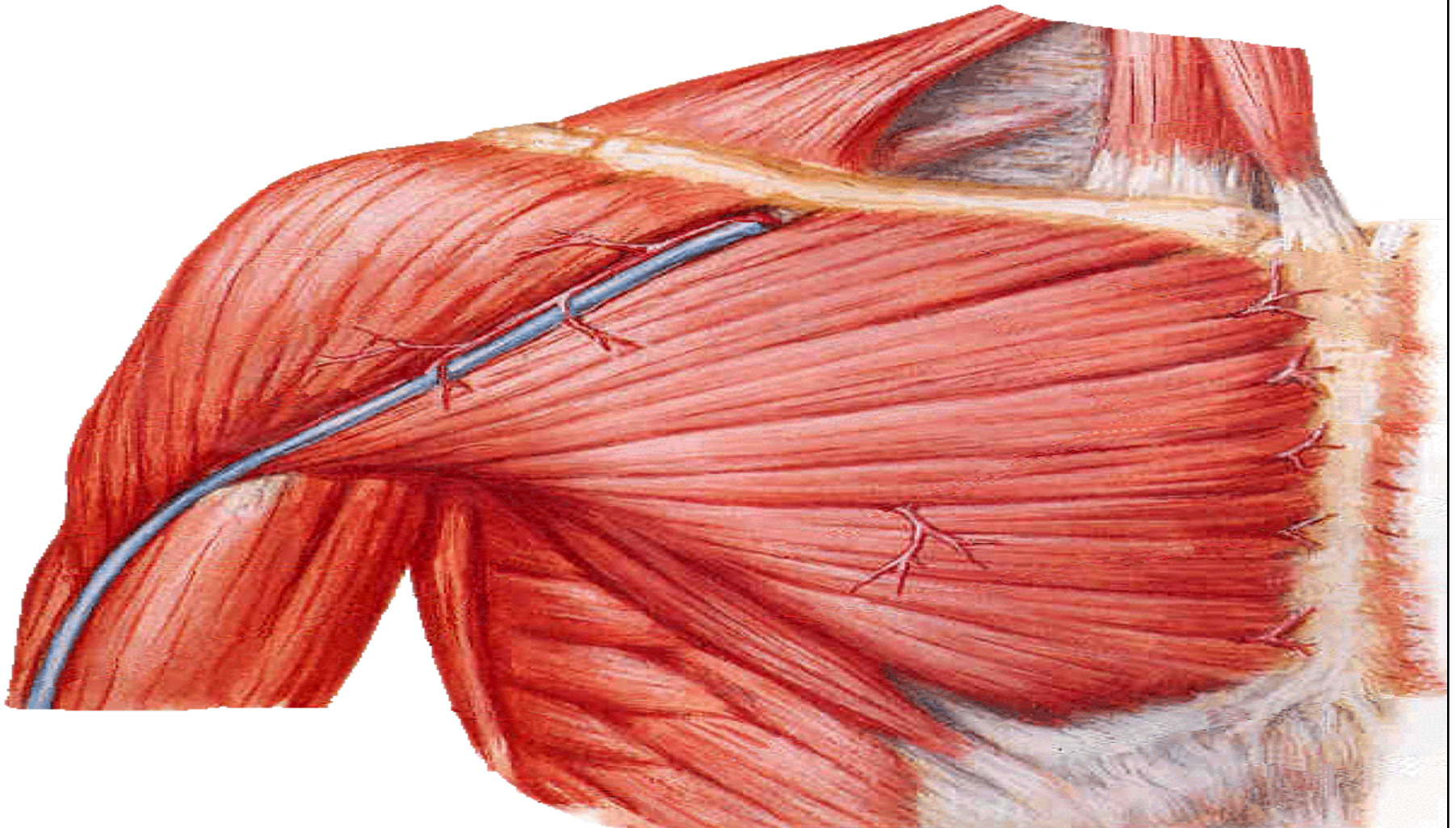


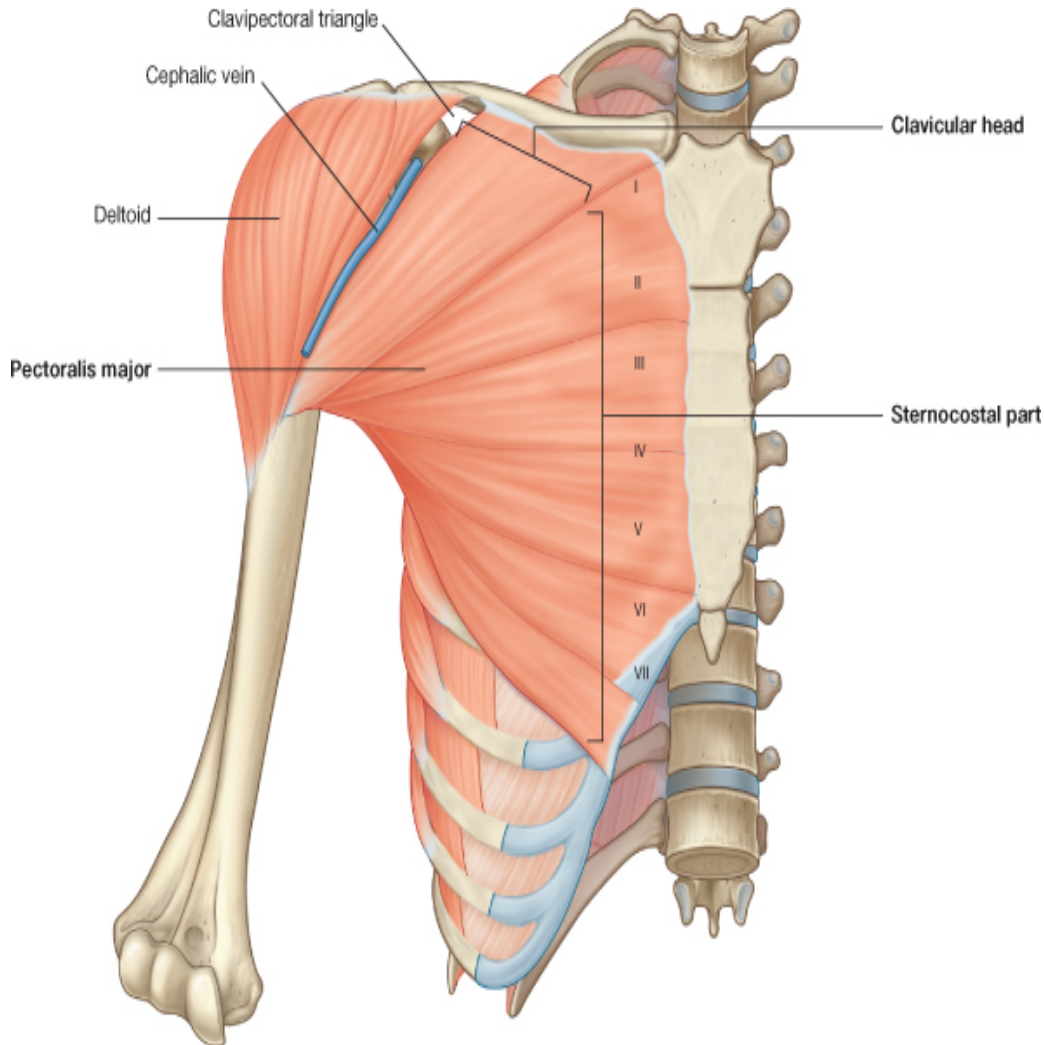
# ***PECTORAL REGION AND AXILLA***



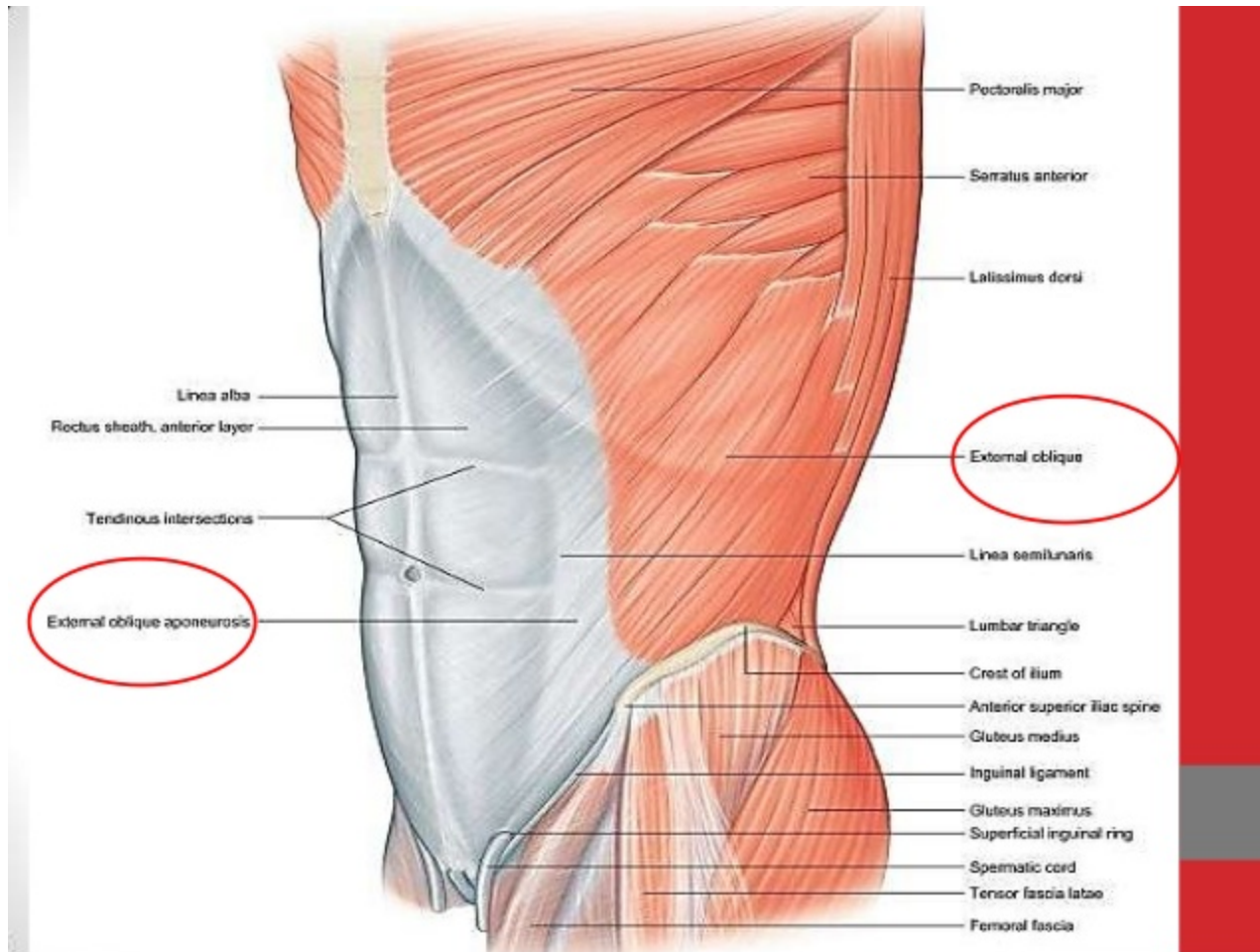
# OBJECTIVES

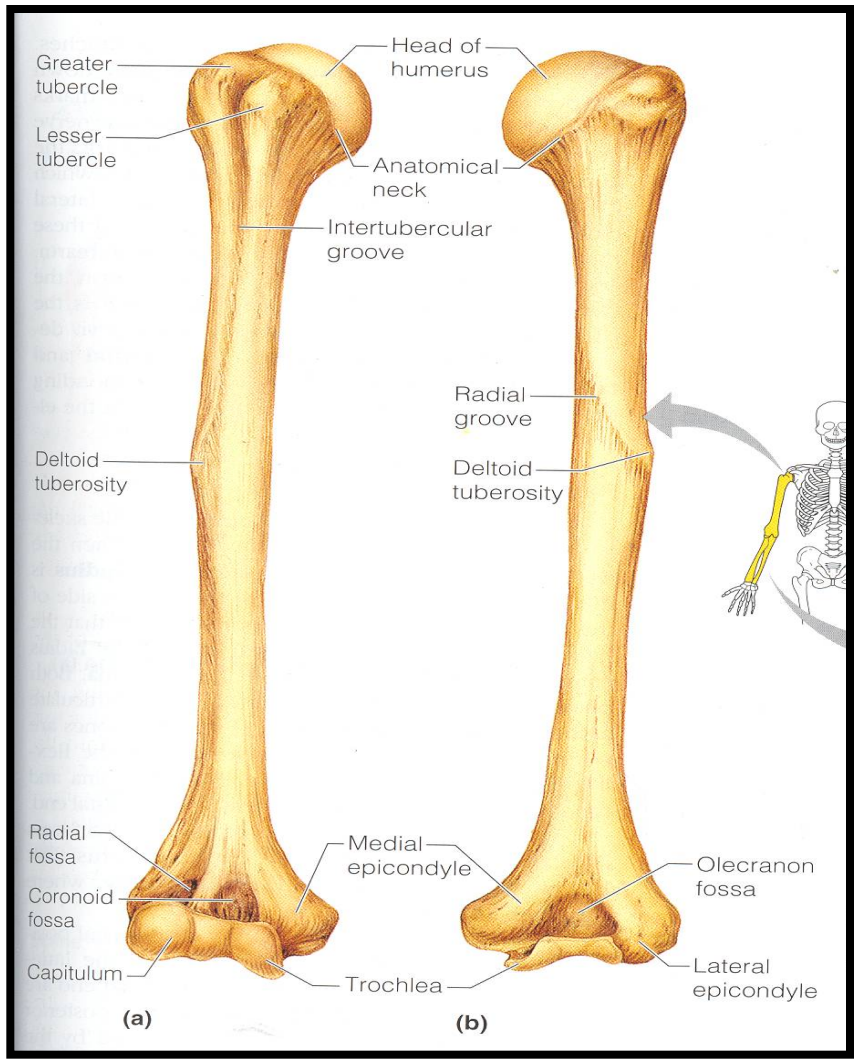
- **By the end of the lecture the students should be able to :**
- **Identify and describe the muscles of the pectoral region.**
  - **Pectoralis major.**
  - **Pectoralis minor.**
  - **Subclavius.**
  - **Serratus anterior.**
- **Describe and demonstrate the boundaries and contents of the **axilla**.**
- **Describe the formation of the **brachial plexus** and its branches.**

