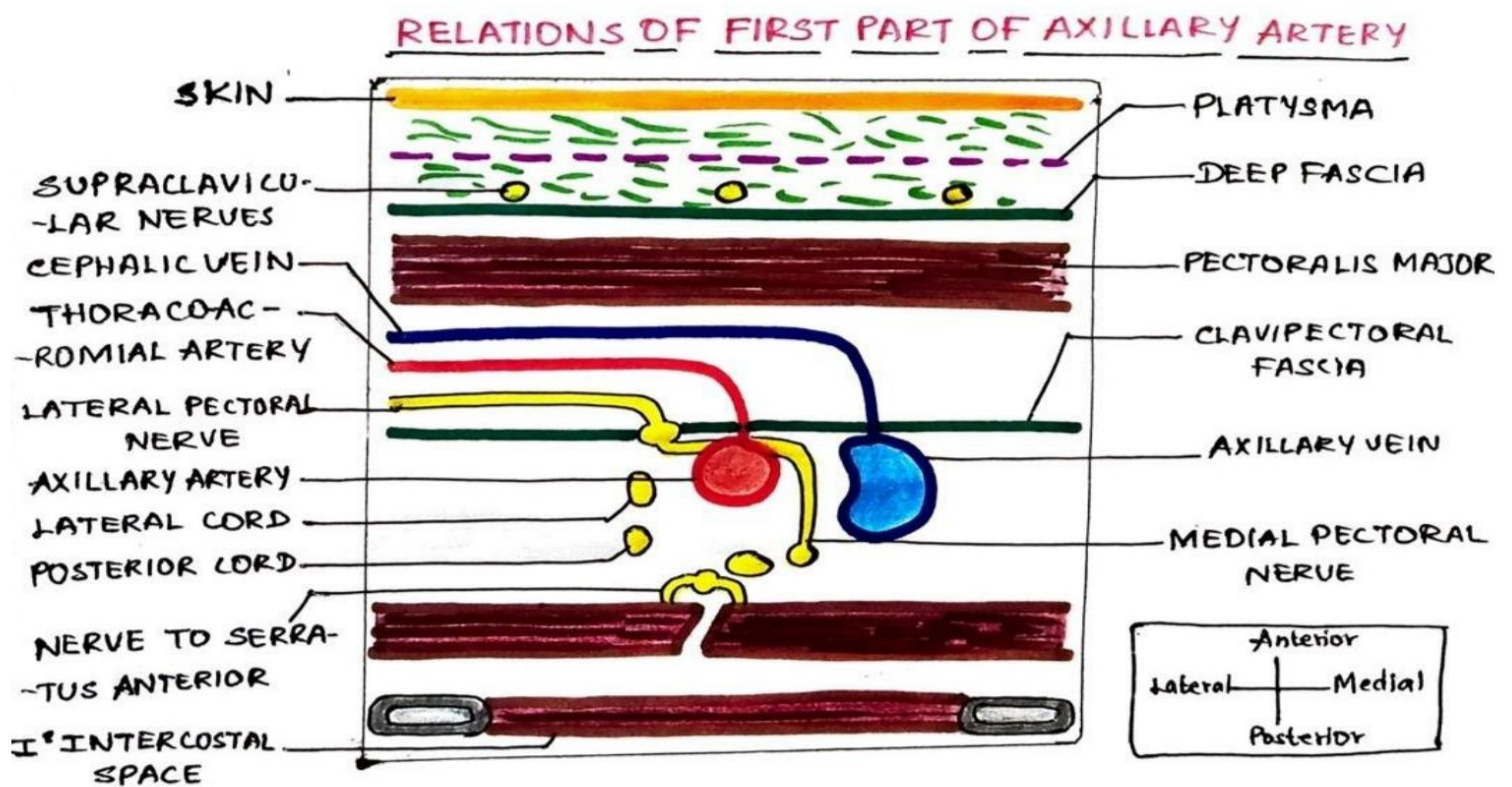
PARTS OF AXILLARY ARTERY:

- Pectoralis minor divides it into 3 parts
 1. **FIRST PART** – superior to muscle
 2. **SECOND PART** – posterior to muscle
 3. **THIRD PART** – inferior to muscle

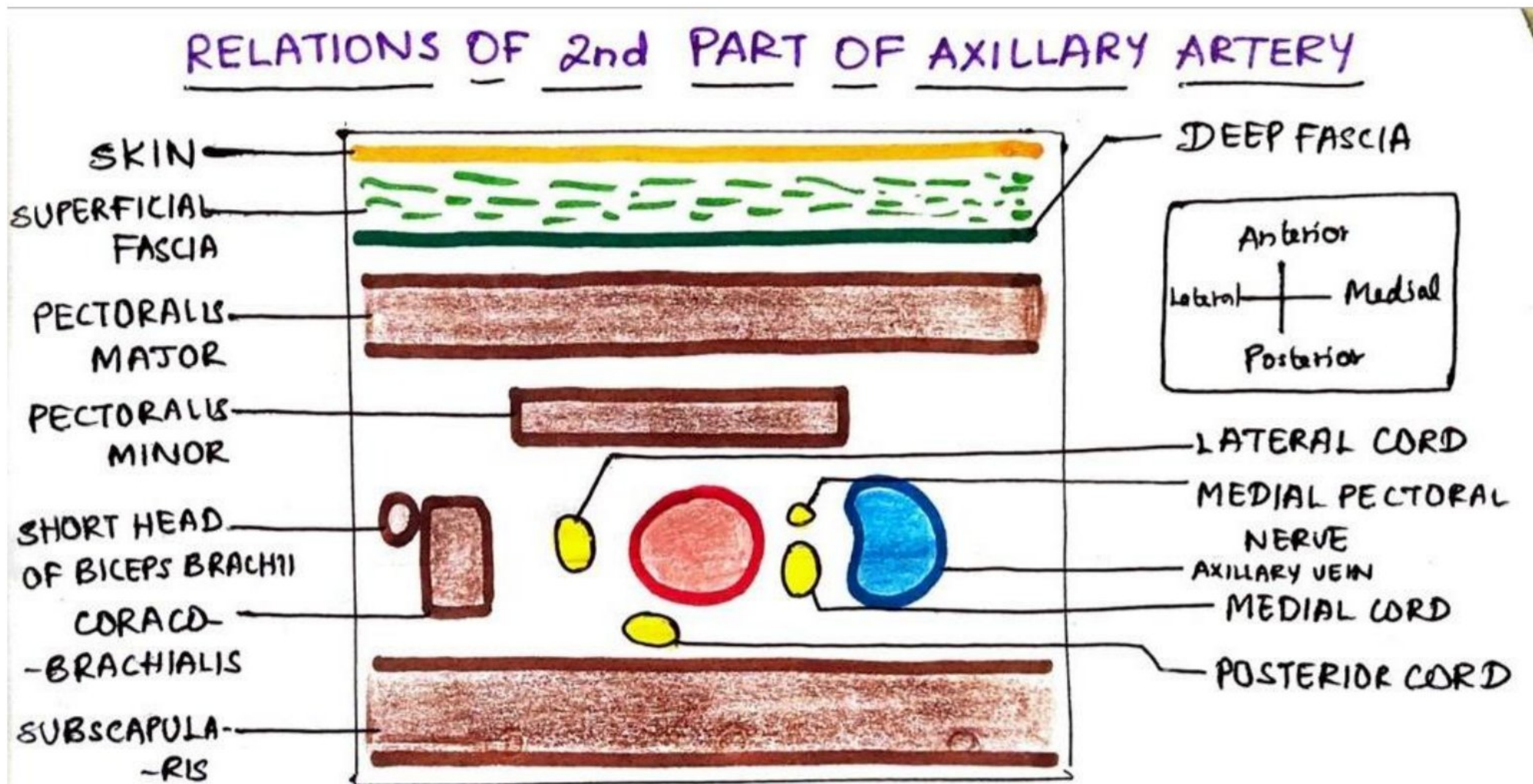


RELATIONS OF AXILLARY ARTERY:

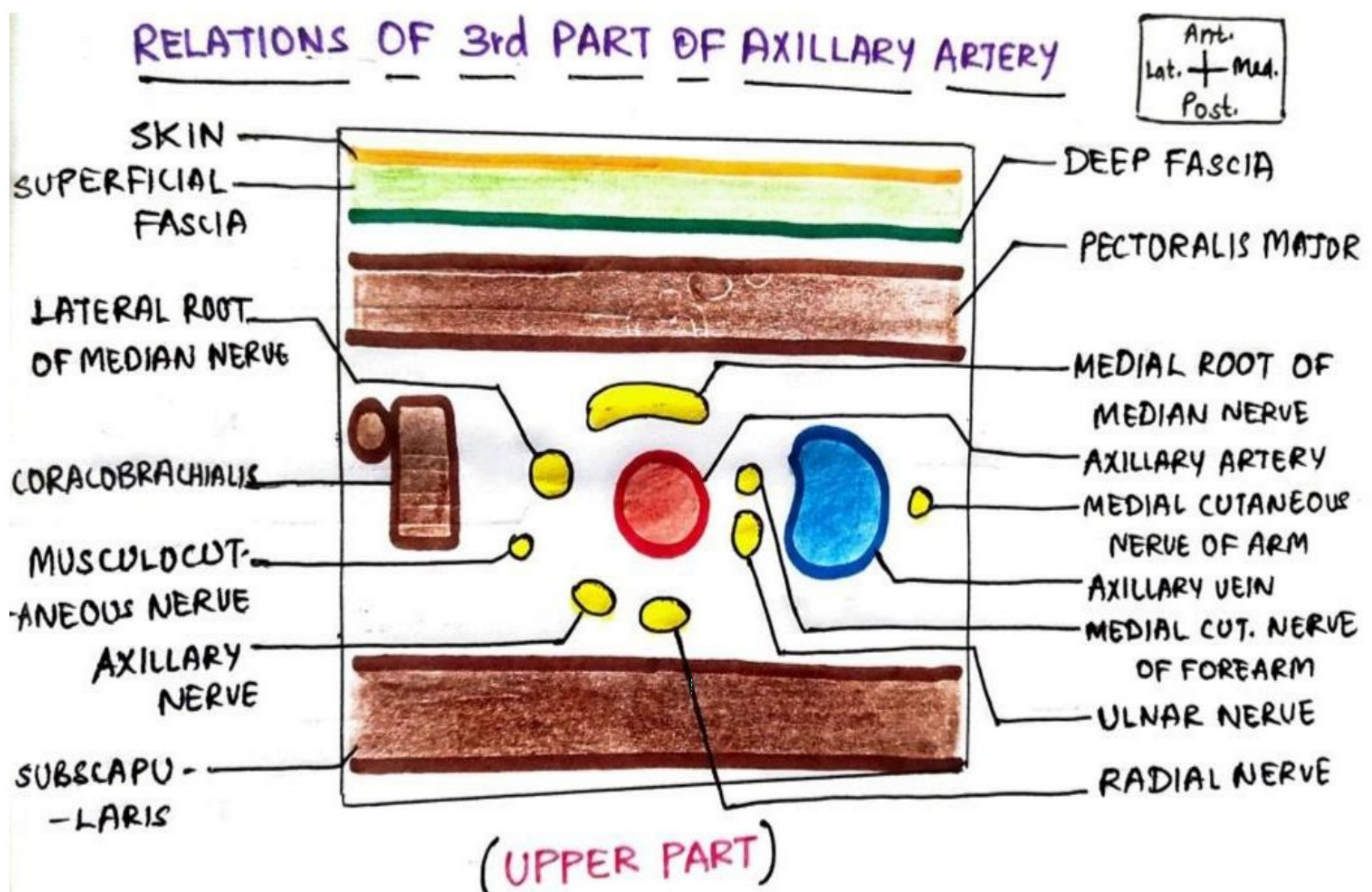
PART	ANTERIOR	POSTERIOR	MEDIAL	LATERAL
FIRST PART	<ul style="list-style-type: none"> ● Skin, Superficial fascia, Deep fascia ● Pectoralis major (clavicular part) ● Clavicular fascia ● Loop of communication b/w lateral & medial pectoral nerves 	<ul style="list-style-type: none"> ● Medial cord of brachial plexus ● Serratus anterior (1st & 2nd div.) ● Nerve to serratus anterior 	<ul style="list-style-type: none"> ● Axillary vein 	<ul style="list-style-type: none"> ● Brachial plexus - lateral & posterior cords



PART	ANTERIOR	POSTERIOR	MEDIAL	LATERAL
SECOND PART	<ul style="list-style-type: none"> ● Skin, superficial fascia, deep fascia ● Pectoralis major ● Pectoralis minor 	<ul style="list-style-type: none"> ● Brachial plexus - posterior cord ● Subscapularis 	<ul style="list-style-type: none"> ● Brachial plexus - medial cord ● Medial pectoral nerve ● Axillary vein 	<ul style="list-style-type: none"> ● Brachial plexus - lateral cord ● coracobrachialis



PART	ANTERIOR	POSTERIOR	MEDIAL	LATERAL
THIRD PART	<ul style="list-style-type: none"> ● Skin, superficial fascia, deep fascia ● Pectoralis major (in upper part) ● Medial root of median nerve (in upper part) 	<ul style="list-style-type: none"> ● Radial nerve ● Axillary nerve (in upper part) ● Subscapularis (in upper part) ● Tendons of Latissimus dorsi & Teres major (in lower part) 	<ul style="list-style-type: none"> ● Axillary vein ● Medial cutaneous nerve of forearm & ulnar nerve ● Medial cutaneous nerve of arm 	<ul style="list-style-type: none"> ● Coracobrachialis ● Musculocutaneous nerve (in upper part) ● Lateral root of median nerve (in upper part) ● Trunk of median nerve (in lower part)





BRANCHES OF AXILLARY ARTERY:

- Six branches: one – from 1st part, two – from 2nd part, three – from 3rd part

1ST PART:

1. SUPERIOR THORACIC ARTERY (from first part)

- Arises near subclavius
- Passes b/w pectoral muscles
- Ends by supplying pectoral muscles

2ND PART:**2. THORACOACROMIAL ARTERY**

- Arises near pectoralis minor (upper border)
- Pierces clavipectoral fascia
- Gives 4 terminal branches – pectoral br., deltoid br., acromial br., clavicular br.

