

Axilla

Dr. K. S. Ravi

M.B.B.S.,M.D.,MNAMS,FAIMER(M-FIILPE),D.Litt.

Additional Professor

Department of Anatomy

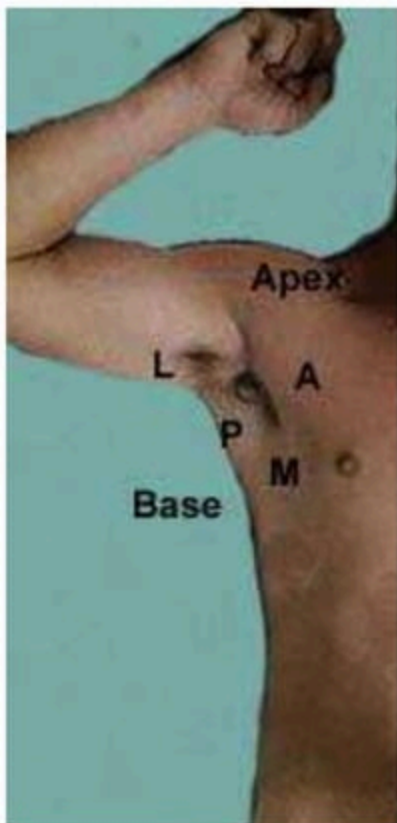
AIIMS Rishikesh

Objectives

1. Definition of Axilla
2. Boundaries
3. Cervico-Axillary Canal
4. Spaces/ Gateways in posterior wall
5. Axillary folds & Sheath
6. Contents of Axilla
7. Axillary artery- Parts & Branches
8. Axillary Vein & Lymph nodes
9. Applied Anatomy

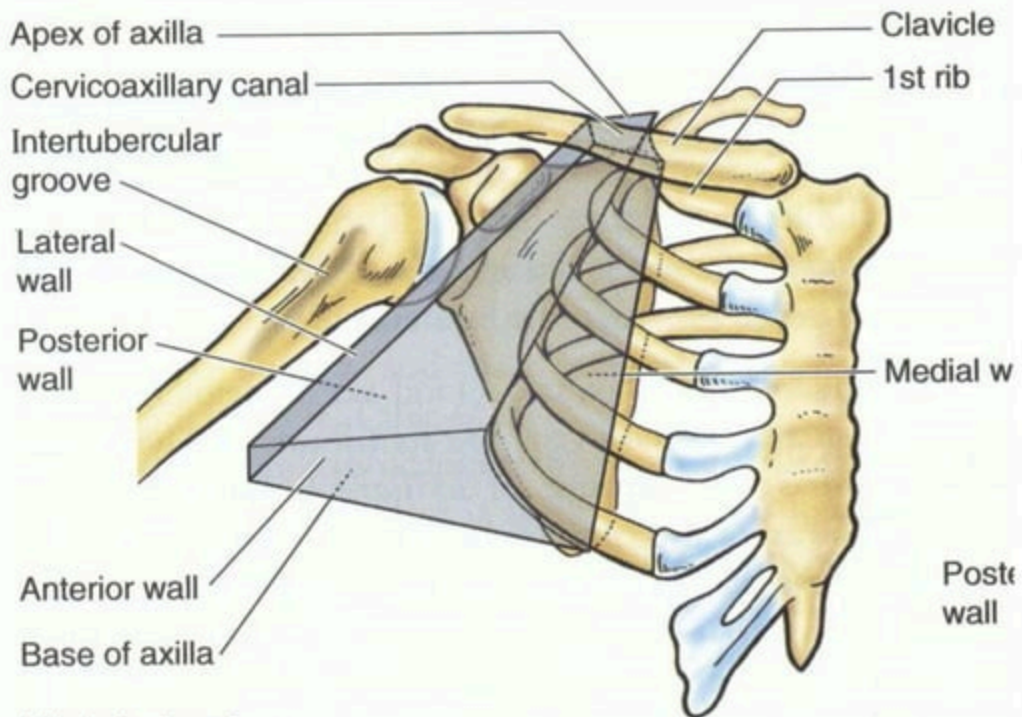
Axilla (arm pit)

- Axilla is gateway to upper limb, providing an area of transition between neck & arm
- Between upper arm & thoracic wall
- Boundaries
 - Apex
 - Base
 - Anterior wall
 - Posterior wall
 - Medial wall
 - Lateral wall



What is Axilla?

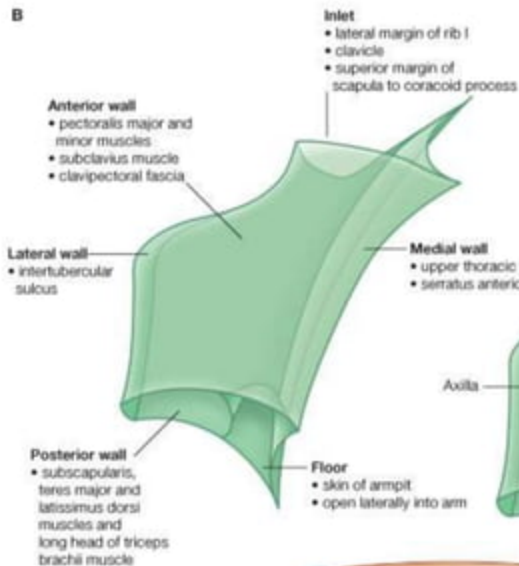
- A region (the axillary space) associated with armpit.
- It actually begins around cervicoaxillary canal, at edge of first rib.
- It continues to armpit, with bottom being axillary fascia. (remember? The lower attachment of the clavipectoral membrane?)
- It has musculoskeletal boundaries that are lateral, medial, anterior and posterior.