# Pectoralis Major

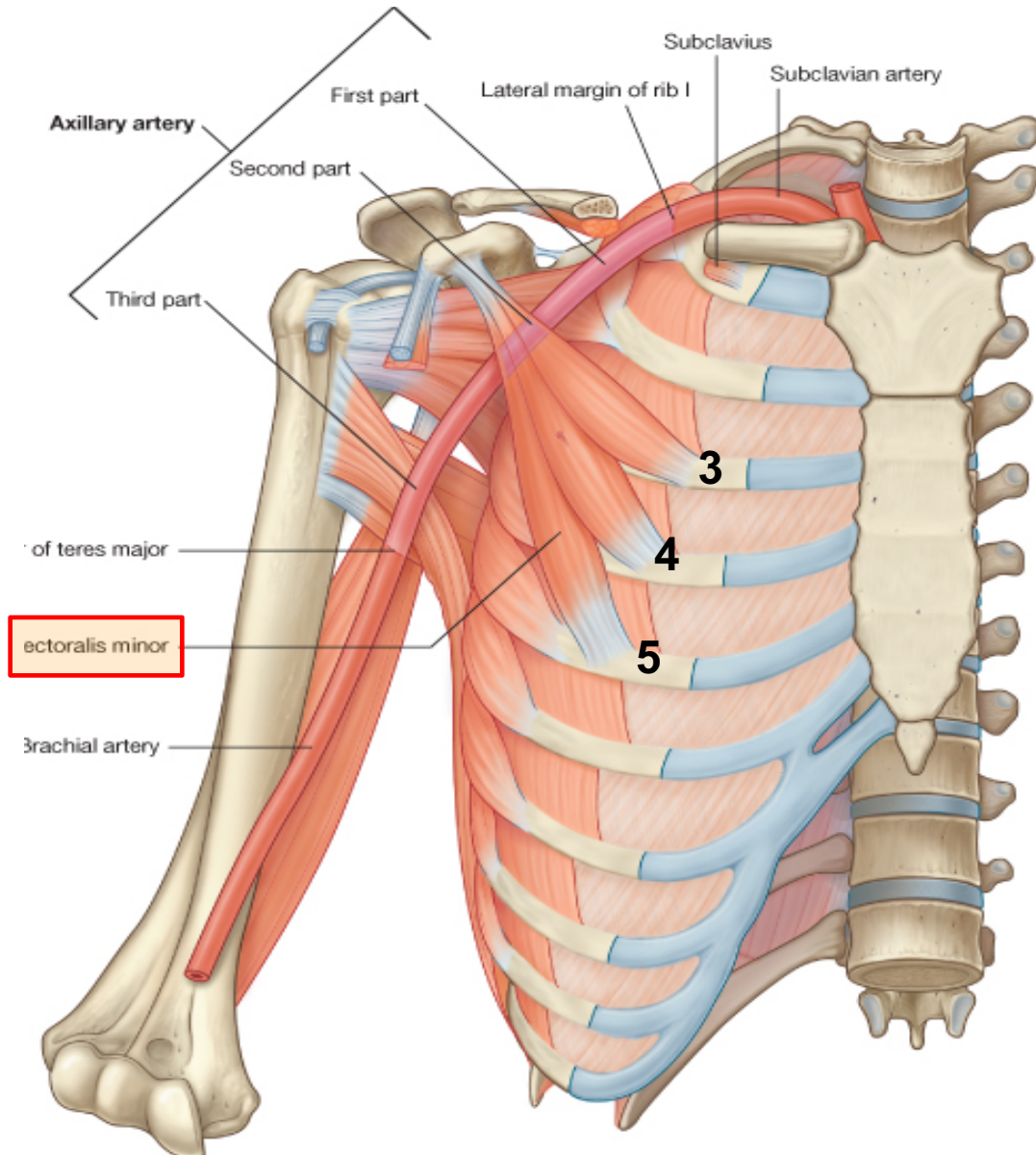


- **Origin** : 2 heads;
- **Clavicular head**: From;
- Medial  $\frac{1}{2}$  of the front of the clavicle.
- **Sternocostal head**: From;
- **Sternum.**
- **Upper 6** costal cartilages.
- Aponeurosis of the **external oblique muscle.**
- **Insertion** :
- Lateral lip of bicipital groove (**Humerus**).
- **Nerve supply** :
- **Medial & lateral pectoral nerves.**
- **Action** :
- **Adduction and medial rotation** of the arm.
- **Clavicular head helps in flexion of arm (shoulder).**