3. LATERAL THORACIC ARTERY

- Arises & runs along pectoralis minor (lower border)
- Closely related to ant. group of axillary lymph nodes
- In females, it gives lateral mammary branches to breast.

3RD PART:**4. SUBSCAPULAR ARTERY**

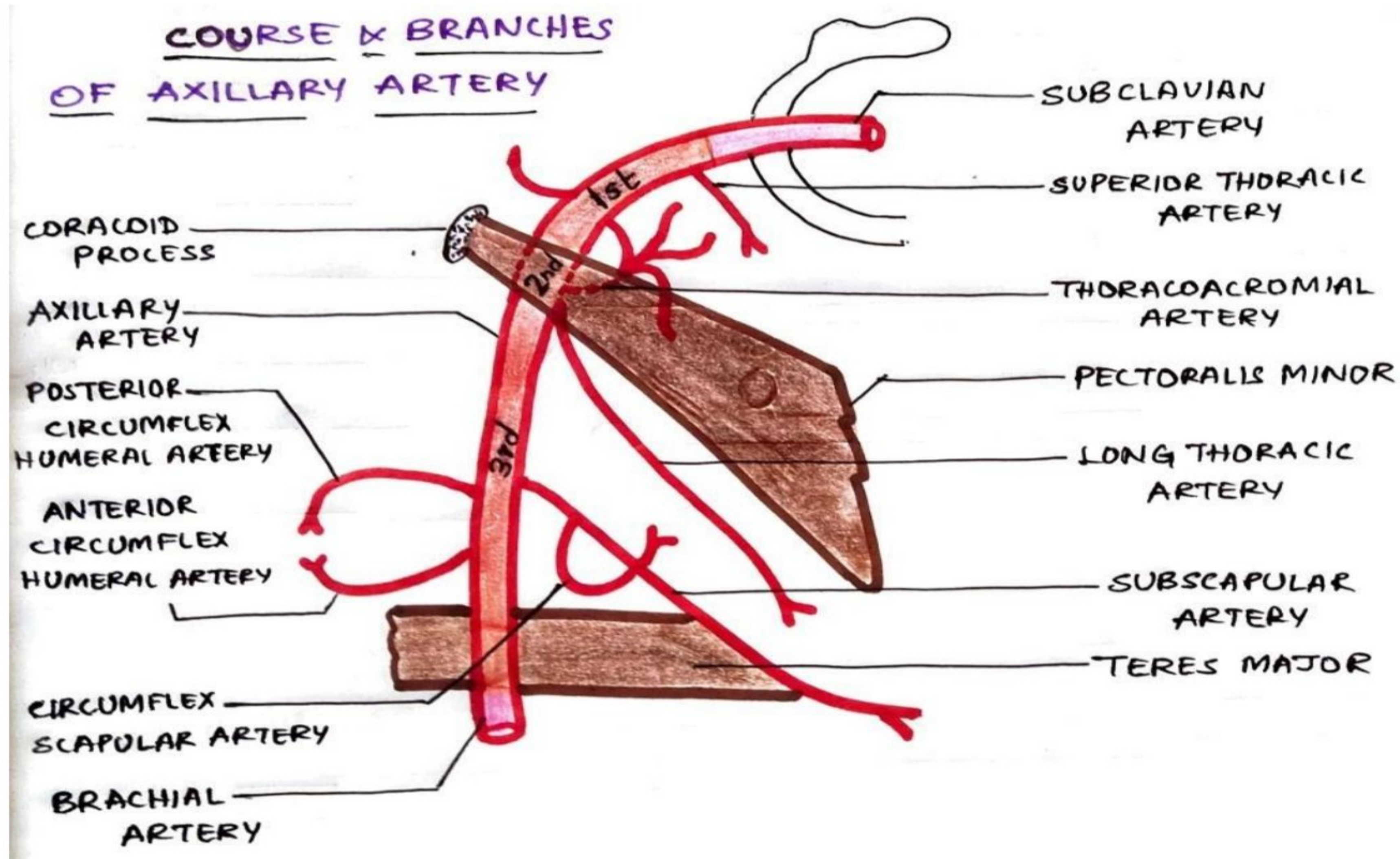
- Largest branch
- Runs along subscapularis (lower border)
- Ends near inferior angle of scapula
- Supplies – latissimus dorsi & serratus anterior
- Large branch – circumflex scapular

5. ANTERIOR CIRCUMFLEX HUMERAL ARTERY

- Arises at subscapularis (lower border)
- Anastomoses with posterior circumflex humeral
- Gives an ascending branch supplying head of humerus & shoulder joint

6. POSTERIOR CIRCUMFLEX HUMERAL ARTERY

- Arise at subscapularis (lower border)
- Supplies – shoulder joint, deltoid, muscles bounding quadrangular space
- Gives off descending branch (anastomose with ascending branch of profunda brachii)

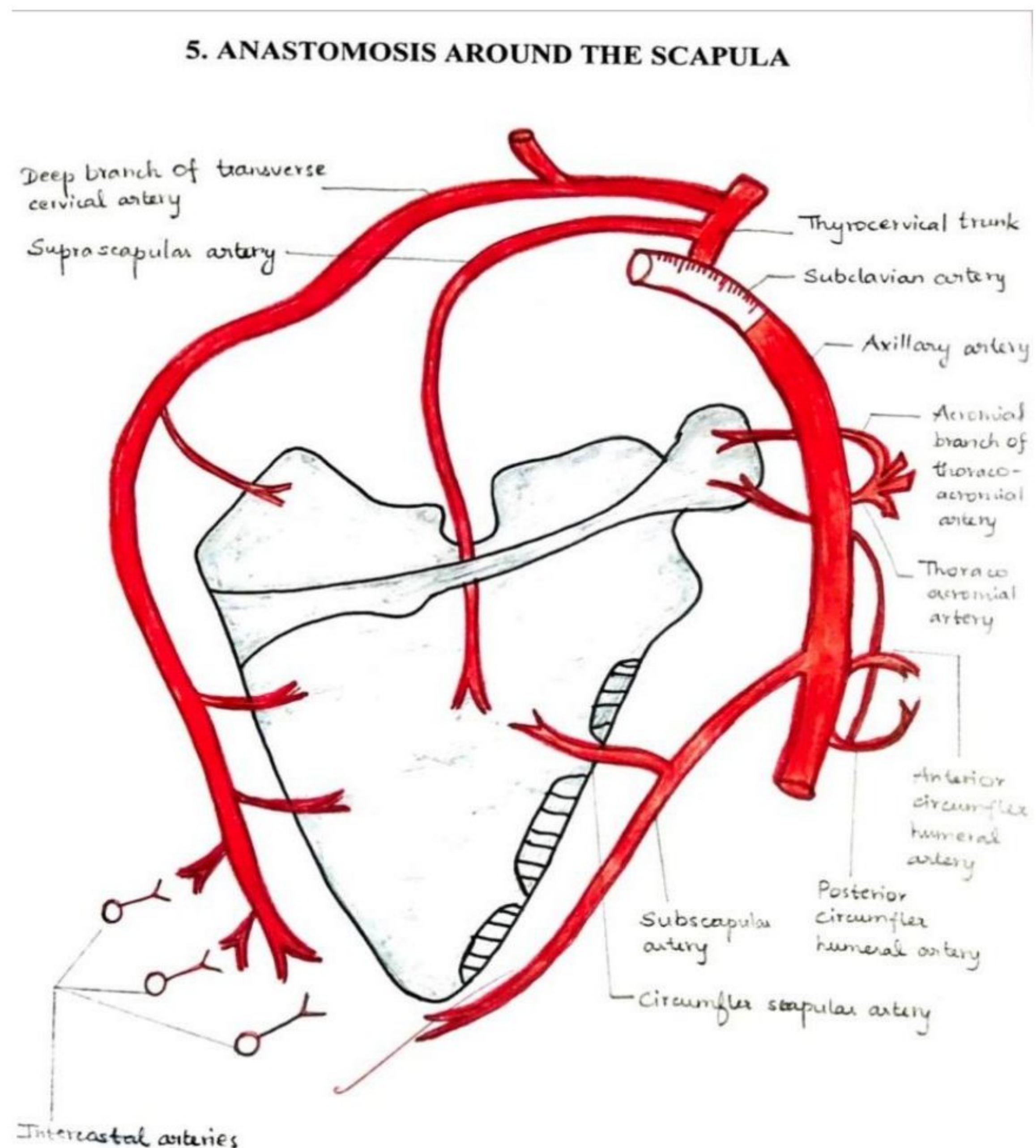


ANASTOMOSES AND COLLATERAL CIRCULATION:

- Branches of axillary artery anastomose with branches from - internal thoracic, intercostal, subscapular, deep branch of transverse cervical, profunda brachii arteries.

APPLIED ANATOMY:

- Axillary arterial pulsations
- Collateral circulation in blockage of proximal part of axillary artery.



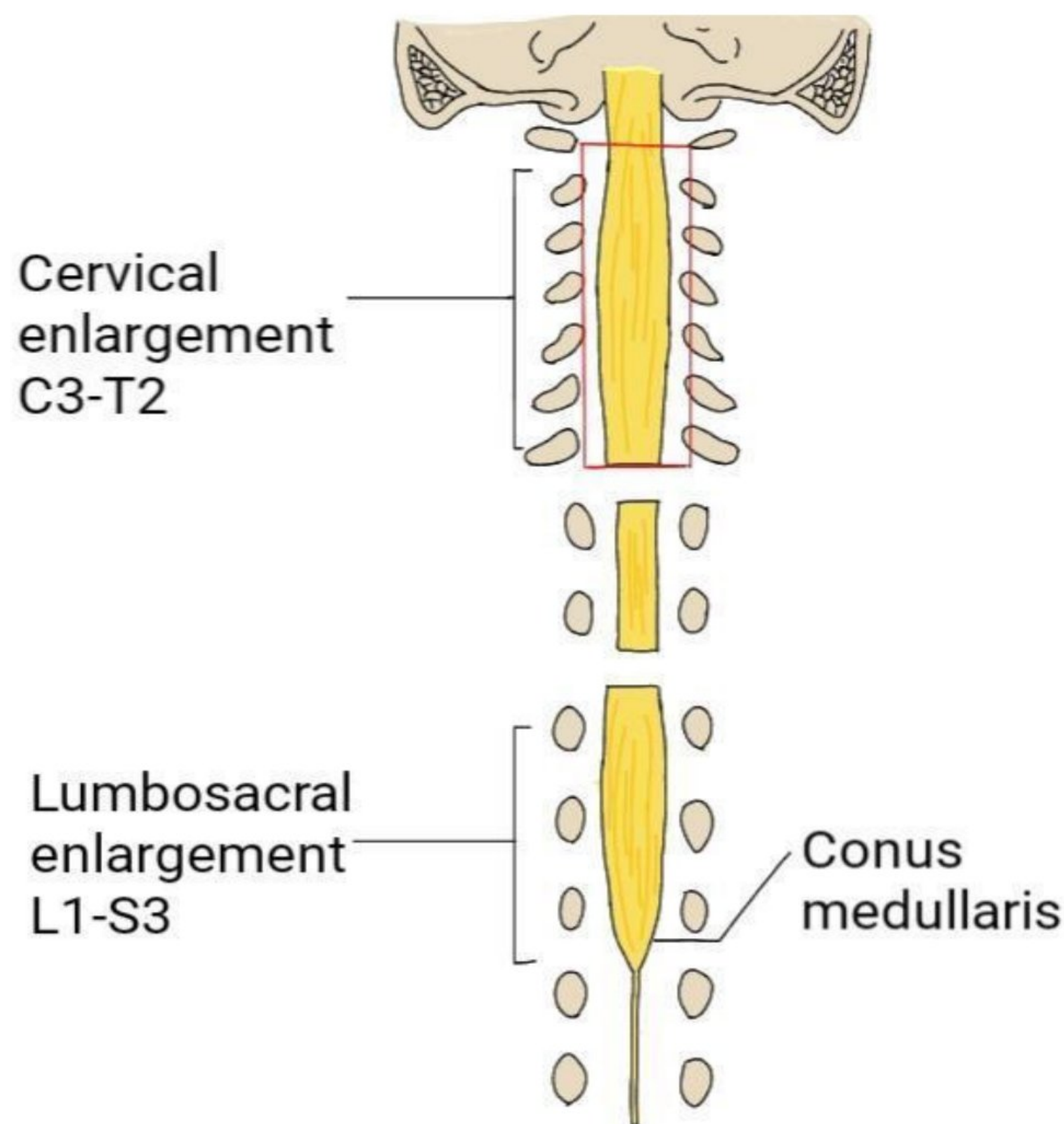
2. BRACHIAL PLEXUS

INTRODUCTION:

- This the plexus formed from cervical enlargement.
- To study the entire upper limb Nerve supply via it, the formation, its components and its nerve supply would help in understanding the nerves in an easy manner.