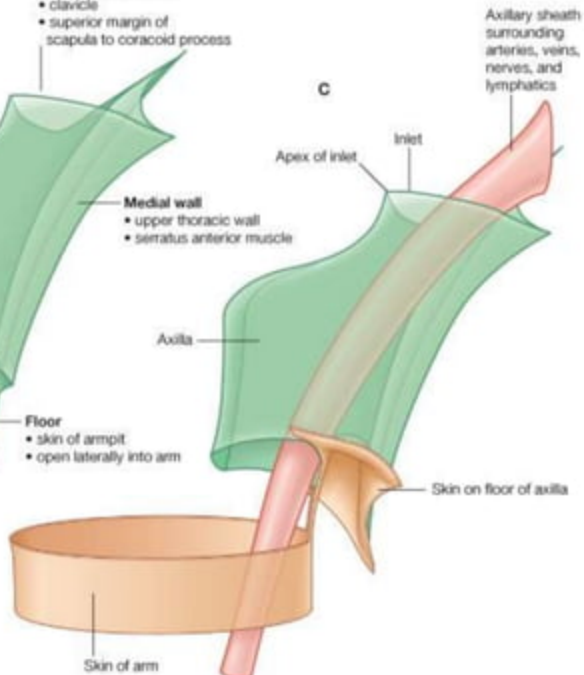
(A) Anterior view

Boundaries of Axilla

B



C

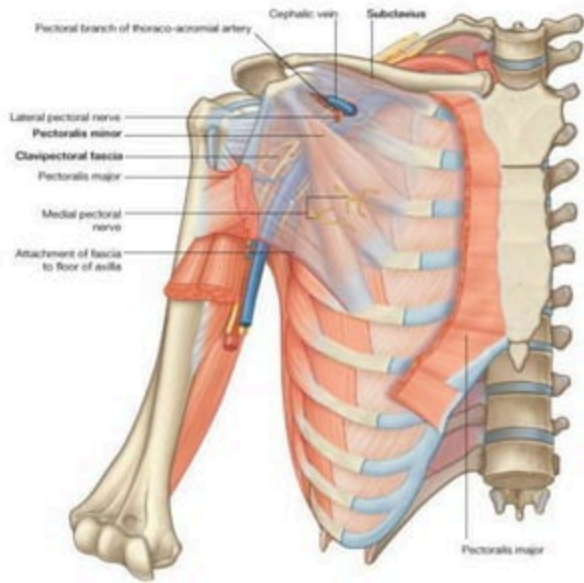
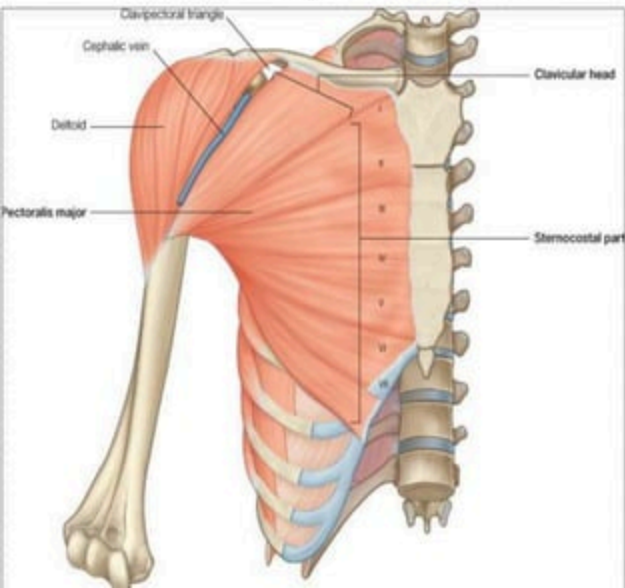


Apex/cervico-axial canal/Inlet

- Directed towards the root of the neck
- Boundaries:
 - Front: clavicle
 - Behind: upper border of scapula
 - Medially: outer margin of 1st rib
- Transmits axillary vessels and brachial plexus

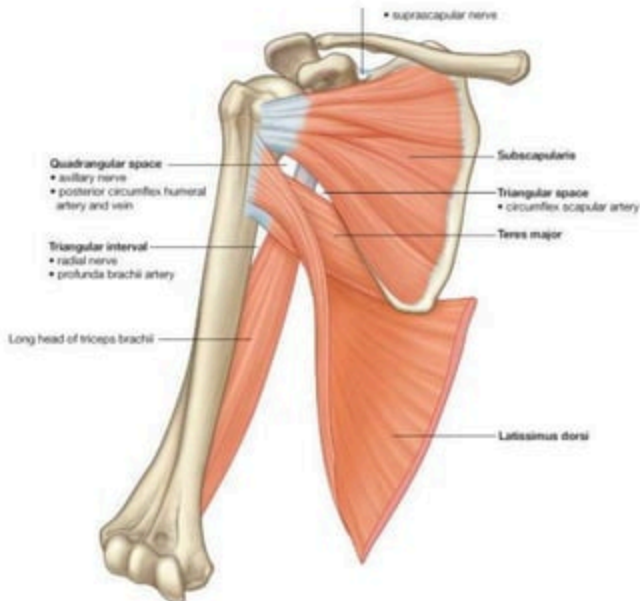
• Anterior wall:

- pectoralis major
- pectoralis minor
- subclavius
- clavipectoral fascia



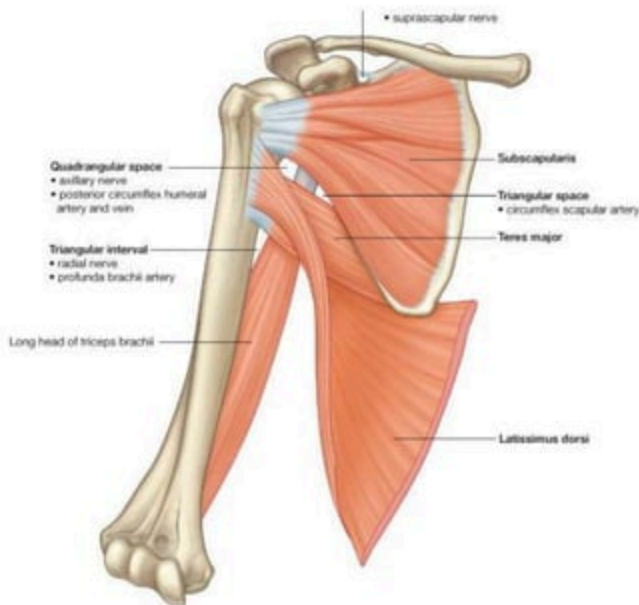
Posterior wall:

- Scapula
- Subscapularis
- Teres major
- Latissimus dorsi (forms posterior axillary fold)



Gateways in the posterior wall

- **Quadrangular space**
- provides a passageway for nerves and vessels passing between the axilla and the more posterior scapular and deltoid regions
- Boundaries are formed by:
- the inferior margin of the subscapularis/teres minor muscles
- the surgical neck of the humerus;
- the superior margin of the teres major muscle
- **axillary nerve and posterior circumflex humeral artery and vein** passes through it



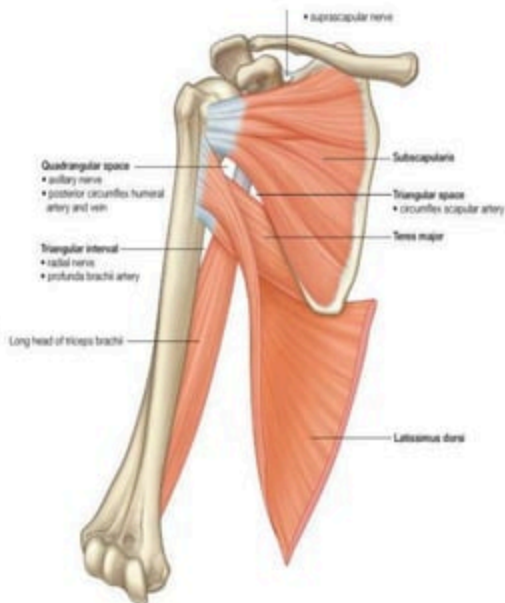
Gateways in the posterior wall

- **Triangular spaces**
- **Upper triangular space:** When viewed from anteriorly, it is formed
 - by:
 - Medial margin of the long head of the triceps brachii
 - Superior margin of the teres major muscle;
 - Inferior margin of the subscapularis/teres minor muscles.
- **Circumflex scapular artery & vein** pass into this space.



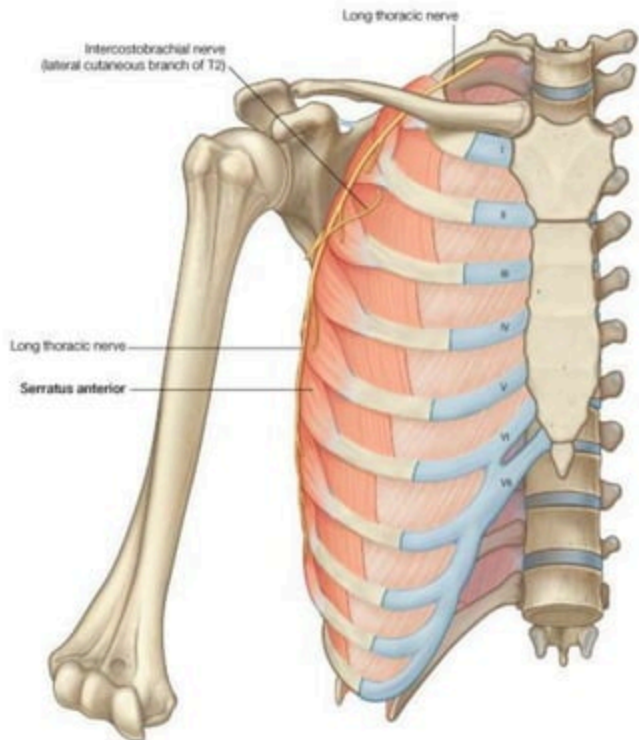
Gateways in the posterior wall

- **Lower triangular** interval is formed by:
 - long head of the triceps brachii muscle;
 - the shaft of the humerus;
 - the inferior margin of the teres major muscle
- The **radial nerve** passes out of the axilla traveling through this interval to reach the posterior compartment of the arm.