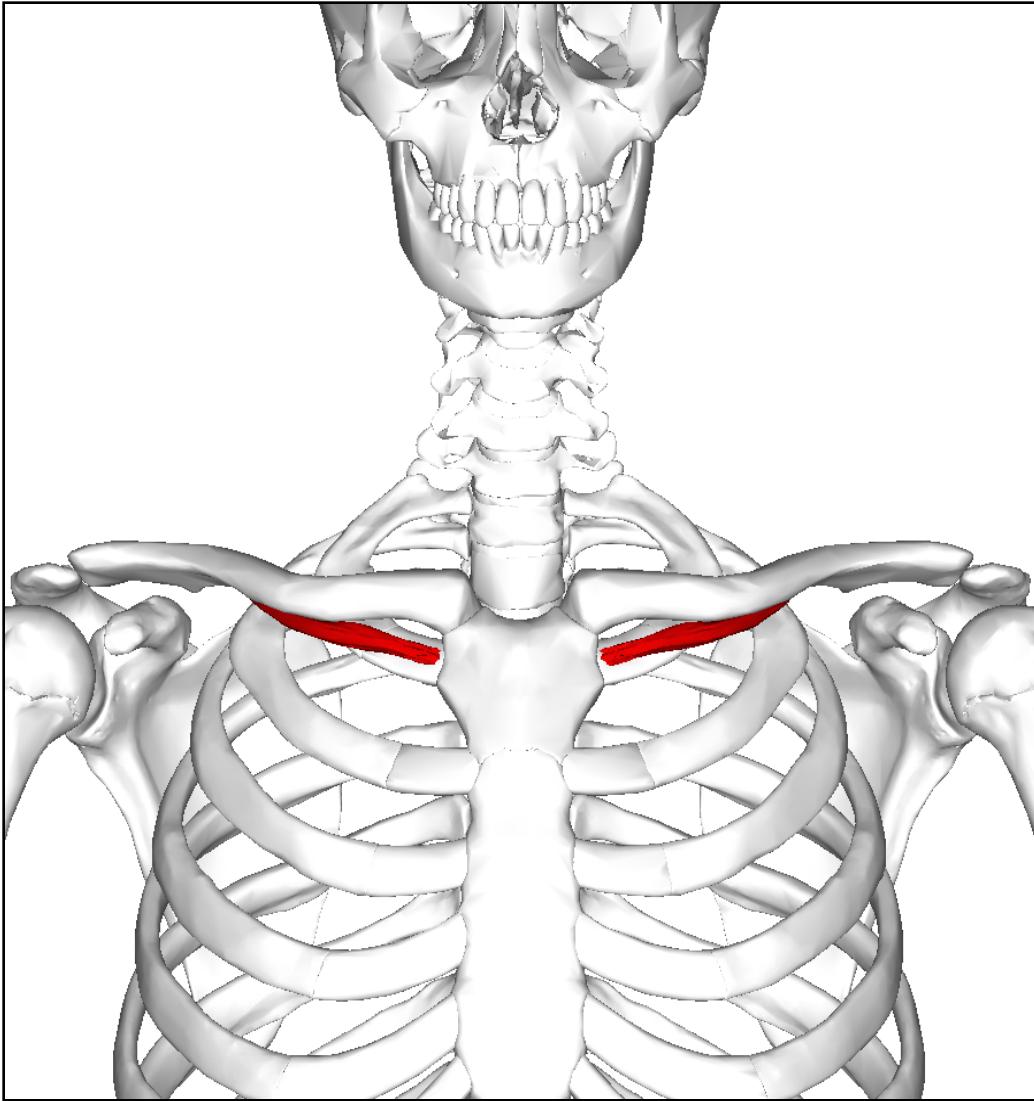


# Pectoralis Minor

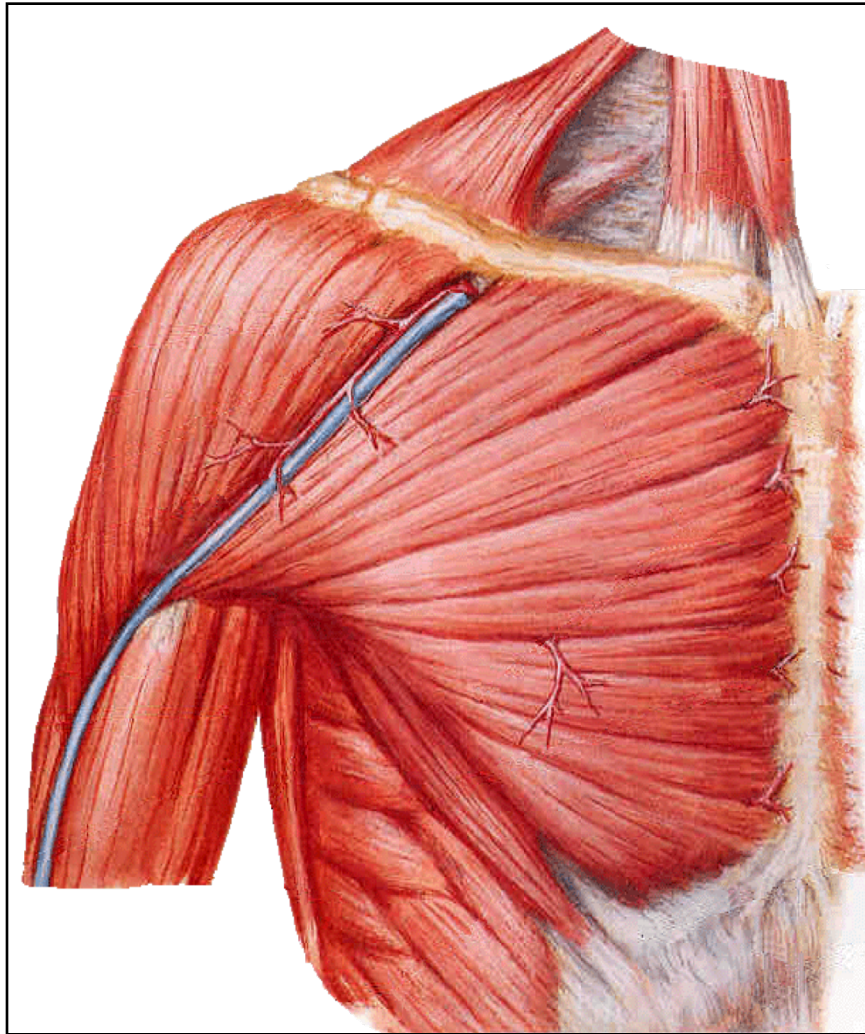


- **Origin:**
- From 3<sup>rd</sup>, 4<sup>th</sup>, & 5<sup>th</sup> ribs close to their costal cartilages.
- **Insertion:**
- Coracoid process (scapula).
- **Nerve supply:**
- Medial pectoral nerve.
- **Action:**
- Depression of the shoulder.
- **Draw the ribs upward and outwards during deep inspiration.**

# Subclavius

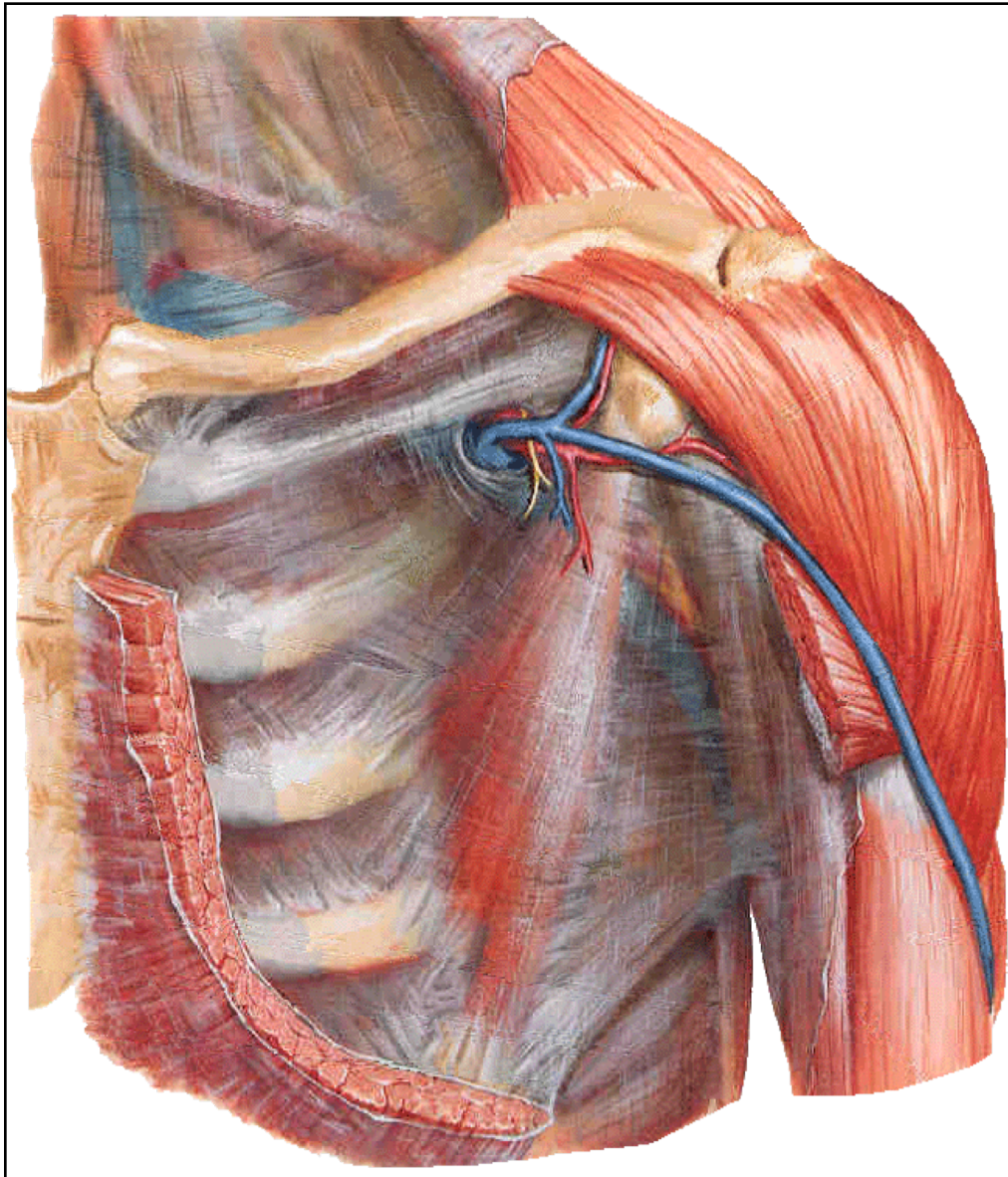


- **Origin:**
- From 1<sup>st</sup> rib at its costal cartilage.
- **Insertion:**
- Subclavian groove in the **middle 1/3** of the inferior surface of **clavicle**.
- **Nerve supply:**
- Nerve to subclavius from upper trunk of brachial plexus.
- **Action:**
- **Fixes** the **clavicle** during movement of shoulder joint.