FORMATION:

- Cervical Enlargement of spinal cord gives Brachial Plexus.
- Root value-C5, C6, C7, C8; T1 from anterior primary Ramus Gives Brachial plexus.
- Little Contribution also from C4, T2 spinal Nerves.
- If Contribution from C4 is larger, T2 is absent it is called as **Pre-fixed Brachial Plexus**.
- If Contribution from T2 is larger and from C4 is absent it is called as **Post-fixed Brachial Plexus**.



COMPONENTS:

- 4 components of Brachial plexus
 - a. Roots
 - b. Trunks
 - c. Divisions
 - d. Cords
- Cords end up in forming terminal branches

ROOTS:

- 5 Roots of Anterior Primary Ramus (C5-C8; T1)-Located in Neck deep to scalenus anterior muscle

TRUNKS:

- Located in Neck- Occupying cleft between **scalenus medius** behind and **Scalenus anterior** in front
- Upper Trunk-Formed by C5, C6 Roots
- Middle Trunk-Root continues as Middle Trunk
- Lower Trunk-C8, T1 Roots joined to form lower trunk

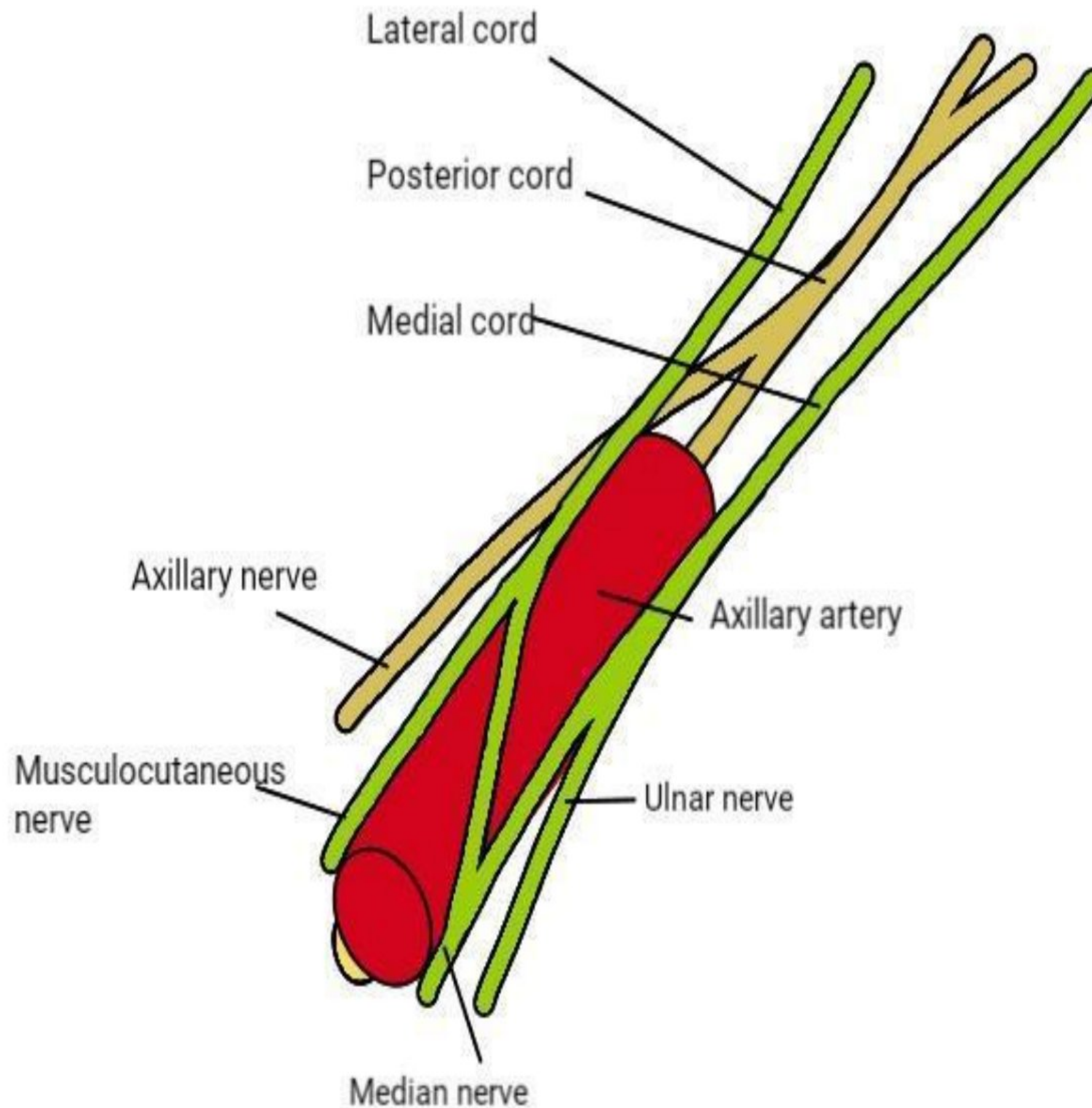
DIVISIONS:

- Each Trunk-Upper, Lower, Middle Trunk has anterior and Posterior Divisions located behind the clavicle.

CORDS:

- Present in **Axilla**
- **Formations**
 - a. **Lateral** - Anterior Divisions of Upper and Middle Trunk join to form the lateral cord
 - b. **Posterior**-Posterior Division of Upper, Middle, Lower Trunk joins to form Posterior cord
 - c. **Medial**-Anterior Division of Lower Trunk continues as Medial Cord (Ulnar Nerve)
- These Cords are named with respect to **2nd part of the Axillary artery**.
- These Cords Continue in Axilla
 - a. **Lateral Cord**-Musculocutaneous Nerve
 - b. **Posterior Cord**-Radial Nerve
 - c. **Medial Cord**-Ulnar Nerve

Medial Nerve: Contributed by Lateral and Medial Cords in Midline



BRANCHES:

FROM ROOTS:

1. LONG THORACIC NERVE (C5, C6, C7)

- Directed by roots in neck.
- Supplies Serratus Anterior.

2. DORSAL SCAPULAR NERVE(C5)

- Present in neck region.
- Supplies Scapular muscles in neck.
- Directly from C5 Root.
- Additionally,
 - Contribution to phrenic Nerve (C5) supply diaphragm.
 - Branches by roots to supply scalene muscles and Longus Colli (C5-C8).

FROM TRUNKS (ONLY FROM UPPER TRUNK):

1. SUPRASCAPULAR NERVE (C5, C6)

- Supplies Scapular muscles

2. NERVE TO SUBCLAVIUS (C5, C6)

- Branches from Roots and Trunks are **Supraclavicular Branches of Brachial Plexus.**
- There are no specific branches from the divisions.

FROM CORDS:

A. FROM LATERAL CORD

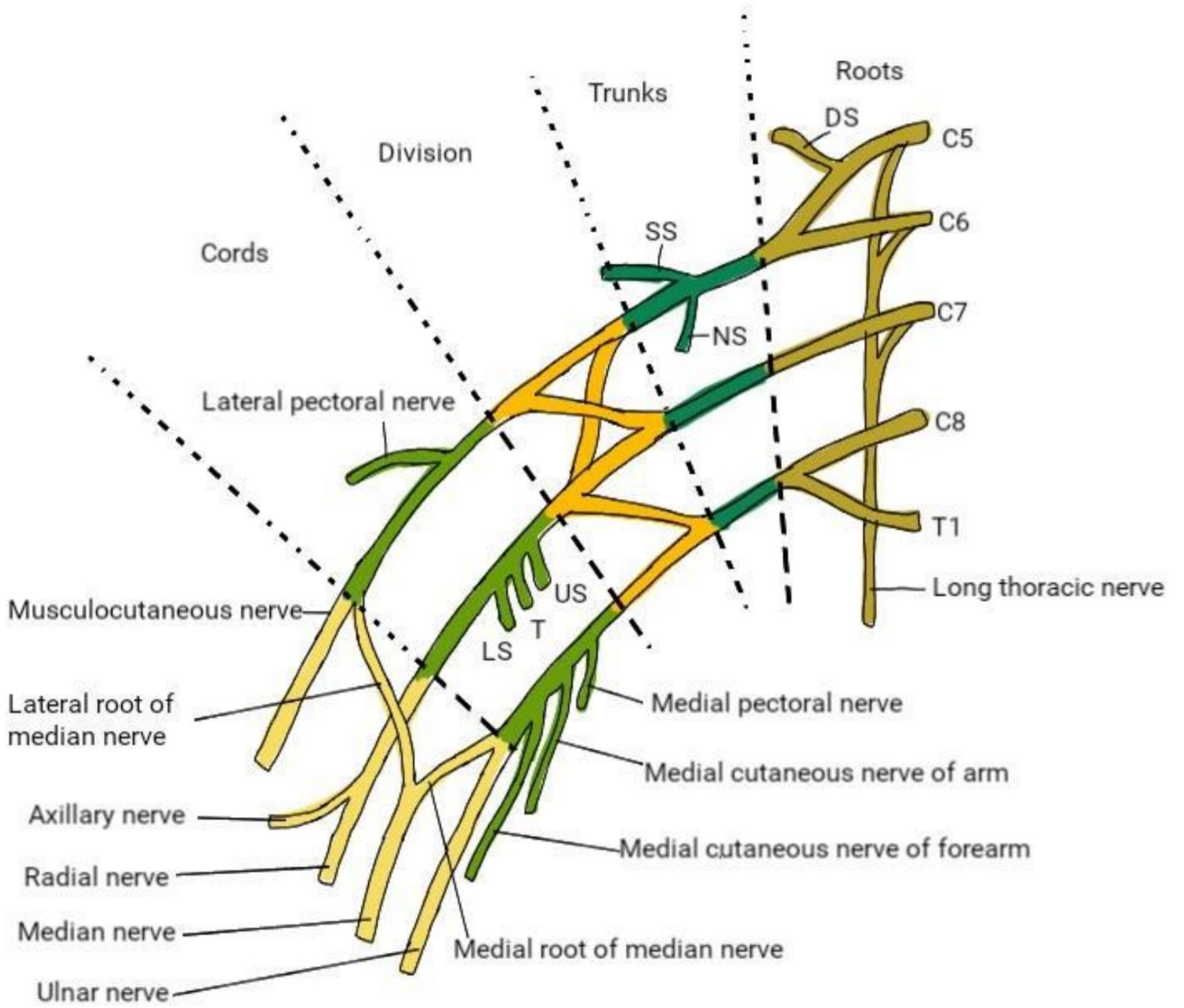
1. Lateral Pectoral Nerve(C5-C7)
2. Lateral root of Median Nerve (C5, C6, C7)
3. Musculocutaneous Nerve(C5-C7)

B. FROM MEDIAL CORD

1. Medial Pectoral Nerve (C8, T1)
2. Medial Cutaneous nerve of Arm (C8, T1)
3. Medial Cutaneous Nerve of Forearm (C8, T1)
4. Medial Root of Median Nerve (C8, T1)
5. Ulnar Nerve (C8, T1)

C. FROM POSTERIOR CORD

1. Upper Subscapular Nerve(C5-C6)-supply Subscapularis
2. Lower Subscapular Nerve (C5, C6)-Supply Subscapularis (Hybrid Muscle)
3. Thoracodorsal Nerve / Nerve to Latissimus Dorsi (C6-C8)- Supply Latissimus Dorsi
4. Axillary Nerve (C5, C6) - Supply Deltoid, Teres Minor
5. Radial Nerve (C5-C8; T1) - Nerve of Extension - Present in Radial Groove (Nerve of Posterior Compartment)



APPLIED ANATOMY:

WINGING OF SCAPULA:

- Injury of Long Thoracic Nerve (Nerve to Serratus Anterior)

ERB'S PALSY

- It is an Upper Trunk Injury.
 1. Axillary Nerve-Total Injury.
 2. Musculocutaneous Nerve-Partial Injury - **coracobrachialis alone spared.**
 3. Radial Nerve-Partial Injury-Brachioradialis paralyzed.
 4. Suprascapular Nerve also injured.