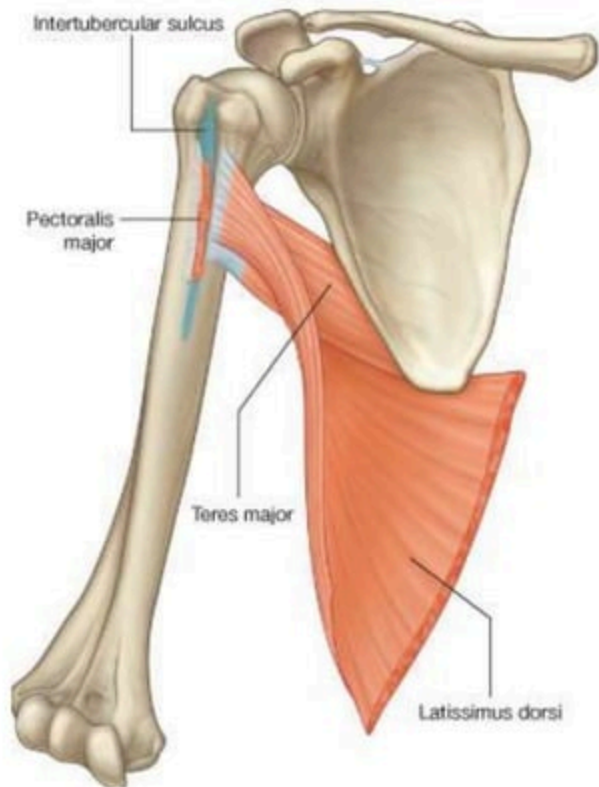
Medial wall:

- upper 3 or 4 intercostal spaces
- upper part of serratus anterior
- long thoracic nerve
- intercosto brachial nerve pierces the medial wall



Lateral wall:

- bicipital groove/intertubercular sulcus of the humerus
- coraco brachialis
- biceps brachii



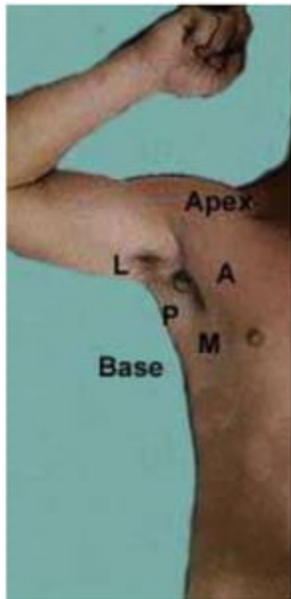
Base:

- skin

- superficial fascia

- axillary fascia (deep fascia)

- **Axillary folds:**
 - Anterior axillary fold:
 - Pectoralis major
 - Posterior axillary fold:
 - Latissimus dorsi
 - Teres major



Contents:

- axillary vessels

- cords and branches of brachial plexus

- axillary lymph nodes

- fat

Axillary sheath

- Derived, at least in part, from anterior and middle scalene muscle fascia.
- Covers over a series of contents:
 - Axillary artery
 - Axillary vein
 - Brachial plexus and nerves derived from it.
- The axillary sheath is just the fascia surrounding these structures.