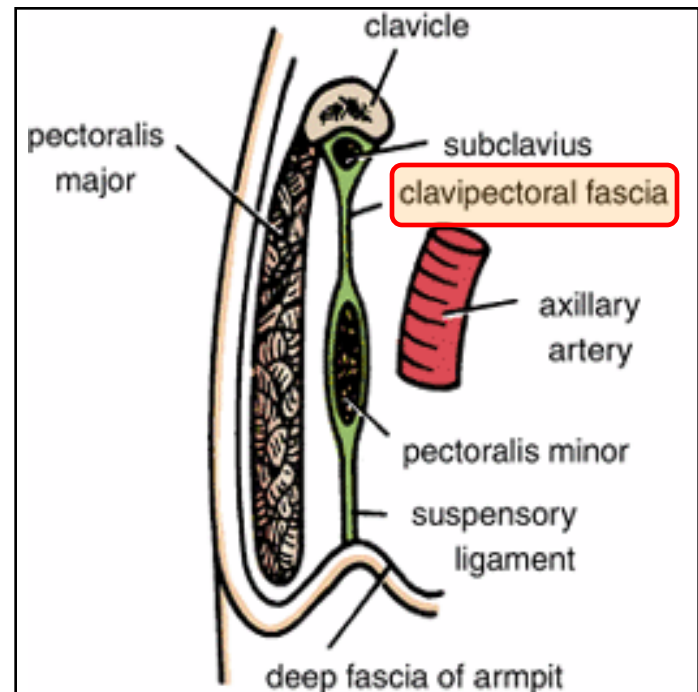




# Clavipectoral Fascia



- It is a **thickened** membrane of **deep fascia** **between** the subclavius and pectoralis minor.
- It is pierced by :
  - **Lateral pectoral nerve.**
  - **Thoraco- acromial artery**
  - **Cephalic vein.**
  - **Few lymph vessels.**



## Origin:

- Upper eight ribs.

## Insertion:

- anterior aspect of the medial border and inferior angle of scapula.

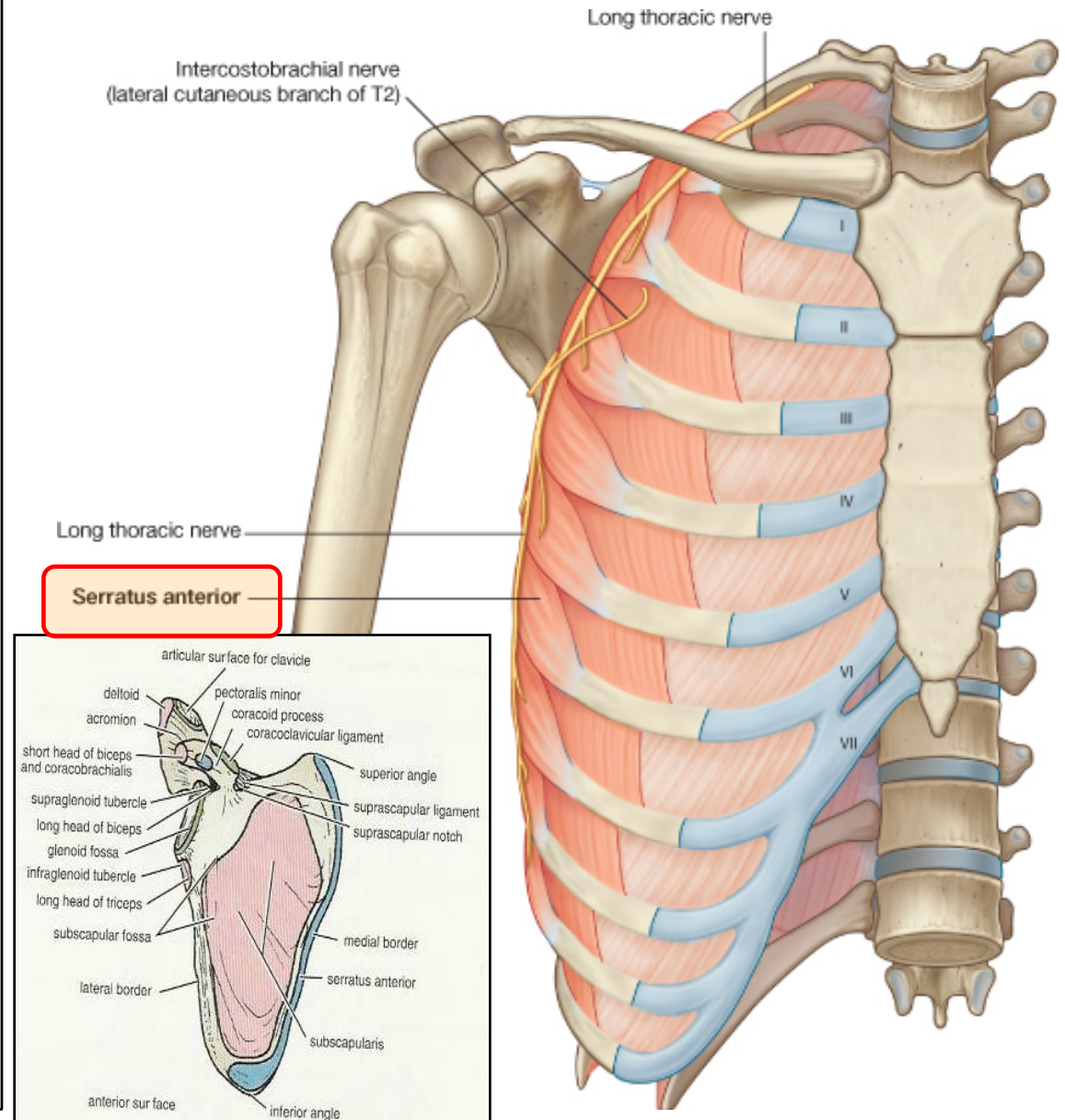
## Nerve supply:

- Long thoracic nerve (from roots of brachial plexus, C5,6,7).

## Action:

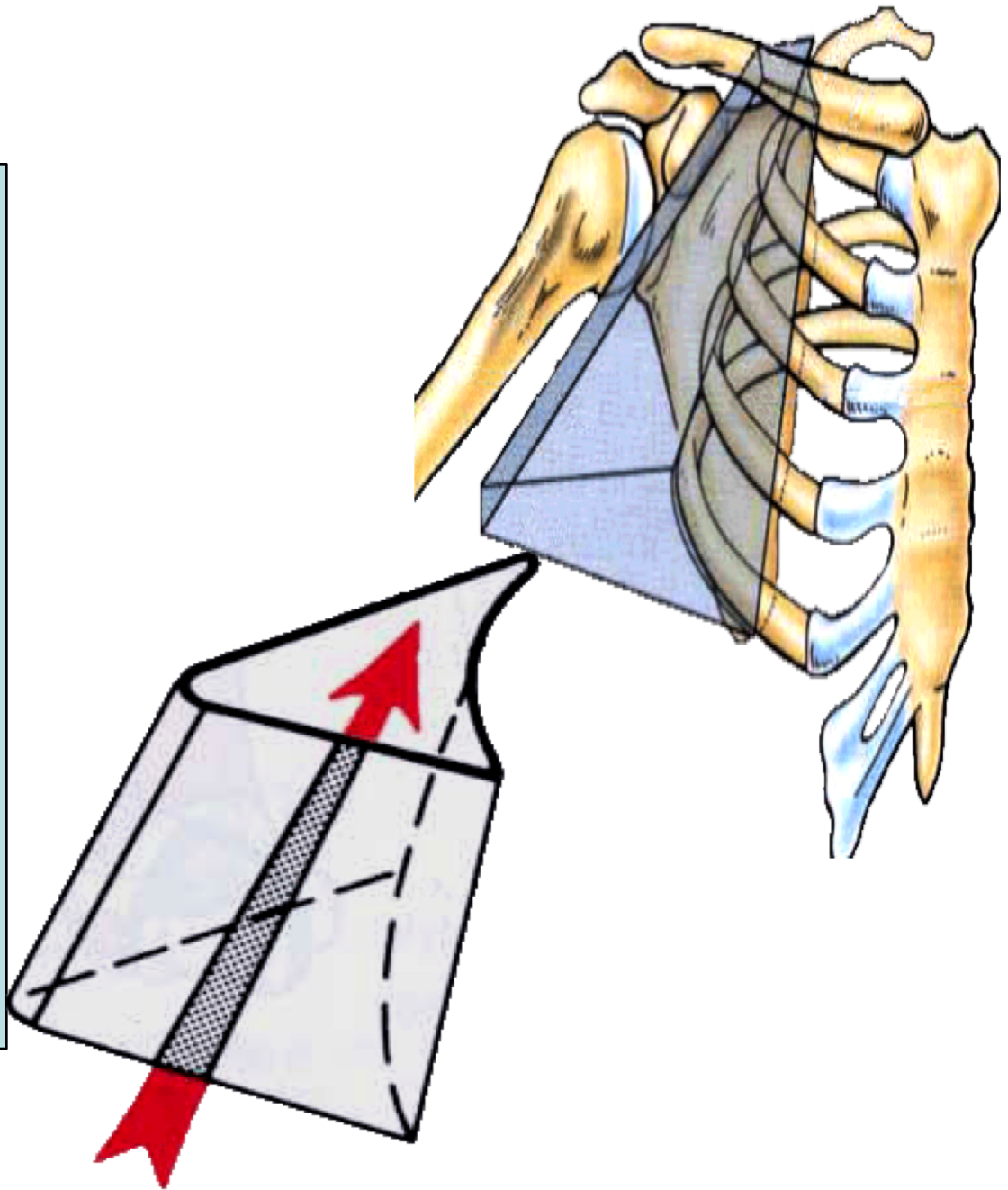
- Draws the scapula **forward** in boxing, (protrusion or **protraction**). "**boxer's muscle**"
- Rotates scapula **outwards** in raising the arm above 90 degree (**Abduction above 90**)