CAUSES: Undue separation of head and Neck (Fall on shoulder, Birth Injury)

FEATURES: Policeman tip hand deformity (Sensory Loss on lateral aspect of upper limb)

POSITION:

- Shoulder-Abduction and Medial rotation
- Elbow-Extension
- Radioulnar Joint-Pronation

KLUMPKEY'S PALSY

- It is a Lower Trunk Injury
- Median Nerve, Ulnar Nerve, T1-Sympathetic fibers - Involved

CAUSES

- **Hyperabduction** of arm (Holding a branch while fall from tree)
- Birth Injury)

CLINICAL FEATURES:

- Claw Hand Deformity (Metacarpophalangeal Extension, Interphalangeal Flexion)
- Horner Syndrome (Ptosis due to paralysis of Superior Tarsal Muscle) - Miosis due to paralysis of Dilator Pupillae

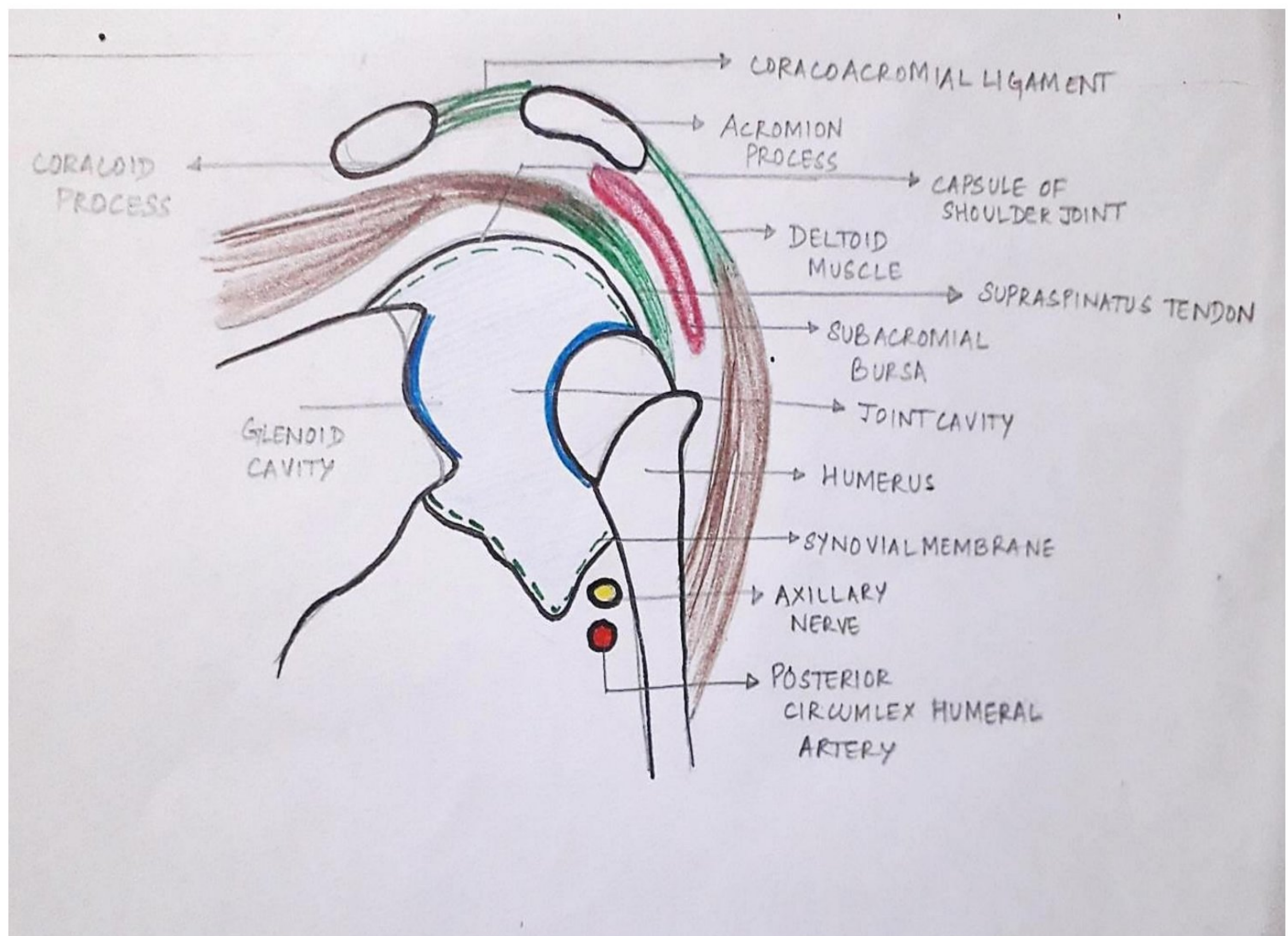
3. SHOULDER JOINT:

TYPE OF JOINT:

- Ball and socket type of synovial joint.

ARTICULAR SURFACES:

1. Head of humerus (1/3) - Rounded; Faces medially
2. Glenoid cavity of humerus: Shallow depression, faces laterally.



LIGAMENTS:

1. CAPSULAR LIGAMENT

- Encloses articular surfaces
- Extends between anatomical neck of humerus and glenoid cavity margins
- Encloses long head of biceps brachii tendon
- Joint cavity communicates with subscapular bursa and infraspinatus bursa

2. GLENOHUMERAL LIGAMENT

- Anterior thickening of fibrous capsule
- Defect causes anterior dislocation of shoulder joint.

3. CORACOHUMERAL LIGAMENT

- Extends between coracoid process of scapula and greater tubercle of humerus
- Degenerated part of pectoris minor

4. TRANSVERSE HUMERAL LIGAMENT

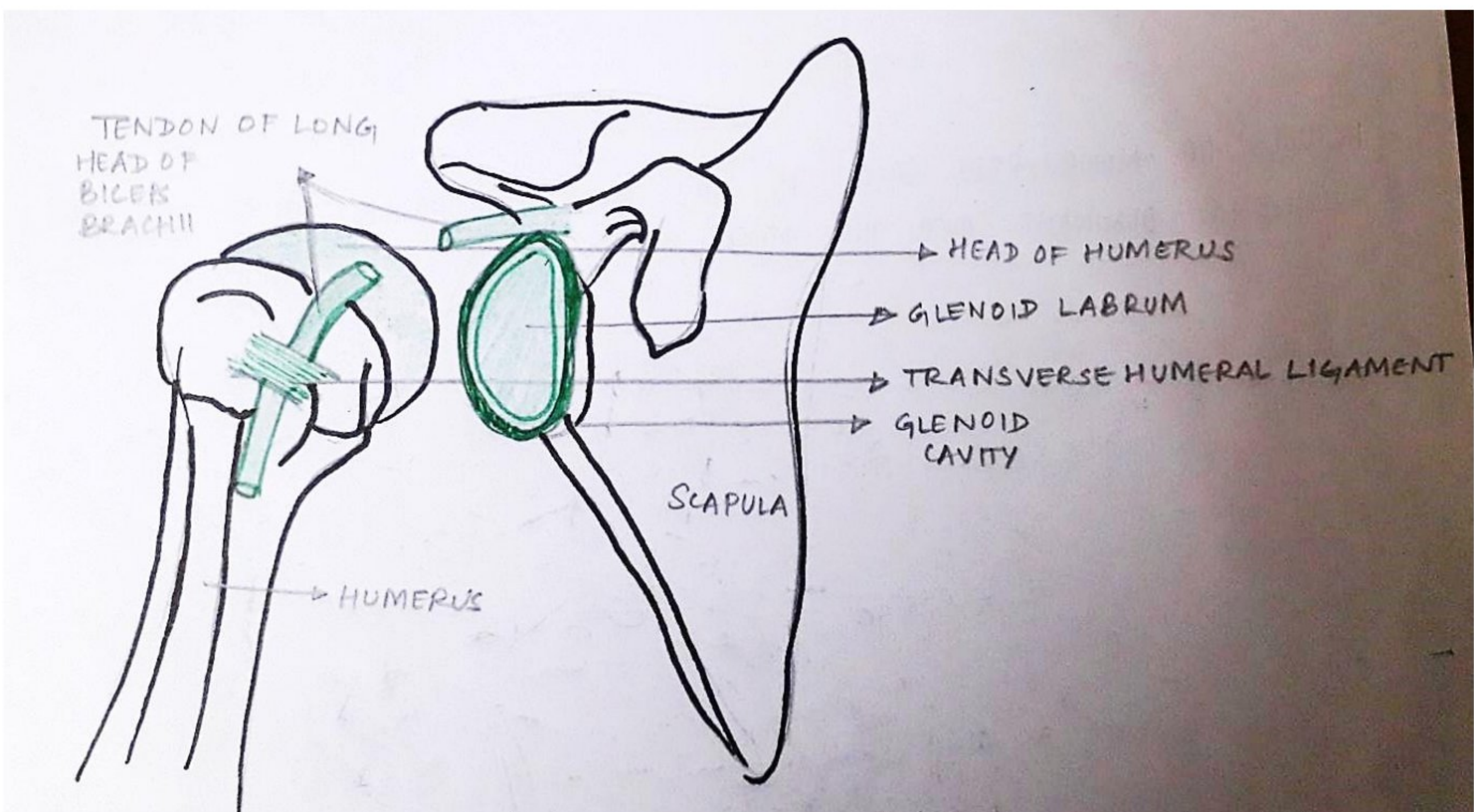
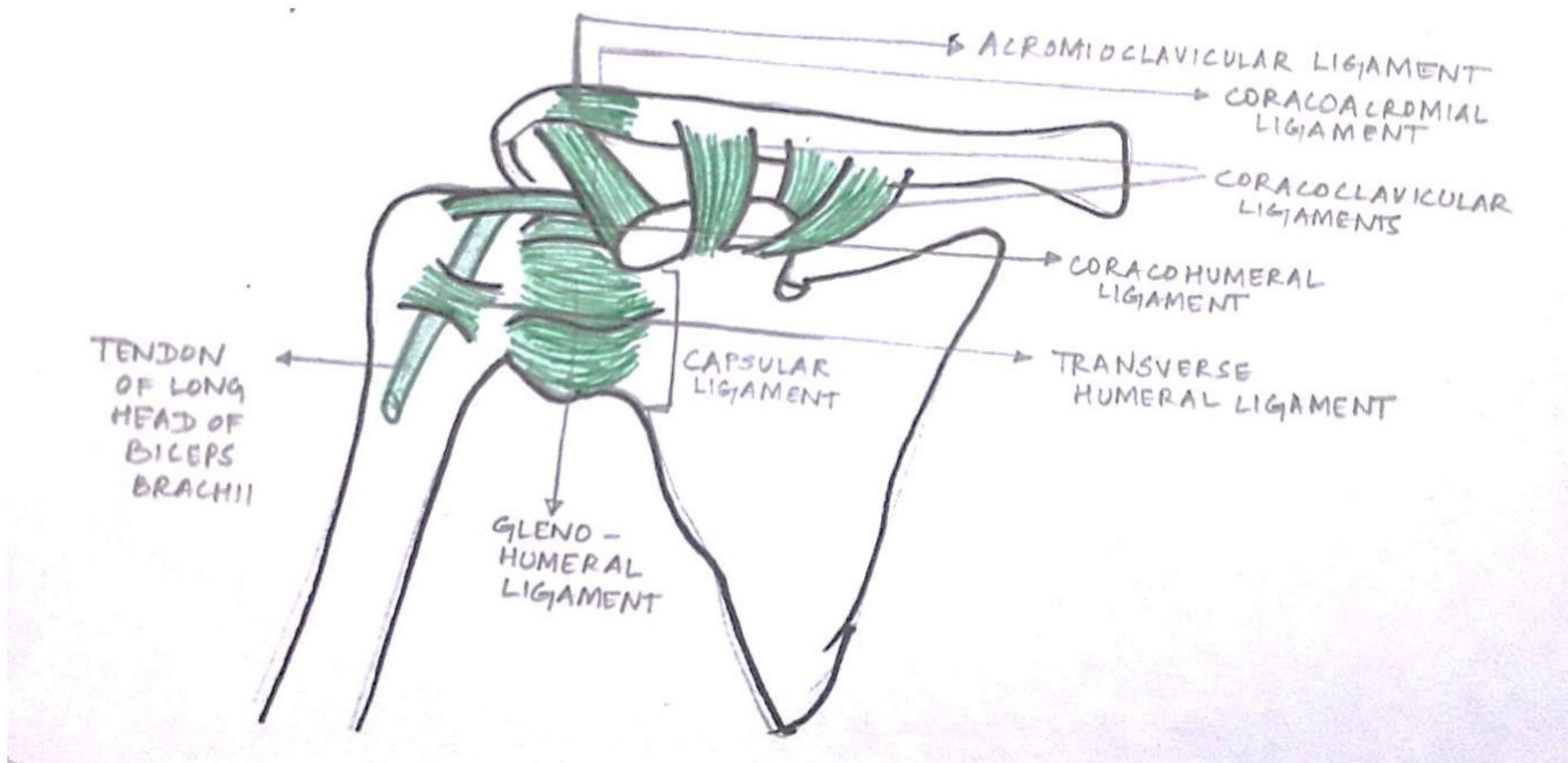
- Bridges bicipital groove
- Encloses biceps brachii tendon