Subclavian Artery

Right Lateral Schematic View

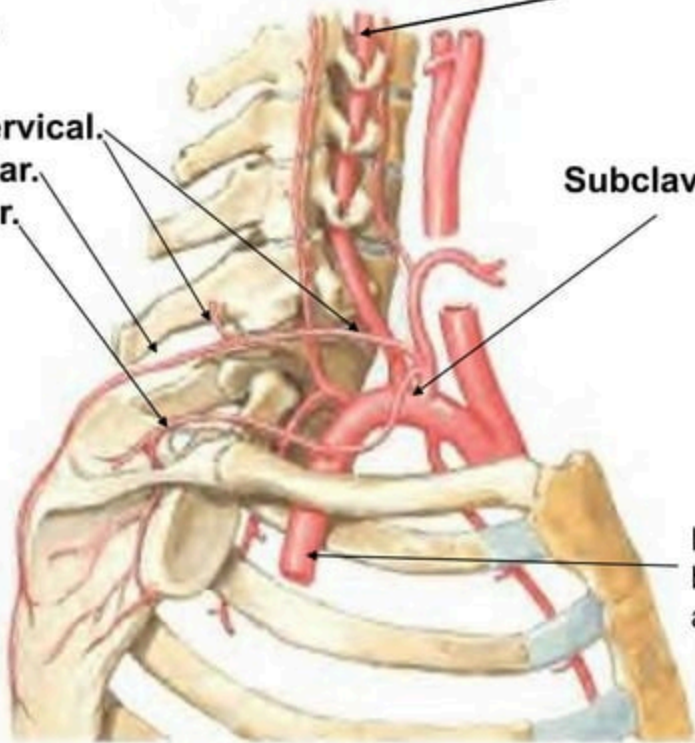
Vertebral Artery

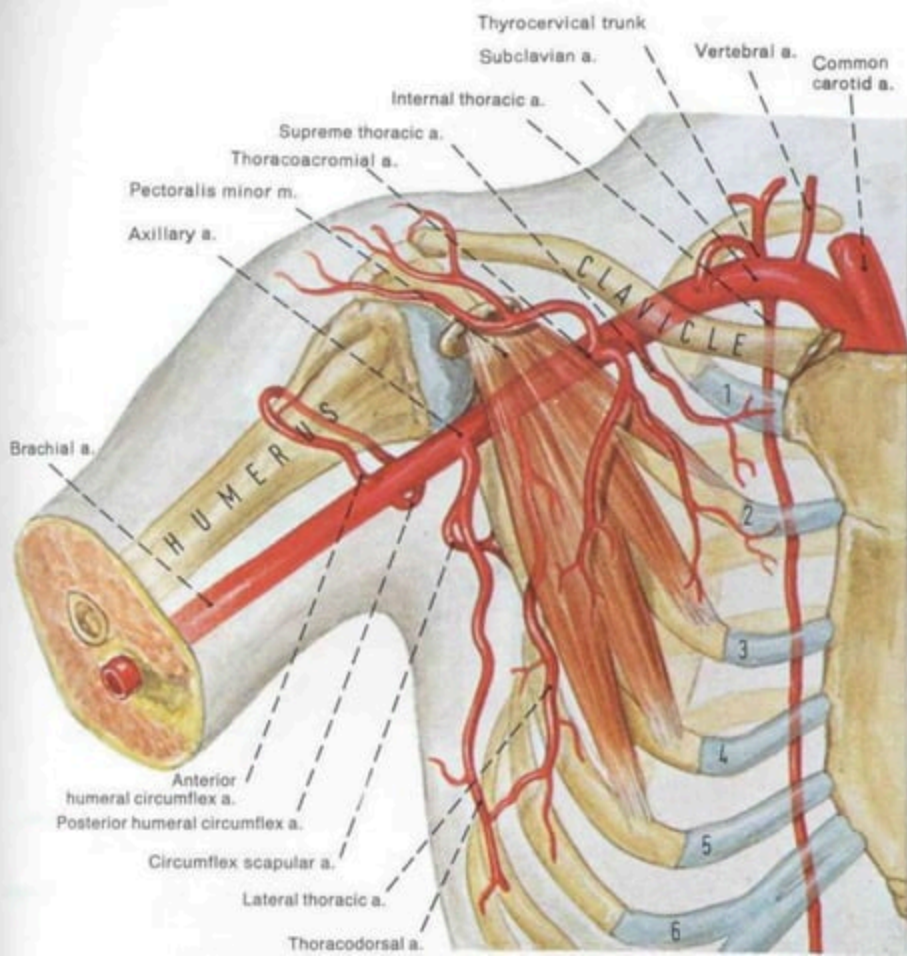
Branches you should know:

Transverse cervical.
Dorsal scapular.
Suprascapular.

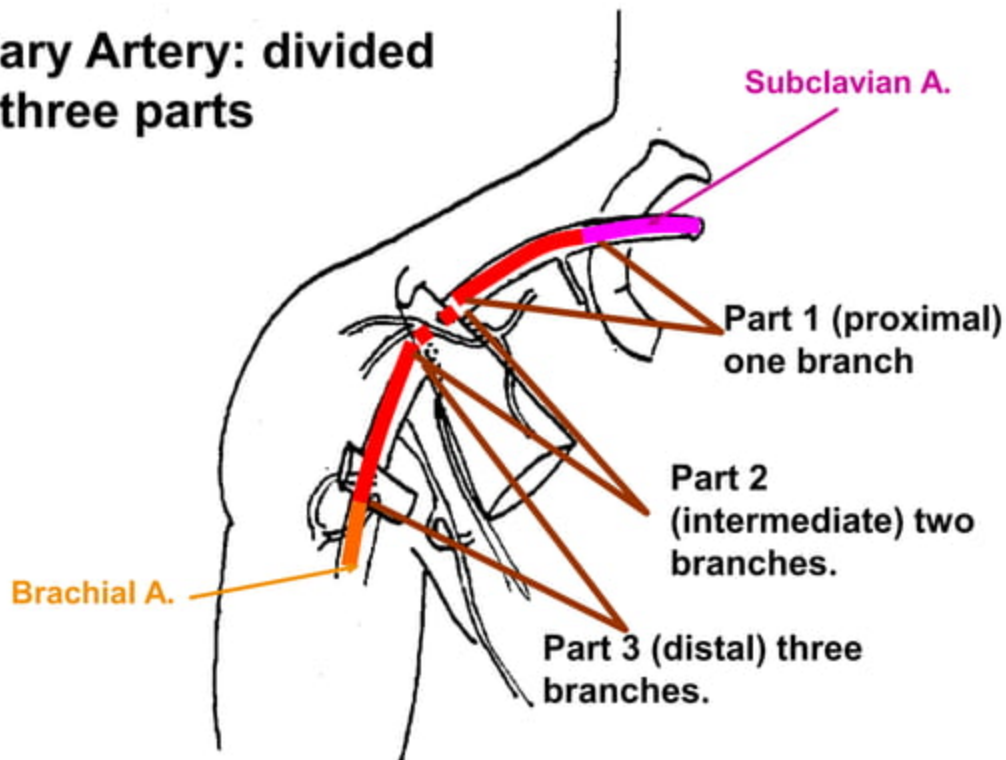
Subclavian Artery.

Lateral to the first rib, it becomes axillary artery.





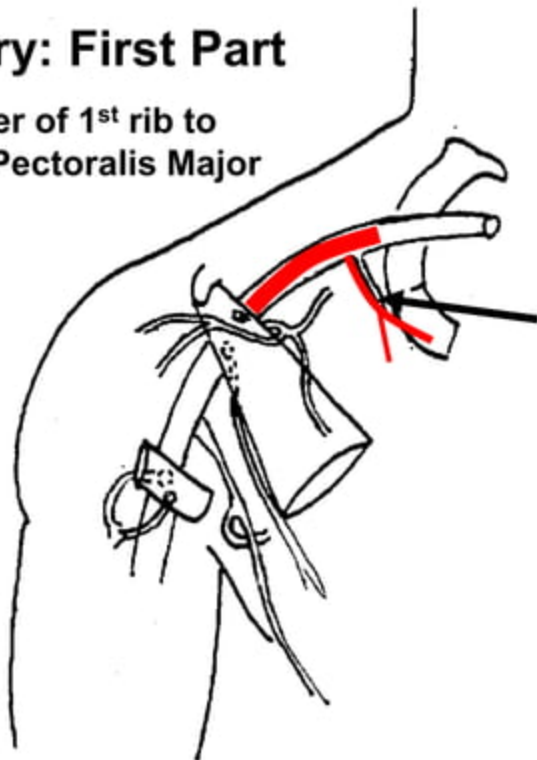
Axillary Artery: divided into three parts



AXILLARY ARTERY

Axillary Artery: First Part

From lateral border of 1st rib to
medial border of Pectoralis Major
M.