# Serratus anterior



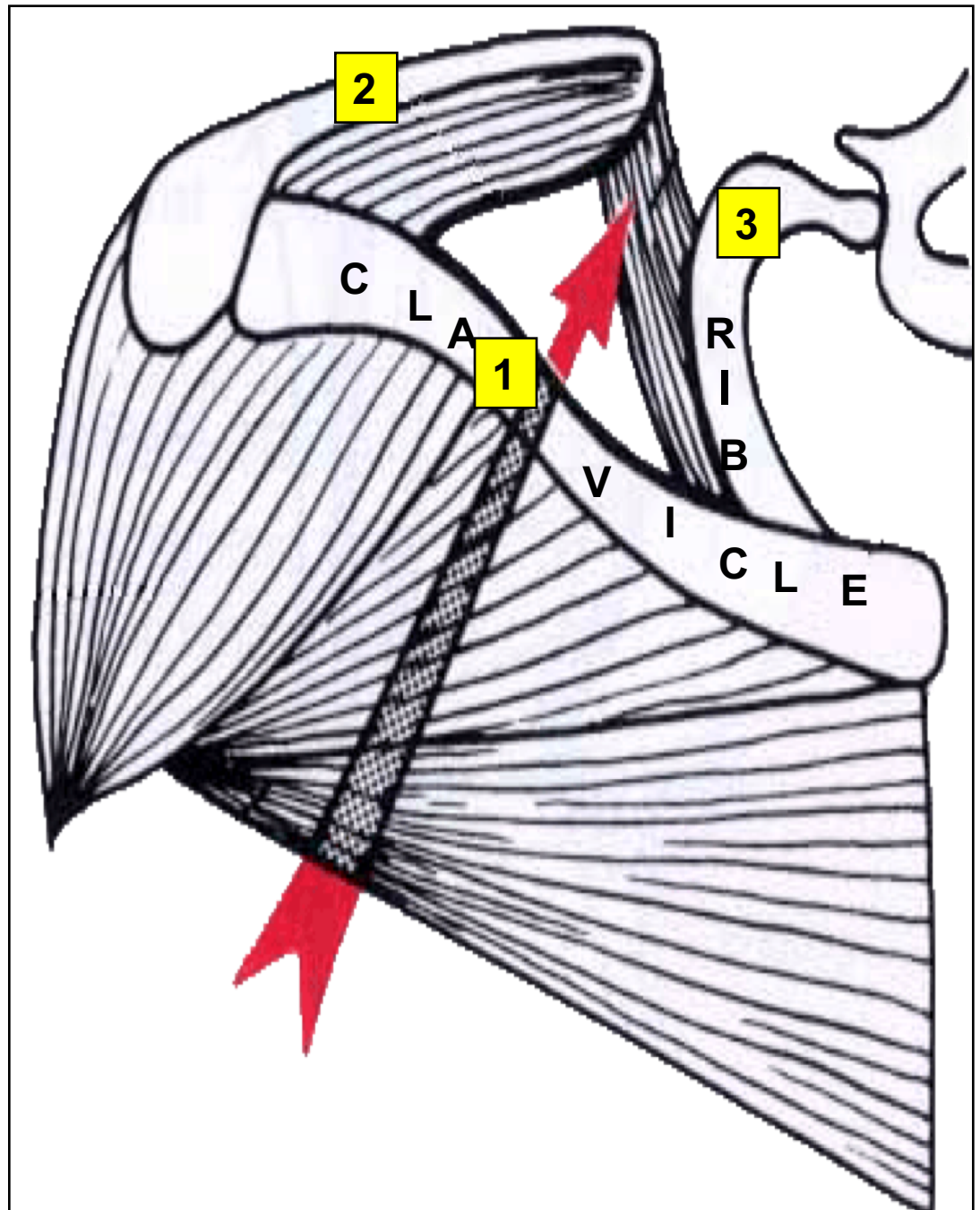
# AXILLA

- A **pyramid-shaped space** between the **upper part of the arm** and the **side of the chest** through which major **neurovascular structures** pass between neck & thorax and upper limbs.
- Axilla has an **apex**, a **base** and **four walls**.



# Boundaries of the Axilla

- **Apex:**
  - Is directed **upwards & medially** to the root of the neck.
  - It is called
    - **Cervicoaxillary canal.**
- **It is bounded**, by 3 bones:
  - **Clavicle anteriorly.**
  - Upper border of the **scapula posteriorly.**
  - Outer border of the **first rib medially.**

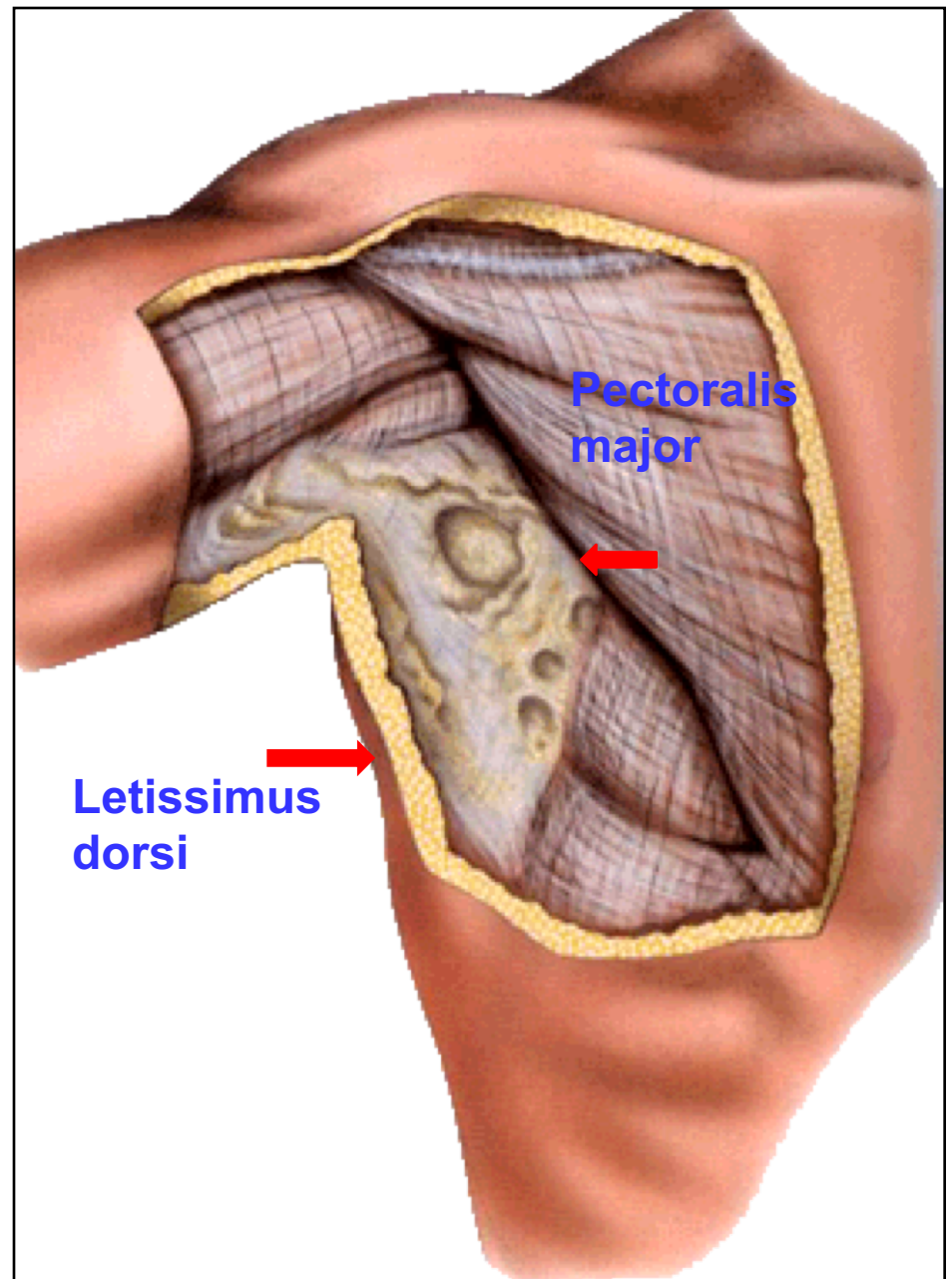


- **Base:**

- Formed by **skin** stretching between the **anterior and posterior walls**.