5. CORACO ACROMIAL LIGAMENT

- Extends between coracoid process and acromial process of scapula
- Coracoid process + Coraco acromial ligament+ acromial process = Coraco acromial arch
- Prevents superior dislocation of shoulder joint

6. GLENOID LABRUM

- Fibrocartilage - Surrounds the margin of glenoid cavity
- Deepens glenoid cavity.



BURSAE:

1. SUBSCAPULAR BURSA:

- Lies below subscapular tendon.
- Communicates with joint cavity.

2. SUBACROMIAL BURSA:

- Lies between Coraco-acromial ligament above and supraspinatus below.
- Largest bursa and continues below deltoid as sub-deltoid bursa.

3. INFRASPINATUS BURSA:

- Lies below infraspinatus tendon.
- Communicates with joint cavity.

RELATIONS:**1. SUPERIOR:**

- Coraco acromial arch
- Supraspinatus tendon
- Subacromial bursa
- Deltoid

2. INFERIOR:

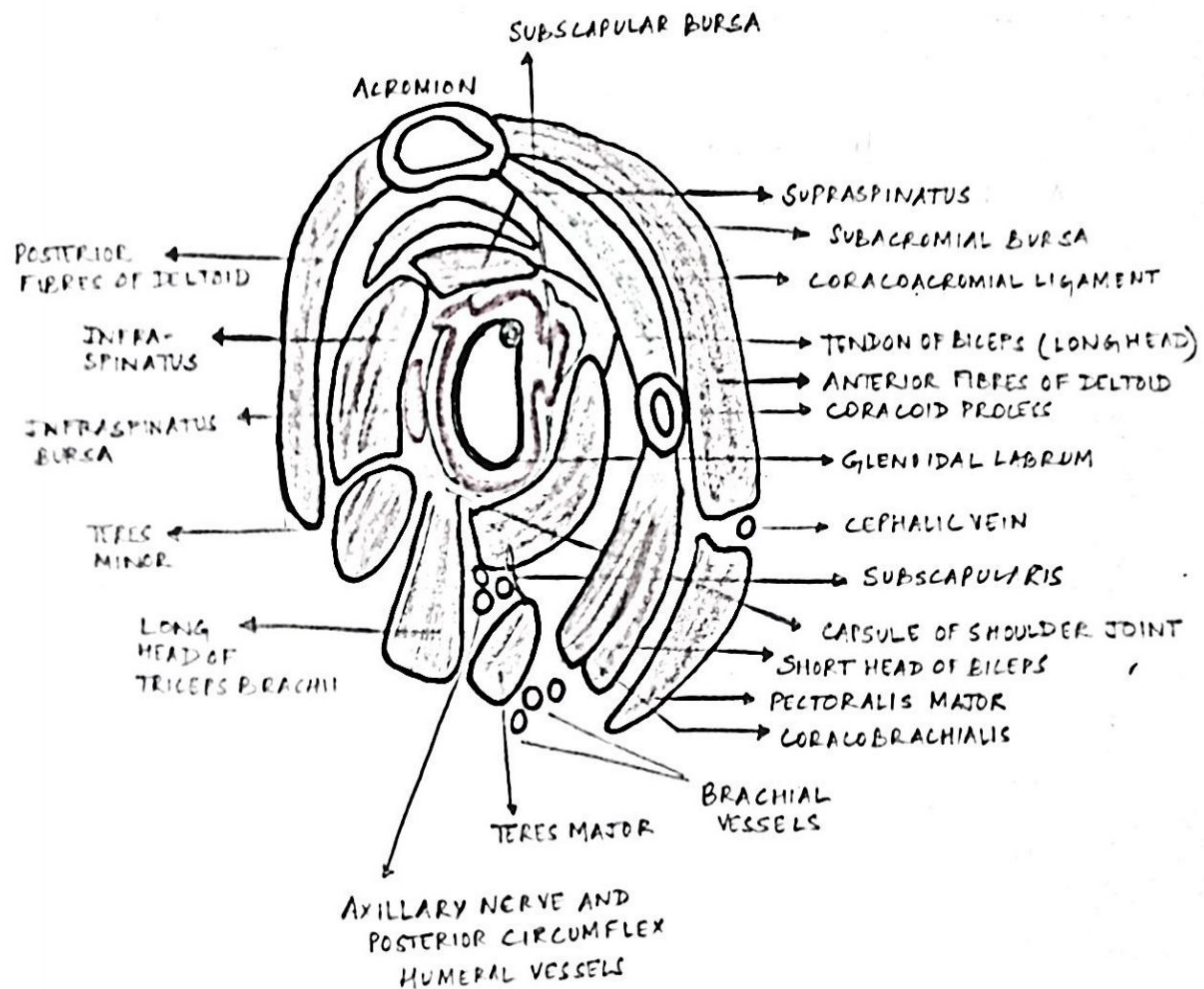
- Long head of triceps brachii
- Axillary nerve
- Posterior circumflex humeral vessels

3. ANTERIOR:

- Subscapularis
- Coracobrachialis
- Short head of biceps brachii
- Deltoid

4. POSTERIOR:

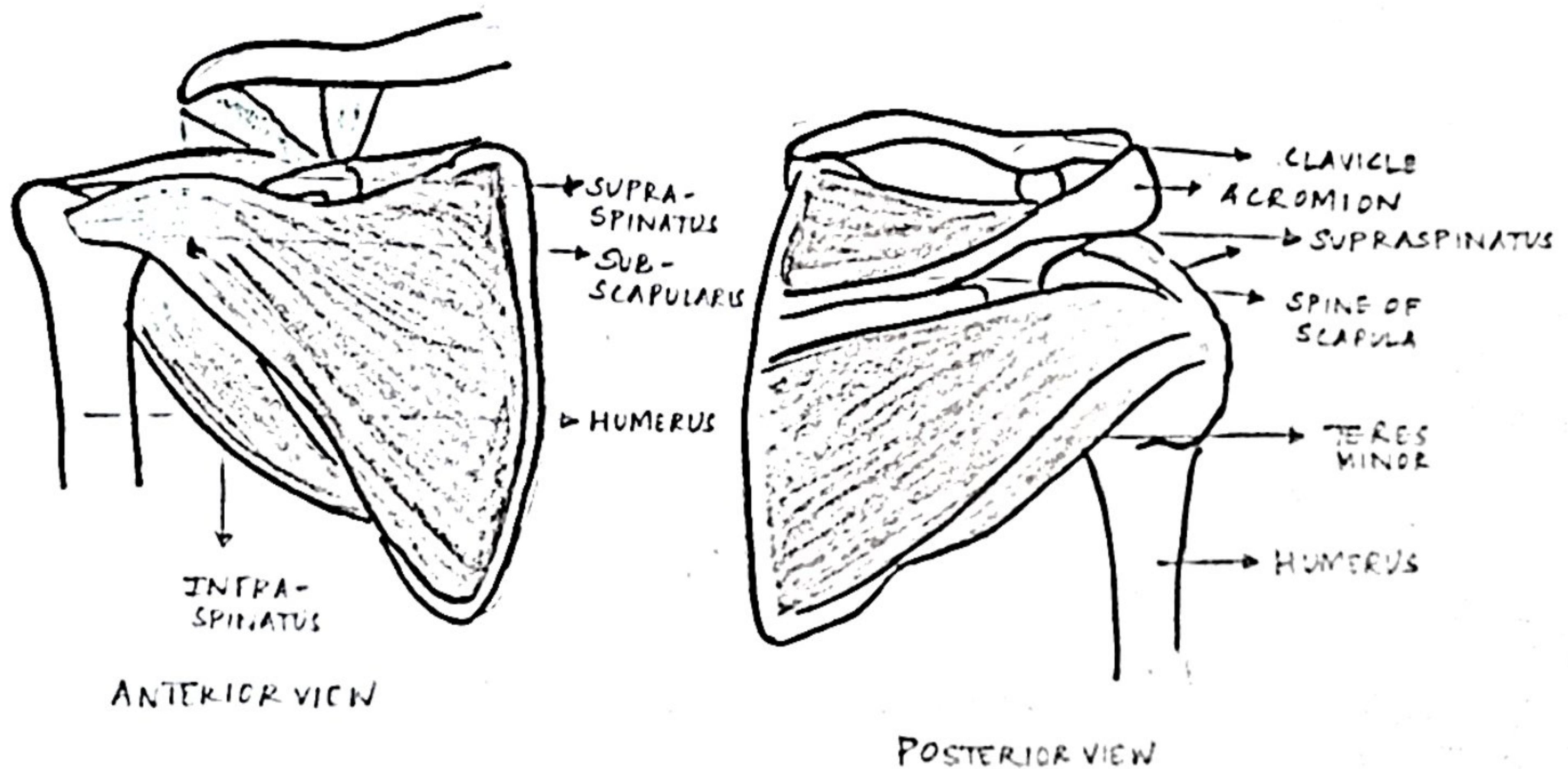
- Infraspinatus
- Teres minor
- Deltoid



ROTATOR CUFF/ MUSCULOTENDINOUS CUFF:

FORMATION:

- Formed by tendons of muscles surrounding shoulder joint
 - a. **S**uperior – Supraspinatus
 - b. **P**osterior – Infraspinatus; Teres minor
 - c. **I**nterior – Subscapularis
- Most important factor providing support to shoulder joint.
- **Deficient inferiorly** (Inferior dislocation of joint is more common).