Named Branch:

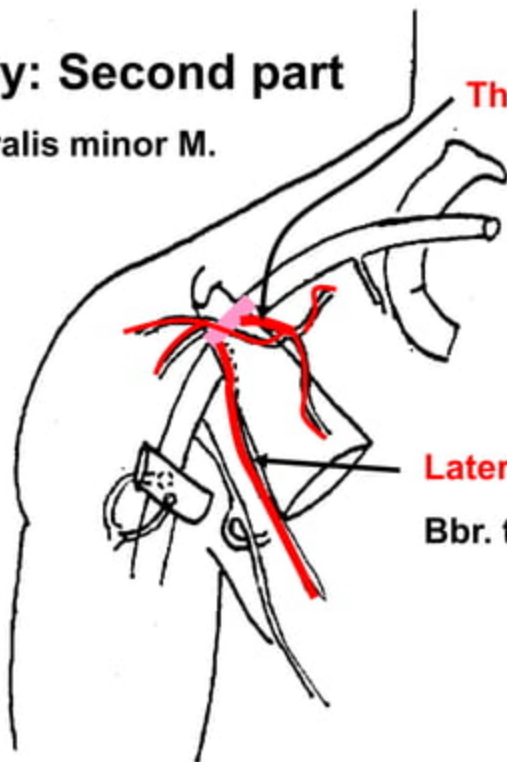
**Supreme Thoracic
A.** (to external
thoracic body wall)

Supplies blood to
first and second
intercostal spaces

AXILLARY ARTERY

Axillary Artery: Second part

Deep to the pectoralis minor M.



Thoracoacromial trunk

Branches to:
Clavicular area
Pectoralis region
Acromion of Scapula
Deltoid Muscle.

Lateral Thoracic Artery

Bbr. to Serratus Ant. M.

AXILLARY ARTERY

Axillary Artery: third part

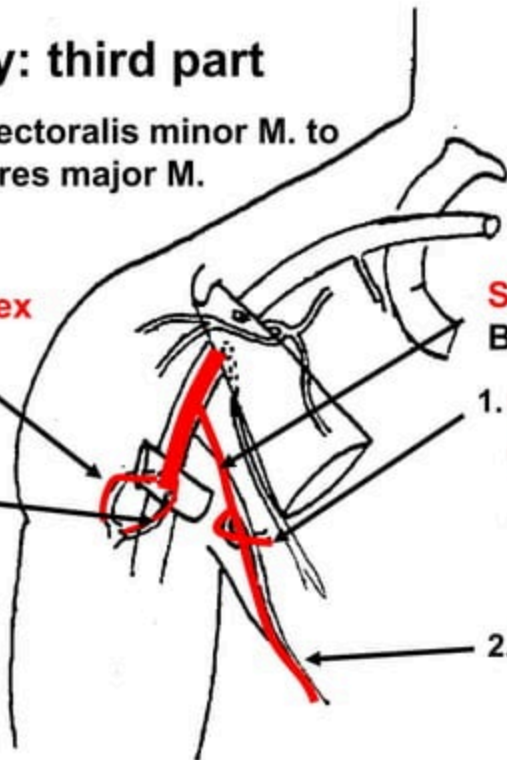
Lateral border of Pectoralis minor M. to lateral border of Teres major M.

Posterior circumflex humeral A.

Anterior circumflex humeral A.

Subscapular A.:
Branches:

1. Circumflex scapular A. (to multiple muscles associated with the scapula)
2. Thoracodorsal A. (to Latissimus dorsi M.)



AXILLARY ARTERY

How it will look in lab

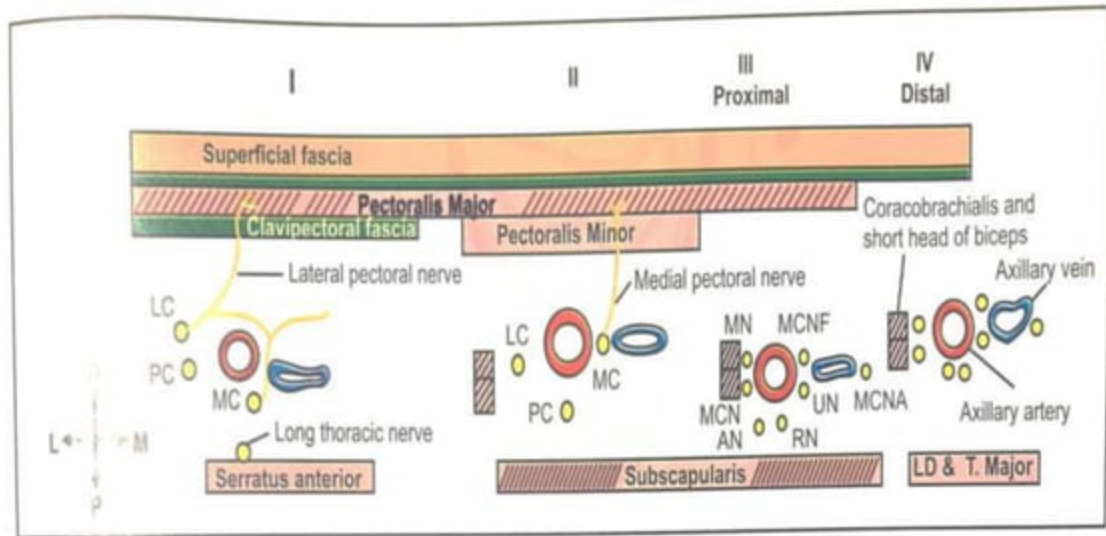
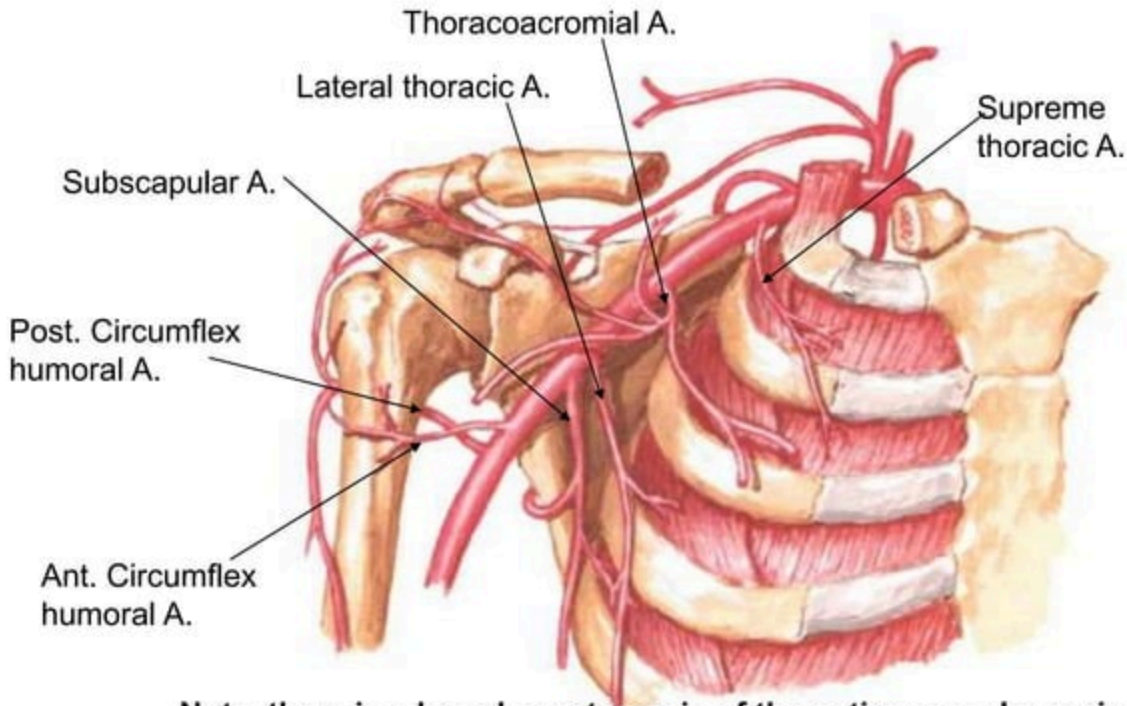


Fig. 12.9: Relations of various parts of axillary artery

(LC) Lateral cord; (PC) Posterior cord; (MC) Medial cord; (MN) Median nerve; (MCN) Musculocutaneous nerve; (AN) Axillary nerve; (RN) Radial nerve; (UN) Ulnar nerve; (MCNF) Medial cutaneous nerve of forearm; (MCNA) Medial cutaneous nerve of arm

Axillary Artery and Anastomoses Around Scapula

Anterior View



Note, there is a broad anastomosis of the entire scapular region including circumflex humorals, subscapular, dorsal scapular, and suprascapular AA.

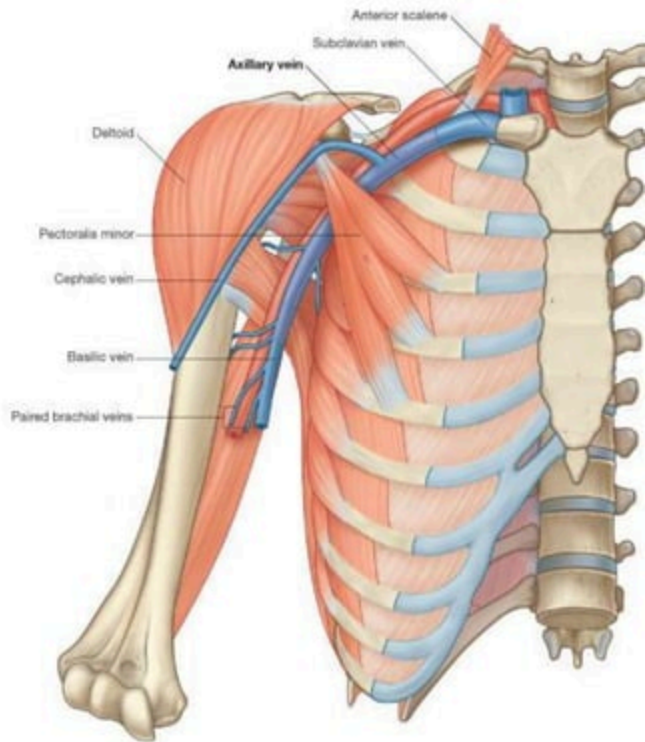
Axillary vein:

Formation:

- Continuation of basilic vein at the lower border of teres major
- runs upwards on the medial side of the axillary artery
 - Ends at outer border of 1st rib by becoming the subclavian vein