- **is bounded:**

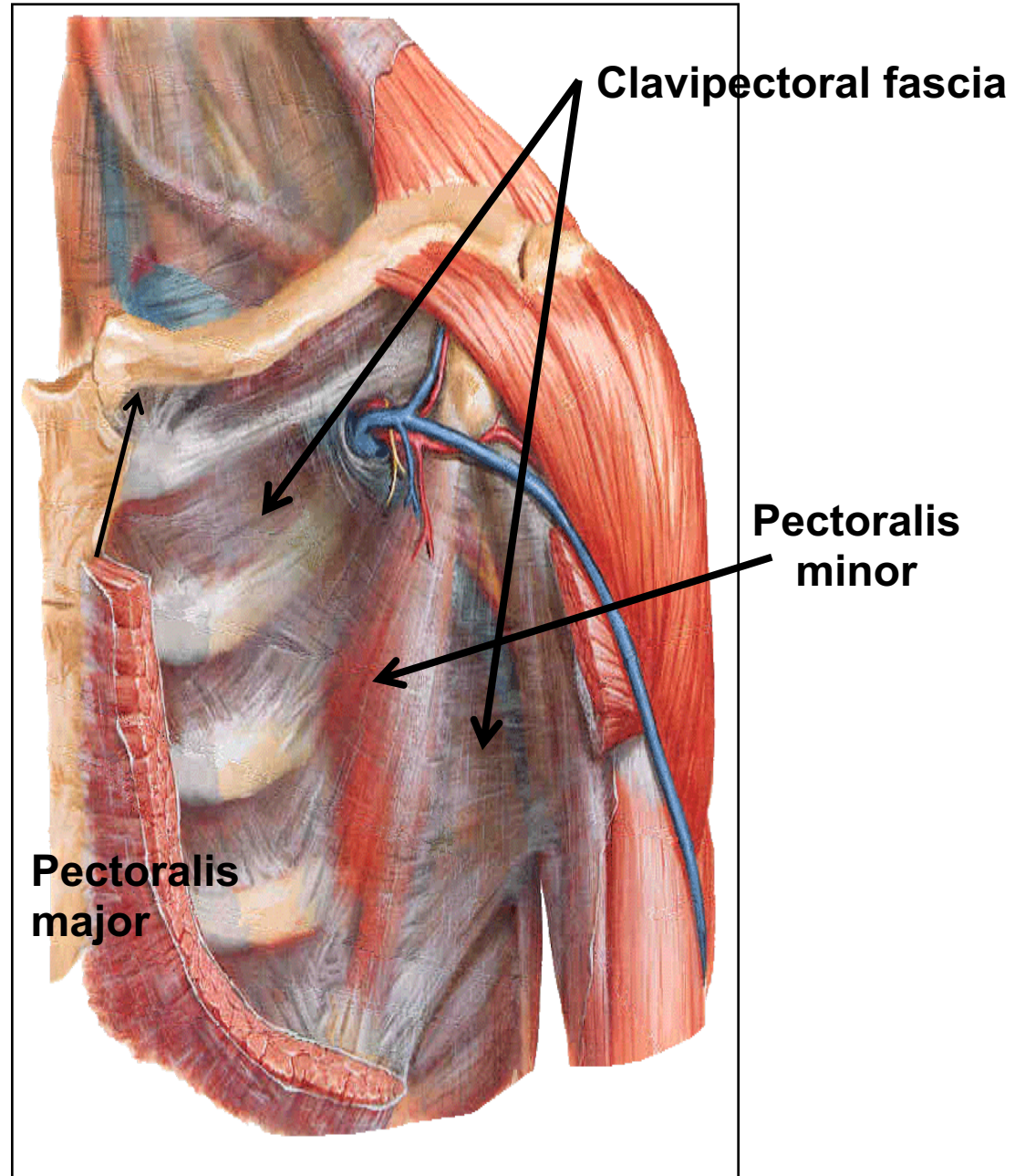
- **In front** by the **anterior axillary fold** (formed by the **lower border of Pectoralis major**).
- **Behind** by the **posterior axillary fold** (formed by tendons of **latissimus dorsi and teres major**).
- **Medially** by **upper 4 to 5 ribs & the chest wall**.



## ■ Anterior wall:

### ■ Is formed by :

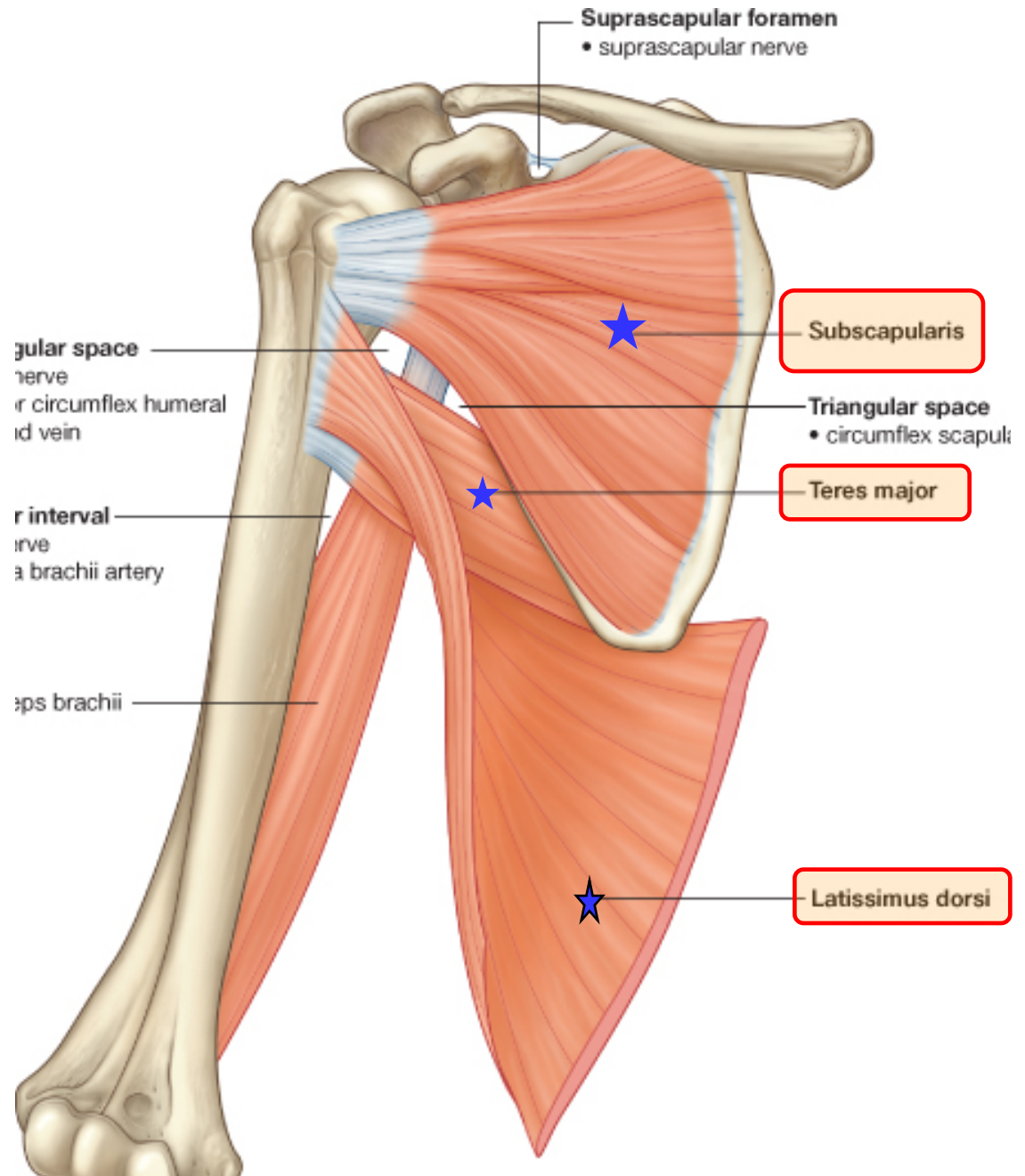
- Pectoralis major
- Pectoralis minor
- Subclavius
- Clavipectoral fascia.



- **Posterior wall:**

- Is formed by:

- **Subscapularis.**
- **Latissimus dorsi.**
- **Teres major muscles.**

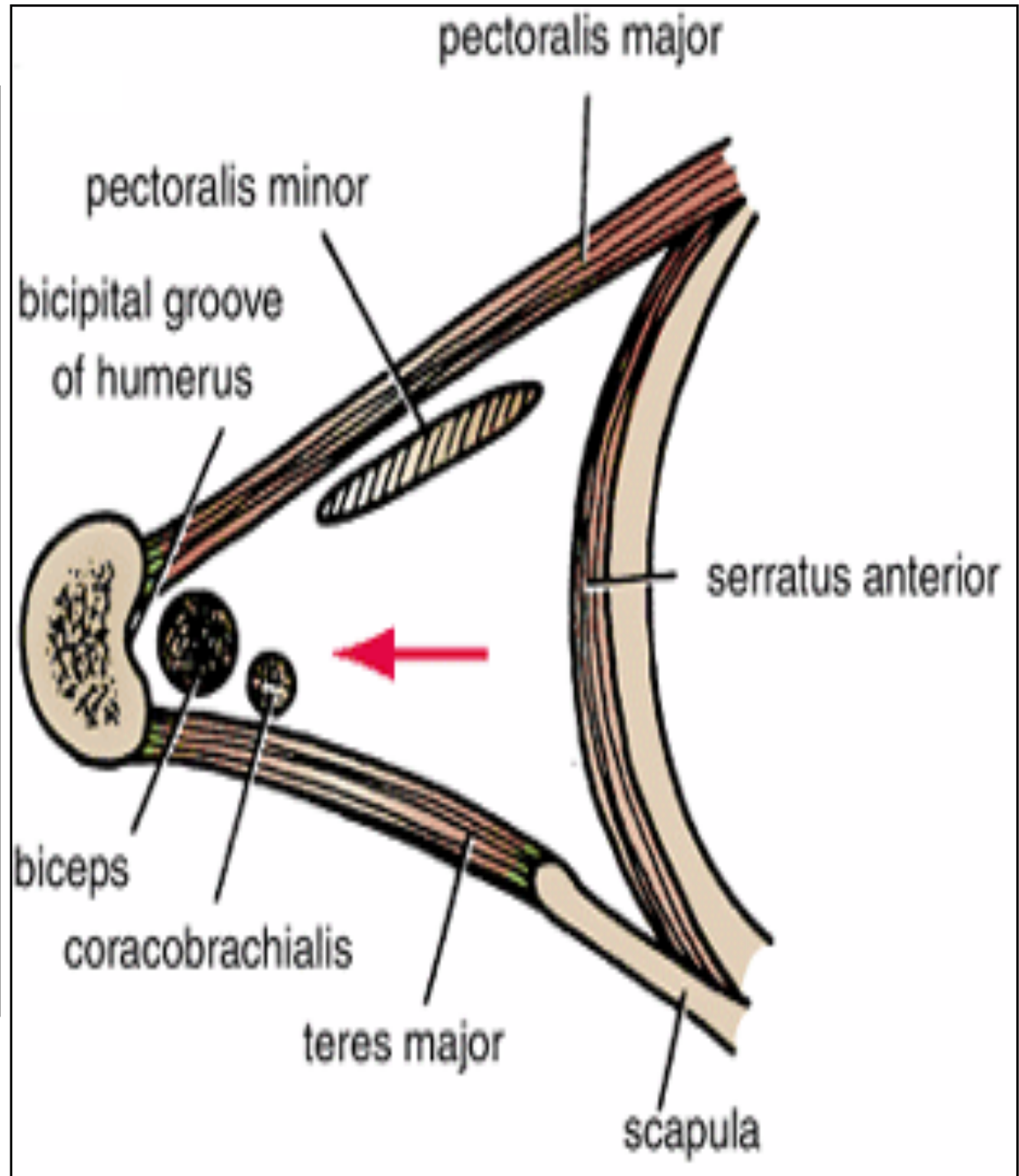


## ■ The medial wall:

- It is wide and formed by:
  - **Serratus anterior.**
  - **Upper 4-5 ribs & Intercostal muscles .**

## ■ The lateral wall:

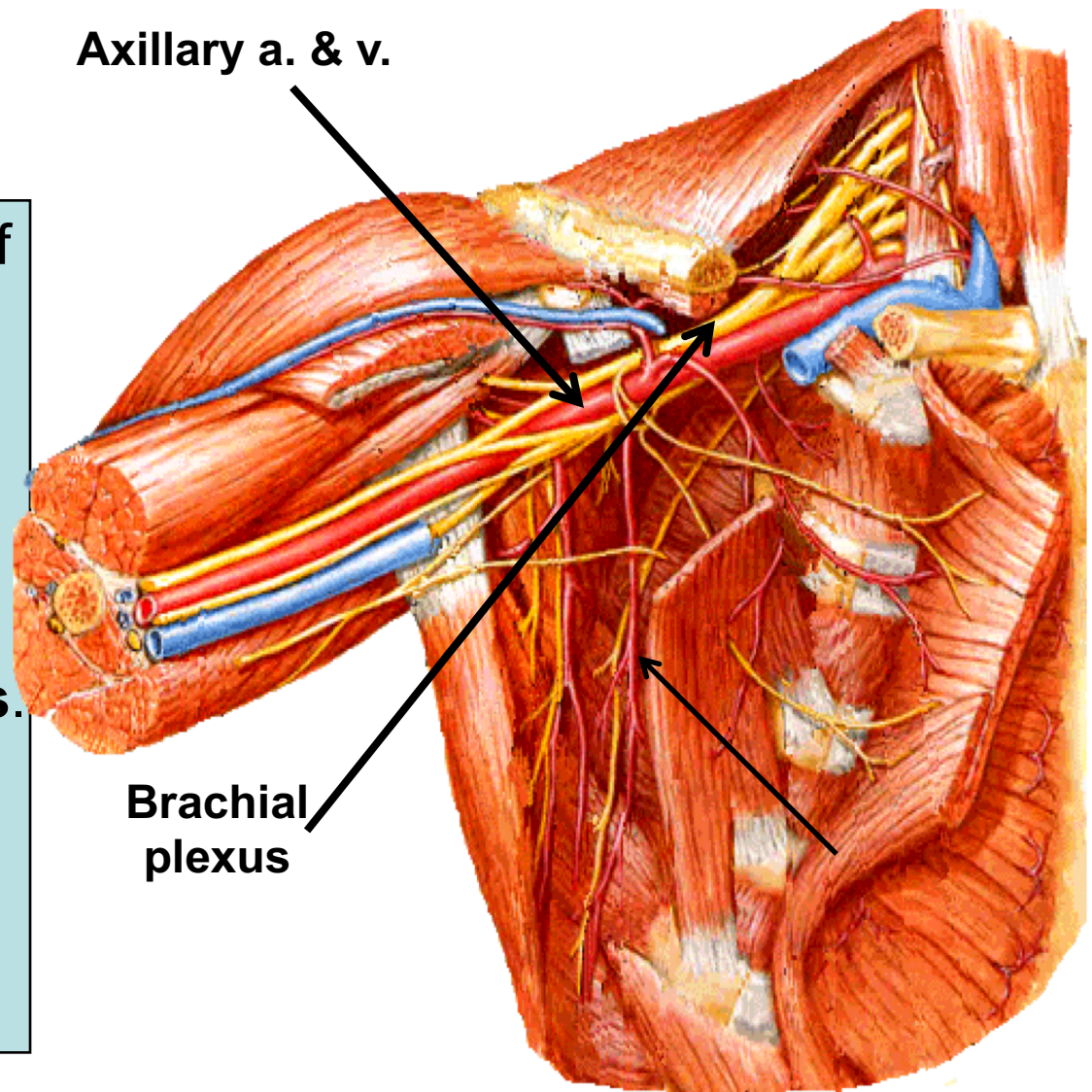
- It is narrow and formed by:
  - **Coracobrachi-alis.**
  - **Biceps brachii.**
  - **Bicipital groove of the humerus.**





# Contents of The Axilla

- **Cords** and **braches** of the **brachial plexus**
- **Axillary artery** and **its branches.**
- **Axillary vein** and its tributaries.
- **Axillary lymph nodes.**
- **Axillary fat.**
- **Loose connective tissue.**



The neurovascular bundle is enclosed in connective tissue sheath, called '**axillary sheath**'

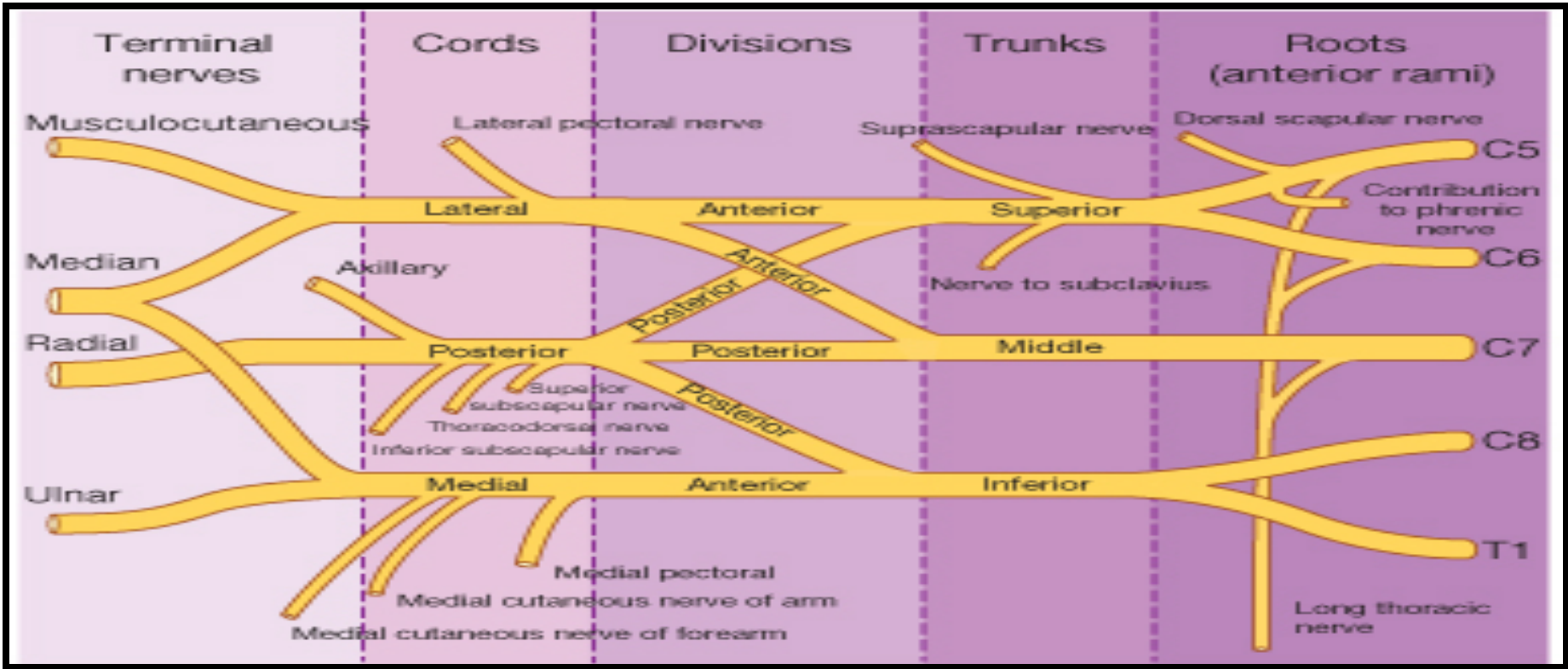
# *What is a Brachial Plexus ?*

Brachial Plexus is a network of nerves that is formed at the root of the neck to enter the upper limb.