MOVEMENTS:

- Multiaxial joint
- Most Mobile and least stable joint
- More prone to dislocation

MOVEMENTS	MUSCLES INVOLVED
FLEXION [Arm moves forwards; medially]	<ul style="list-style-type: none"> • Pectoralis Major • Deltoid (Anterior fibres) • Biceps brachii
EXTENSION [Arm moves backwards; laterally]	<ul style="list-style-type: none"> • Latissimus dorsi • Deltoid (Posterior fibres)
ADDUCTION [arm moves backwards; medially]	<ul style="list-style-type: none"> • Pectoralis major • Latissimus dorsi • Teres major
ABDUCTION [arm moves forwards; laterally]	<ul style="list-style-type: none"> • 0 - 15° Supraspinatus • 15 - 90° Deltoid (Lateral fibres) • 90 - 180° Serratus anterior, Trapezius
MEDIAL ROTATION [arm moves medially in semi-flexed position]	<ul style="list-style-type: none"> • Subscapularis • Deltoid (Anterior fibres)
LATERAL ROTATION [arm moves laterally in semi-flexed position]	<ul style="list-style-type: none"> • Infraspinatus • Teres minor • Deltoid (Posterior fibres)

NOTE*

- Deltoid muscle forms all relations for shoulder joint **except inferiorly**
- Deltoid causes all movements at shoulder joint **except adduction**

CIRCUMDUCTION - Combination of all movements of shoulder joint

SCAPULOHUMERAL RHYTHM -

- Abduction of shoulder joint is accompanied by lateral rotation of scapula
- Scapula and humerus move in ratio 1:2
- For every 15° abduction, scapular movement is 5° and humeral movement is 10°

CLINICAL ANATOMY:**DISLOCATION OF SHOULDER JOINT**

- More common - Inferior dislocation
- Rotator cuff deficit inferiorly
- Causes injury of axillary nerve - Deltoid and teres minor palsy

PAINFUL ARC SYNDROME / IMPINGEMENT SYNDROME

- Most common cause - Supraspinatus injury; Subacromial bursitis
- Painful abduction

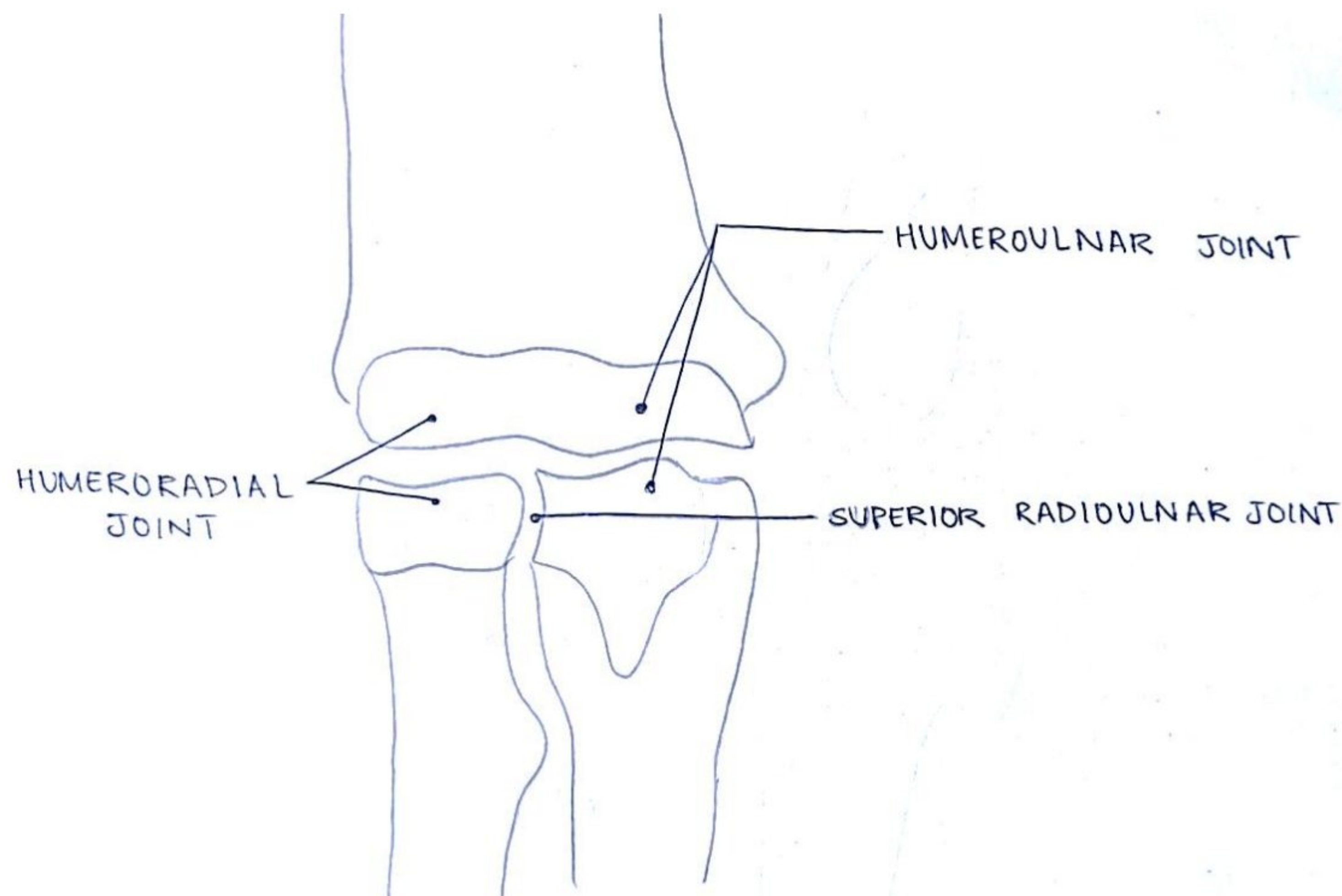
FROZEN SHOULDER

- Inflammation of rotator cuff tendons
- Painful movements

4. ELBOW JOINT:

INTRODUCTION:

- It's a hinge variety of synovial joint between the lower end of humerus and the upper end of ulna and radius bones.
- The elbow joint complex includes the humeroulnar, humeroradial and upper radioulnar joint.



ARTICULATION:

1. UPPER:

- Formed by the **capitulum** and the **trochlea** of the humerus.
- **Radial fossa** lies above the capitulum which articulates with the radial head during extreme flexion.
- **Coronoid fossa** lies above the trochlea which articulates with the coronoid process of the ulna during extreme flexion.

2. LOWER:

- Upper surface of the head of the radius articulates with the **capitulum**.
- Trochlear notch of the ulna articulates with the trochlea of the humerus.

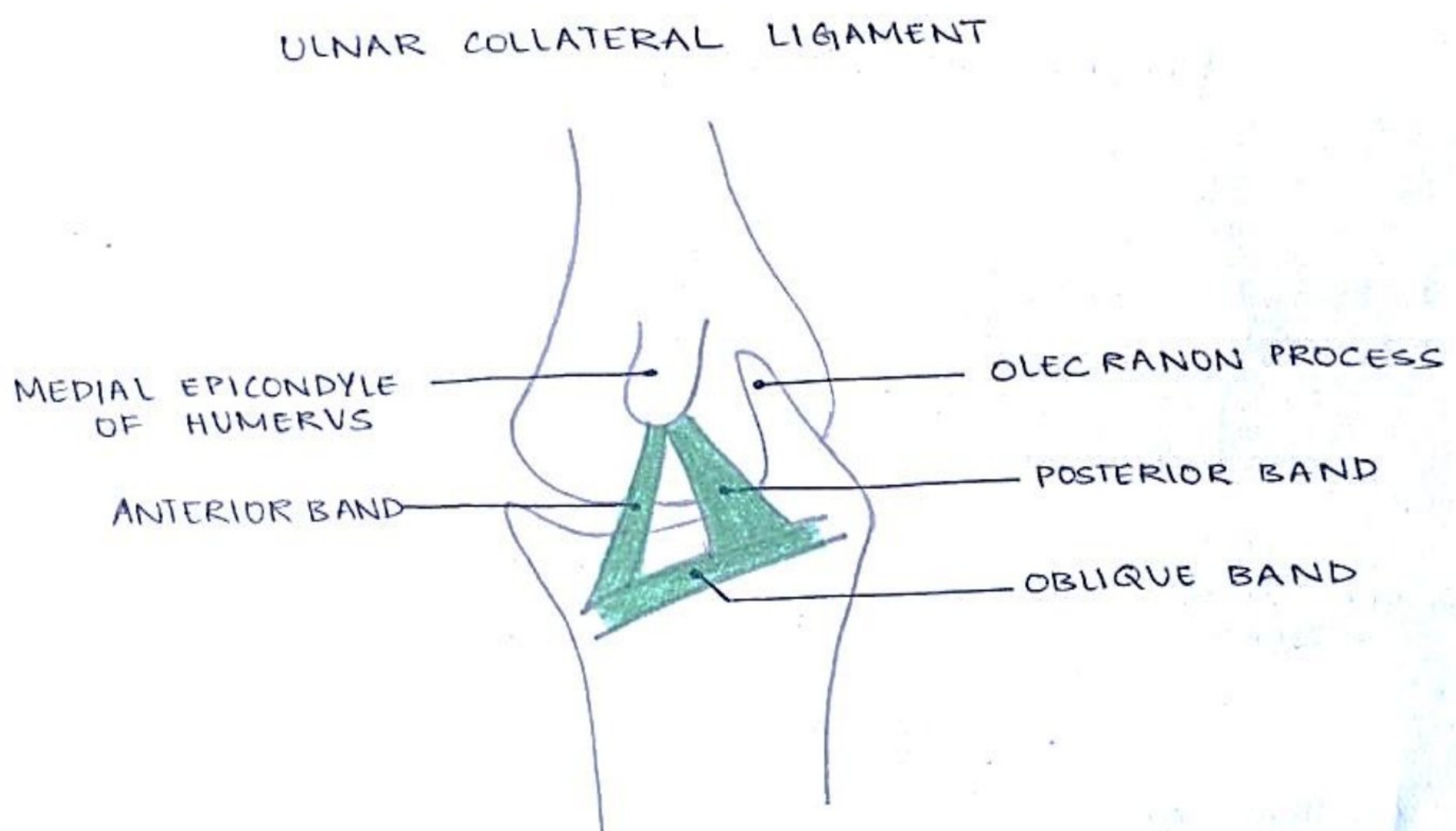
LIGAMENTS:

1. CAPSULAR LIGAMENT:

- Superiorly its attached to the lower end of humerus in such a way that the capitulum, trochlea, the radial fossa, the coronoid fossa and the olecranon fossa lies within it.
- Inferomedially, it is attached to the margin of the trochlear notch of the ulna except laterally
- Inferolaterally, it is attached to the annular ligament of the superior radioulnar joint.

2. THE ULNAR COLLATERAL LIGAMENT:

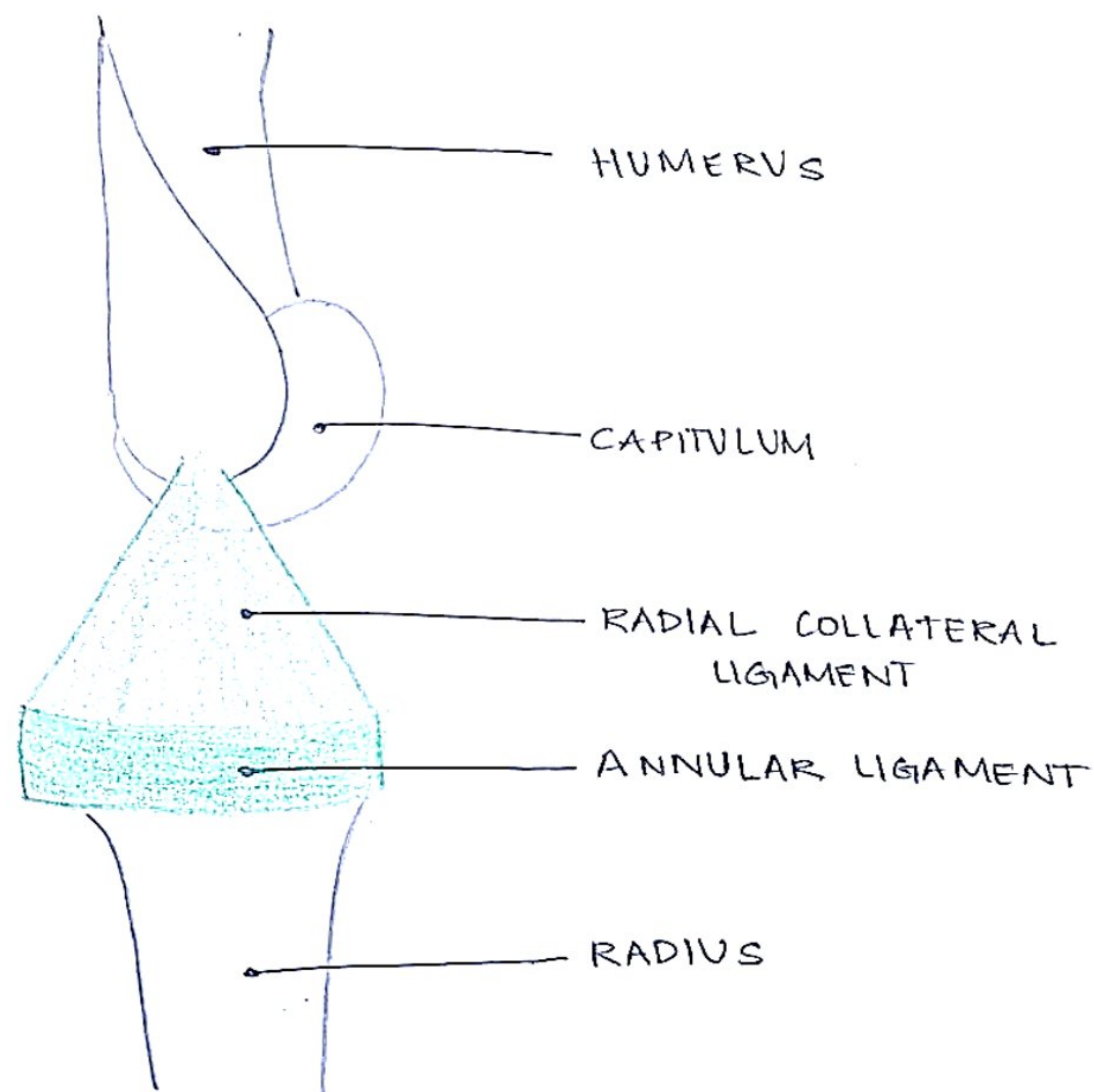
- It is triangular in shape.
- Its apex is attached to the medial epicondyle of the humerus, and its base to the ulna.
- The ligament has thick anterior and posterior bands.
- These are attached below to the coronoid process and the olecranon process respectively.
- Their lower ends are joined to each other by an oblique band which gives attachment to the thinner intermediate fibres of the ligament.
- The ligament is crossed by the ulnar nerve and it gives origin to the flexor digitorum.