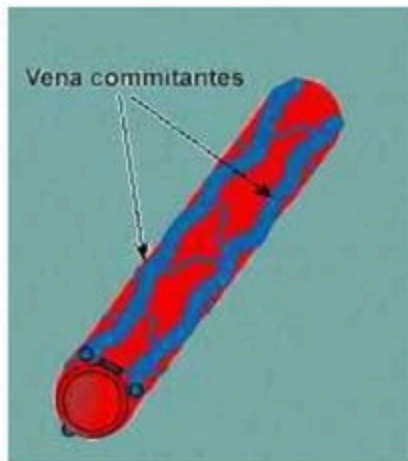
Tributaries:

- cephalic vein
- veins corresponding to the branches of axillary artery



Vena comitans

- Frequently multiple (2 or 3)
- Run with their corresponding Arteries

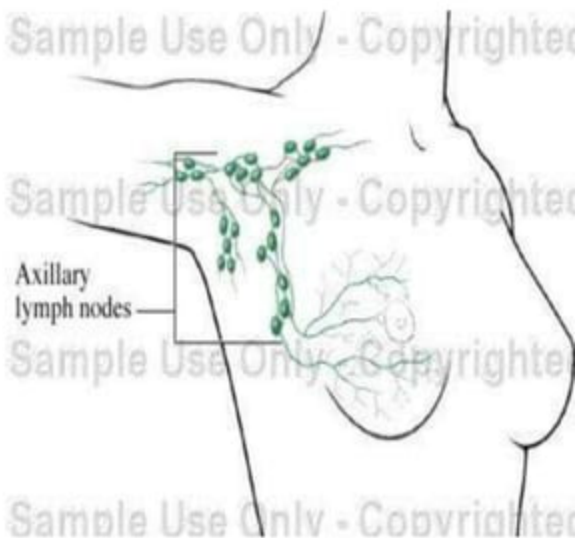


Axillary sheath: axillary vessels and brachial plexus enclosed by a sheath of fascia called axillary fascia

-continuous with the prevertebral fascia at the root of the neck

Axillary lymph nodes

- There are about 20 to 30 axillary lymph nodes
- Arranged in 5 groups:
 1. Anterior (pectoral)
 2. Posterior (subscapular)
 3. Lateral
 4. Central
 5. Apical



Regional Lymph Nodes for Breast

A: Pectoralis major muscle

B: Axillary lymph nodes level I

Ant., Post & Lat
(Below & Lateral)

C: Axillary lymph nodes level II

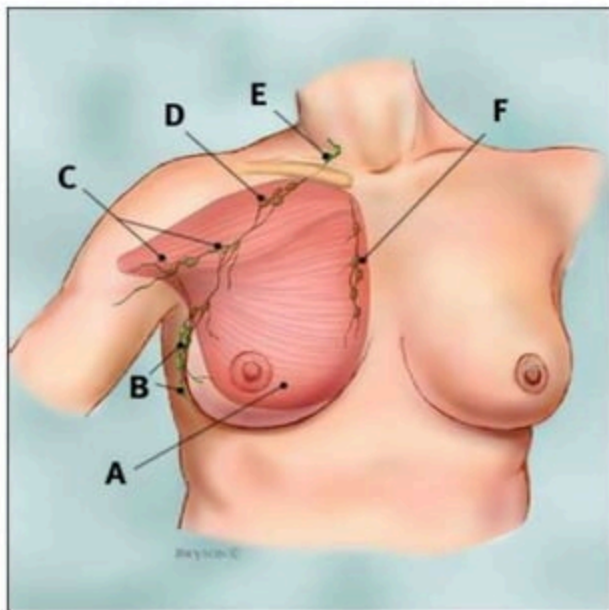
Central- Behind, I
interpectoral- In front

D: Axillary lymph nodes level III

Apical- Above

E: Supraclavicular lymph nodes

F: Internal mammary lymph nodes



??

1. What are the structures that make up anterior wall of the axilla?

- a. Pectoralis major, clavipectoral fascia and pectoralis minor
- b. Subscapularis, teres major and latissimus dorsi
- c. Pectoralis major, clavipectoral fascia and latissimus dorsi
- d. Subscapularis, teres major and pectoralis minor

2. What are the structures that make up the posterior wall of the axilla?

- a. Pectoralis major, clavipectoral fascia and pectoralis minor
- b. Subscapularis, teres major and latissimus dorsi
- c. Pectoralis major, clavipectoral fascia and latissimus dorsi
- d. Subscapularis, teres major and pectoralis minor

3. The anterior group of axillary lymph nodes lies along the:

- a. Below & lateral to lower margin of pectoralis minor
- b. Lower margin of the posterior wall
- c. Posteromedial to the axillary vein
- d. In the fat of axilla
- e. Behind and above the pectoralis minor, medial to the axillary vein

4. The apical group of axillary lymph nodes lies along the:

- a. Lower border of the pectoralis minor
- b. Lower margin of the posterior wall
- c. Posteromedial to the axillary vein
- d. In the fat of axilla
- e. above the upper margin of pectoralis minor, medial to the axillary vein

5. Which of the following branches of the axillary artery supplies the pectoral muscles and the thoracic wall?

- a. Anterior circumflex humeral artery
- b. Lateral thoracic artery
- c. Posterior circumflex humeral artery
- d. Superior thoracic artery

6. Which of the following branches of the axillary artery supplies the head of the humerus and the shoulder joint?

- a. Anterior circumflex humeral artery
- b. Lateral thoracic artery
- c. Posterior circumflex humeral artery
- d. Superior thoracic artery

Thank

You