3. THE RADIAL COLLATERAL LIGAMENT:

- It is a fan-shaped band extending from the lateral epicondyle to the annular ligament.
- It gives origin to the supinator and to the extensor carpi radialis brevis

RADIAL COLLATERAL LIGAMENT



RELATIONS:

1. ANTERIORLY:

- Brachialis, median nerve, brachial artery and tendon of biceps brachii. (Contents of cubital fossa)

2. POSTERIORLY:

- Triceps brachii and anconeus.

3. MEDIALY:

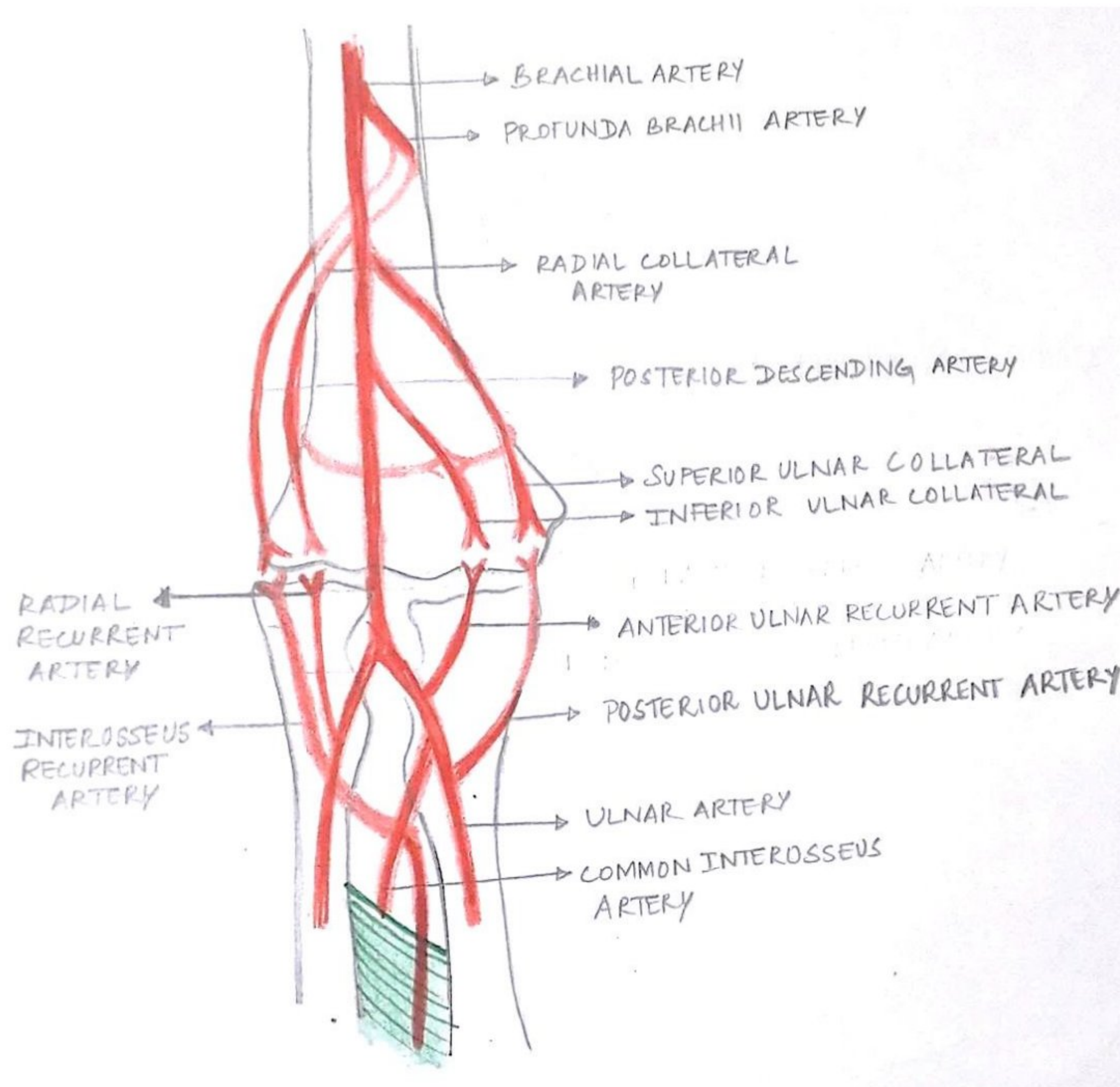
- Ulnar nerve, flexor carpi ulnaris and common flexors.

4. LATERALLY:

- Supinator, extensor carpi radialis brevis and other common extensors

BLOOD SUPPLY:

- From **anastomoses around the elbow joint**



NERVE SUPPLY:

- The joint receives branches from the following nerves.
 - Ulnar nerve.
 - Median nerve.
 - Radial nerve through branch to anconeus.
 - Musculocutaneous nerve through its branch to the brachialis.

MOVEMENTS:

FLEXION:

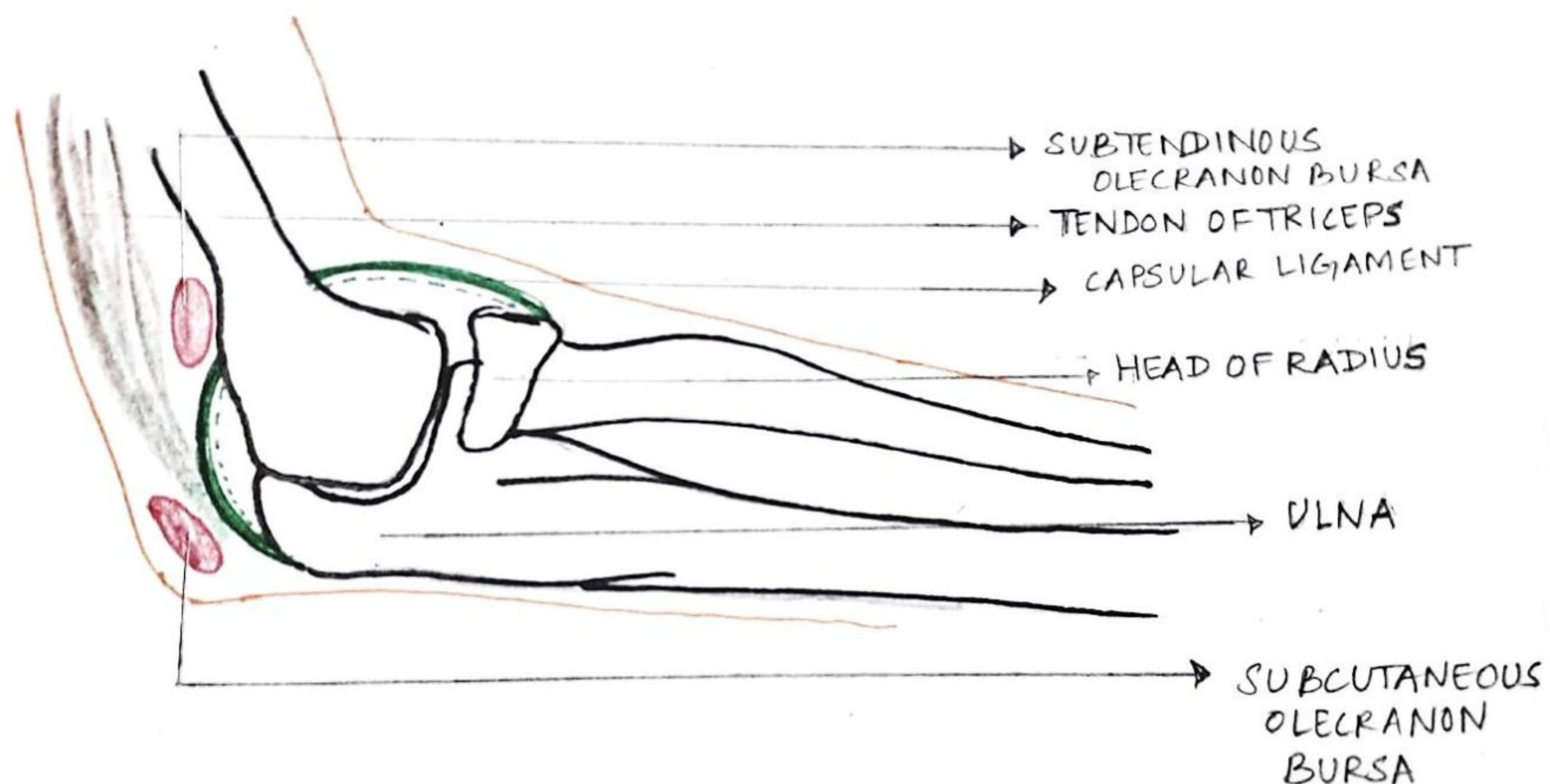
- Brachialis.
- Biceps brachii.
- Brachioradialis.

EXTENSION:

- a. Triceps brachii.
- b. Anconeus.

BURSAE OF ELBOW JOINT:

1. **SUB TENDINOUS OLECRANON BURSA** between the tendon of triceps and capsular ligament.
2. **SUBCUTANEOUS OLECRANON BURSA** behind the posterior attachment of the capsular ligament
3. A bursa between biceps brachii and the radial tuberosity.



CARRYING ANGLE:

- Carrying angle is the angle between the long axis of arm and forearm when the arm is in fully extended position. The carrying angle prevents forearm hitting the hips while walking.
- Carrying angle is wider in females as compared to males due to wider pelvis of females.

CLINICAL ANATOMY:

- Distension of the elbow joint by an effusion occurs posteriorly because here the capsule is weak and the covering deep fascia is thin. **ASPIRATION** is done posteriorly on any side of the olecranon.
- Dislocation of the elbow is usually posterior, and is often associated with fracture of the coronoid process. The triangular relationship between the olecranon and the two humeral epicondyles is lost
- Subluxation of the head of the radius (pulled elbow) occurs in children when the forearm is suddenly pulled in pronation. The head of the radius slips out from the annular ligament.
- **TENNIS ELBOW**: Occurs in tennis players. Abrupt pronation with fully extended elbow may lead to pain and tenderness over the lateral epicondyle which gives attachment to common extensor origin. This is possibly due to:
 1. Sprain of radial collateral ligament.
 2. Tearing of fibres of the extensor carpi radialis brevis.
- **STUDENT'S (MINER'S) ELBOW** is characterized by effusion into the bursa over the subcutaneous posterior surface of the olecranon process. The bursa on the olecranon process gets inflamed
- **GOLFER'S ELBOW** is the microtrauma of medial epicondyle of humerus, occurs commonly in golf players, the common flexor origin undergoes repetitive strain and results in a painful condition on the medial side of the elbow.
- If carrying angle (normal is 13°) is more, the condition is cubitus valgus, ulnar nerve may get stretched leading to weakness of intrinsic muscles of hand. If the angle is less it is called **CUBITUS VARUS**.

5. BRACHIAL ARTERY:

INTRODUCTION:

- Main arterial supply of upper limb
- Present in the anterior compartment of the arm

COURSE:

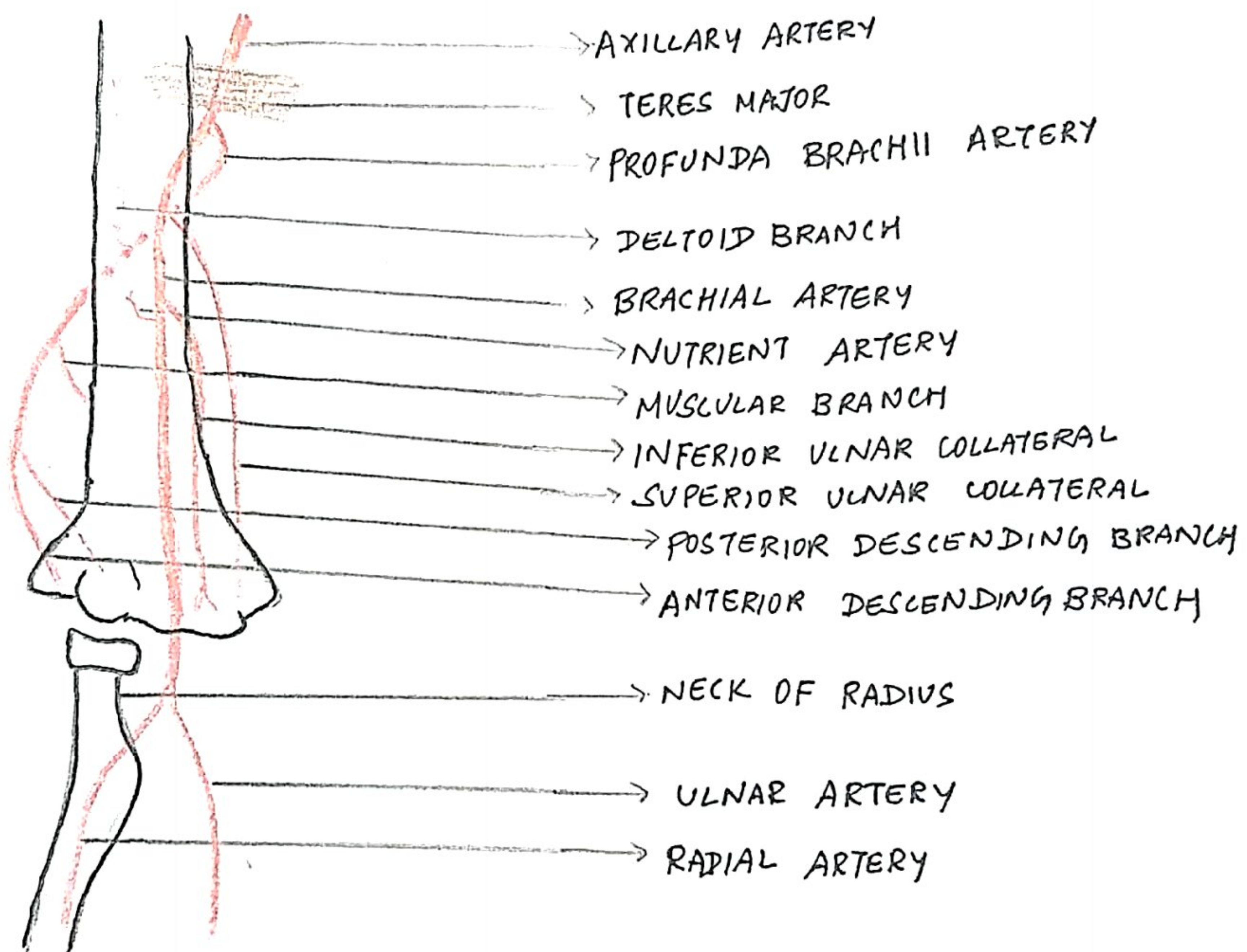
- Continuation of the axillary artery from the lower border of teres major
- Terminates at the level of neck of the radius by dividing into two terminal branches, radial and ulnar arteries
- The artery is superficial throughout its course, so it is easily accessible.

RELATIONS:

ANTERIOR	UPPER PART - Medial cutaneous nerve of forearm lies in front of it.
	MIDDLE PART - Median nerve crosses it from lateral to medial side.
	LOWER PART - Bicipital aponeurosis crosses it.
POSTERIOR	FROM ABOVE DOWN - long head of triceps, medial head of triceps, coracobrachialis, brachialis.
MEDIAL	UPPER PART - Ulnar nerve and basilic vein.
	LOWER PART - Median nerve.
LATERAL	UPPER PART - Median nerve, Coracobrachialis, Biceps.
	LOWER PART - Tendon of biceps.

DISTRIBUTION/BRANCHES:

1. **PROFUNDA BRACHII ARTERY**: It is the largest and the first branch. After arising from the posteromedial aspect of the brachial artery, it descends along with the radial nerve → lower triangular intermuscular space → spiral groove.
2. **SUPERIOR ULNAR COLLATERAL ARTERY**: It arises near the middle of the arm. It accompanies the ulnar nerve.
3. **INFERIOR ULNAR COLLATERAL ARTERY**: It arises near the lower end of the humerus. It will further divide into anterior and posterior branches.
4. **MUSCULAR BRANCHES**: To supply the muscles of the anterior compartment of the arm.
5. **NUTRIENT ARTERY**: It runs through the nutrient canal of the humerus. This is one of the events that occur at the level of insertion of the coracobrachialis.
6. **TERMINAL BRANCHES**: **Ulnar artery** and **Radial artery**. Of these, ulnar is larger and radial is smaller.



**Diagram showing the extent and branches of the brachial artery

APPLIED ANATOMY:

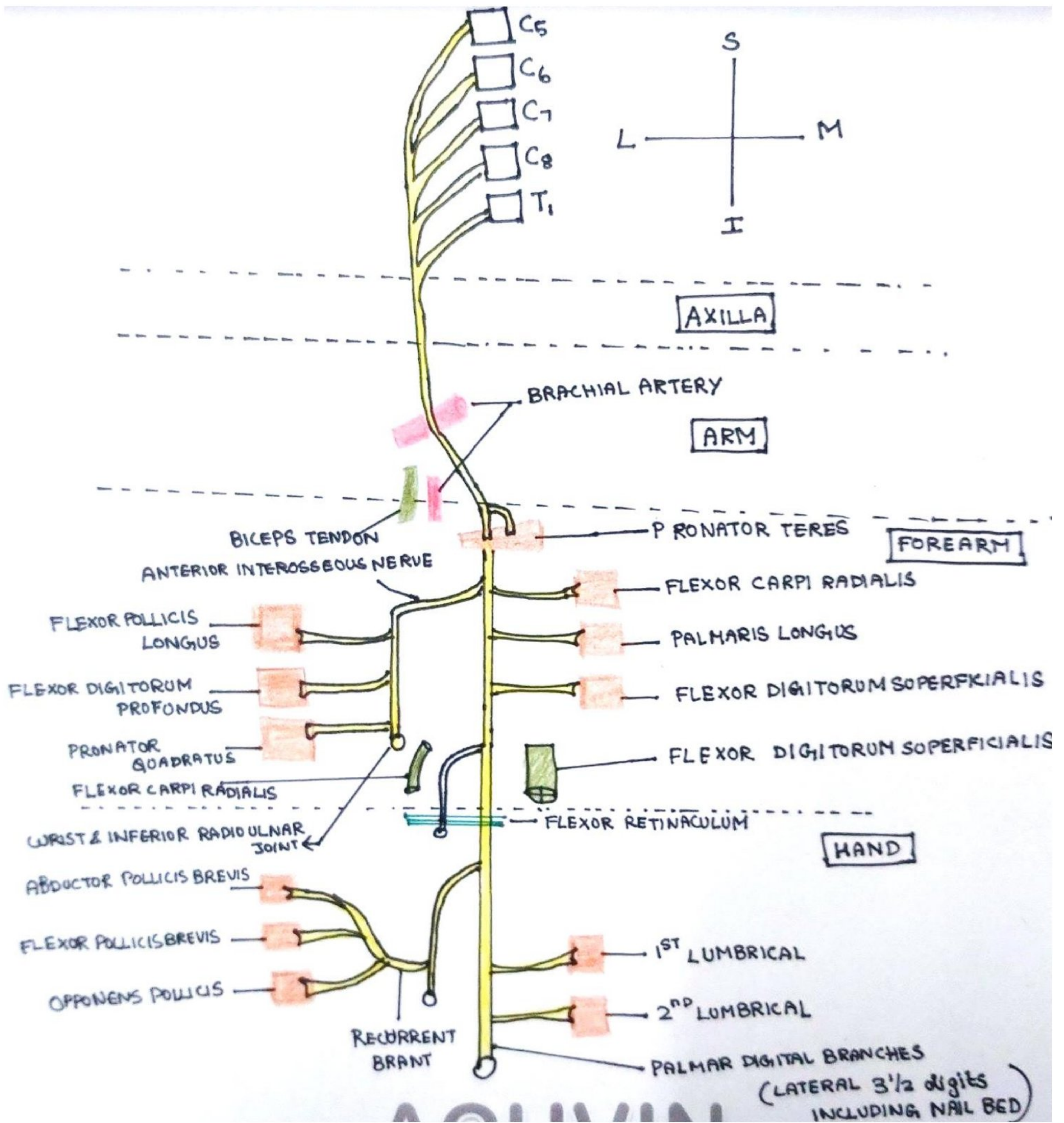
1. **BRACHIAL PULSE:** Since the brachial artery is superficial for most of its course, its pulse can be felt. In the cubital fossa, its pulsations can be felt medial to the tendon of biceps. These pulsations are auscultated for Korotkoff sounds while recording blood pressure.
2. **COMPRESSION OF BRACHIAL ARTERY:** To stop hemorrhages in the upper limb, the brachial artery is compressed against the shaft of the humerus at the level of insertion of the coracobrachialis.
3. **SUPRACONDYLAR FRACTURES OF THE HUMERAL SHAFT:** These are common in children after a fall on the elbow or on an extended hand and may cause posterior displacement of the distal fragment. This proximal bone fragment may injure the brachial artery. This may lead to Volkmann's ischemic contracture, where the flexors of the forearm are paralyzed due to ischemia.

SURFACE ANATOMY:

- Abduct the arm at right angles
- Mark a **point A** on the lower end of the lateral wall of the axilla, in front of the posterior axillary fold (lower end of the axillary artery).
- Mark a **point B** in the anterior midline of the forearm at the level of neck of the radius, medial to the tendon of biceps brachii.
- **Join all the points.** This is the surface marking of the brachial artery.

6. MEDIAN NERVE

FORMATION	LATERAL ROOT : C5 C6 C7 MEDIAL ROOT : C8 T1 of brachial plexus
COURSE	<ul style="list-style-type: none"> Lies medial to brachial artery Enters cubital fossa Enters forearm Lie between flexor digitorum superficialis and flexor digitorum profundus Reaches the wrist Lies deep and lateral to palmaris longus tendon Passes deep to flexor retinaculum Enters palm
RELATIONS	CUBITAL FOSSA
	<ul style="list-style-type: none"> Medial-brachial artery Behind -bicipital aponeurosis Front - brachialis
	FOREARM
	<ul style="list-style-type: none"> between 2 head pronator teres Crosses ulnar artery Passes beneath fibrous arch of flexor digitorum superficialis Runs deep to this muscle on surface of flexor digitorum profundus Accompanied by medial artery Lies between tendons of flexor carpi radialis and flexor digitorum superficialis Overlapped by tendon of palmaris longus Passes through flexor retinaculum
BRANCHES	CARPEL TUNNEL = then enters the palm
	<ul style="list-style-type: none"> Muscular branches Anterior interosseous branch Palmar cutaneous branch Articular branch Vascular branch Communicating branch
CLINICAL ASPECTS	<ul style="list-style-type: none"> Carpel tunnel syndrome- positive Tinel and Phalen sign TINEL SIGN (percussion over the nerve elicits tingling sensations) PHALEN SIGN (flexing both wrists at 90 degree for 60 seconds)



7. RADIAL NERVE:

- Continuation of posterior cord of brachial plexus in the axilla
- It is the largest nerve of the brachial plexus

FORMATION/ROOT VALUE: C5, C6, C7, C8, and T1 of brachial plexus

COURSE AND RELATIONS:

A. IN THE AXILLA

- **ANTERIOR:** Third part of axillary artery
- **POSTERIOR:** Muscles forming posterior wall of axilla

B. IN THE ARM

- It enters the arm at the lower border of the teres major.
- It passes between the long and medial heads of triceps to enter the lower triangular space, through which it reaches the spiral groove along with profunda brachii artery.

C. IN THE SPIRAL GROOVE

- The radial nerve in the spiral groove lies in direct contact with the humerus.
- At the lower end of the spiral groove, the radial nerve pierces the lateral muscular septum of the arm and enters the anterior compartment of the arm.
- It first descends between the brachialis and brachioradialis, and then between brachialis and extensor carpi radialis longus.
- At the level of lateral epicondyle of humerus, it terminates by dividing into superficial and deep branches in the lateral part of the cubital fossa
 - a. The *deep branch*; posterior interosseous nerve, in the cubital fossa
 - b. The *superficial branch* (superficial radial nerve) is sensory.
- It runs downwards over the supinator, pronator teres, and flexor digitorum superficialis deep to brachioradialis.
- About one-third of the way down the forearm (at about 7 cm above wrist), it passes posteriorly, emerging from under the tendon of brachioradialis, proximal to the styloid process of radius and then passes over the tendons of anatomical snuff-box.