## Location & Formation

- Location : Brachial Plexus is present in the **posterior triangle** of the neck & **axilla**.
- It is formed by the union of the anterior Rami of the C 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup> & 8<sup>th</sup> and the 1<sup>st</sup> thoracic spinal nerve.

Roots of C5 & C6 unite to form---- **U**pper trunk  
Root of C7 continuous as the----- **M**iddle trunk  
Roots of C8 & T1 unite to form---- **L**ower trunk



The Plexus can be divided into **5 stages**:

❖ **Roots:** in the posterior  $\Delta$

❖ **Trunks:** in the posterior  $\Delta$

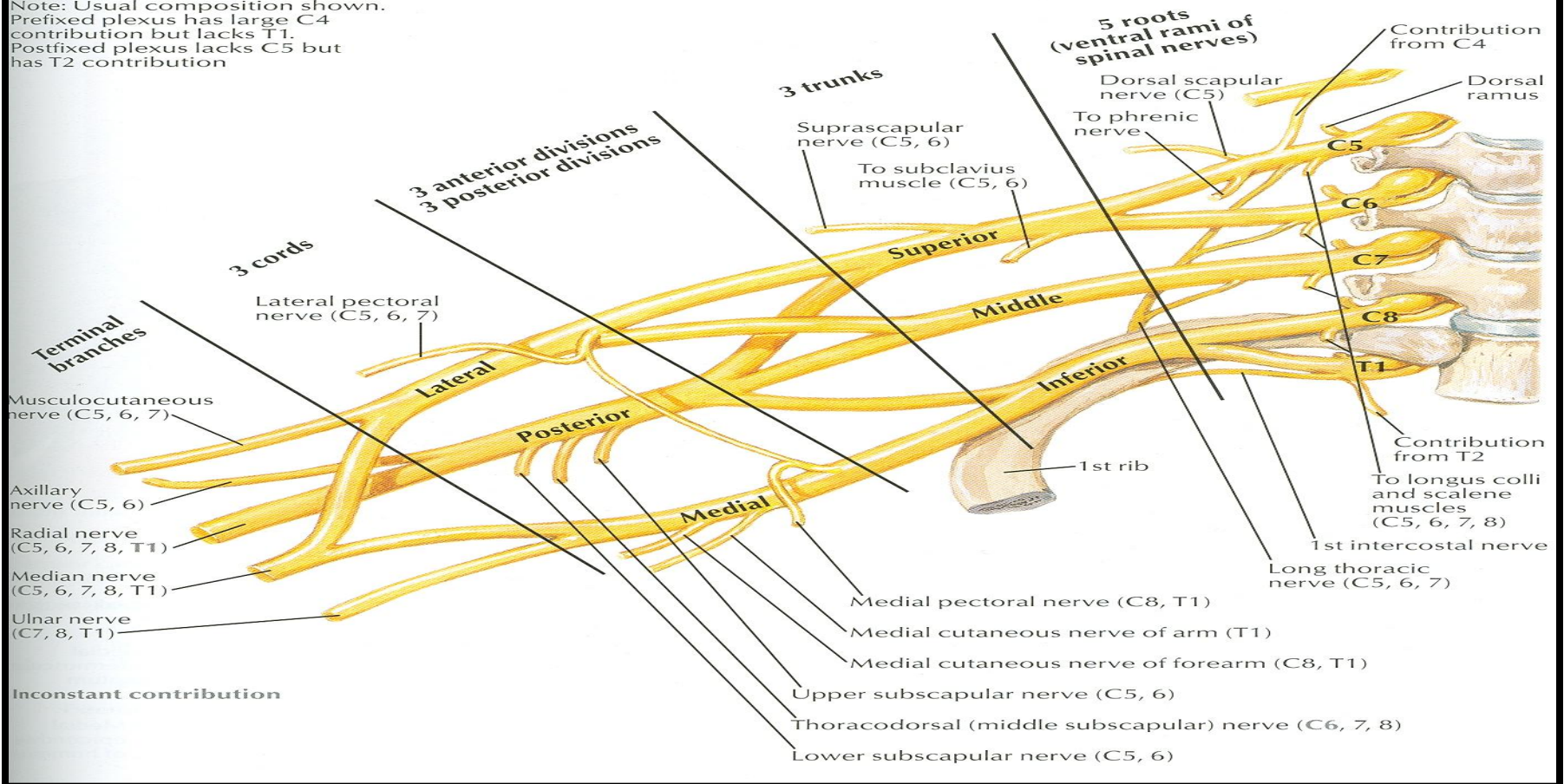
❖ **Divisions:** behind the clavicle (in cervico-axillary canal)

❖ **Cords:** in the axilla

❖ **Branches:** in the axilla

- The first 2 stages lie in the posterior triangle, while the last 2 stages lie in the axilla. 19

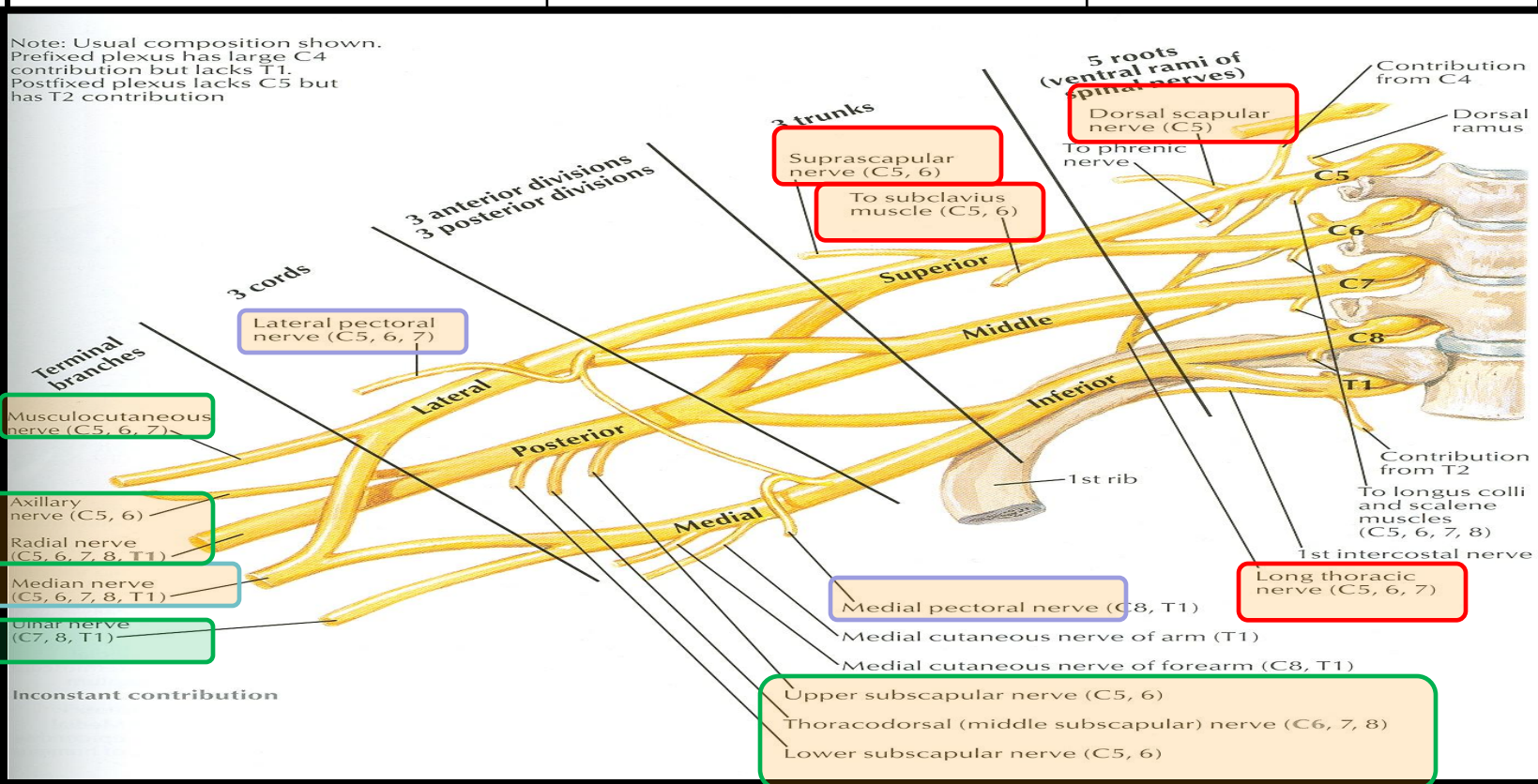
Note: Usual composition shown.  
 Prefixed plexus has large C4 contribution but lacks T1.  
 Postfixed plexus lacks C5 but has T2 contribution



- ❖ The **anterior divisions** of the **upper and middle trunks** unite to form the **Lateral cord**.
- ❖ The **anterior division** of the **lower trunk** continues as the **Medial cord**.
- ❖ All the posterior divisions of **three trunks** join to form the **Posterior cord**.

# B R N C H E S

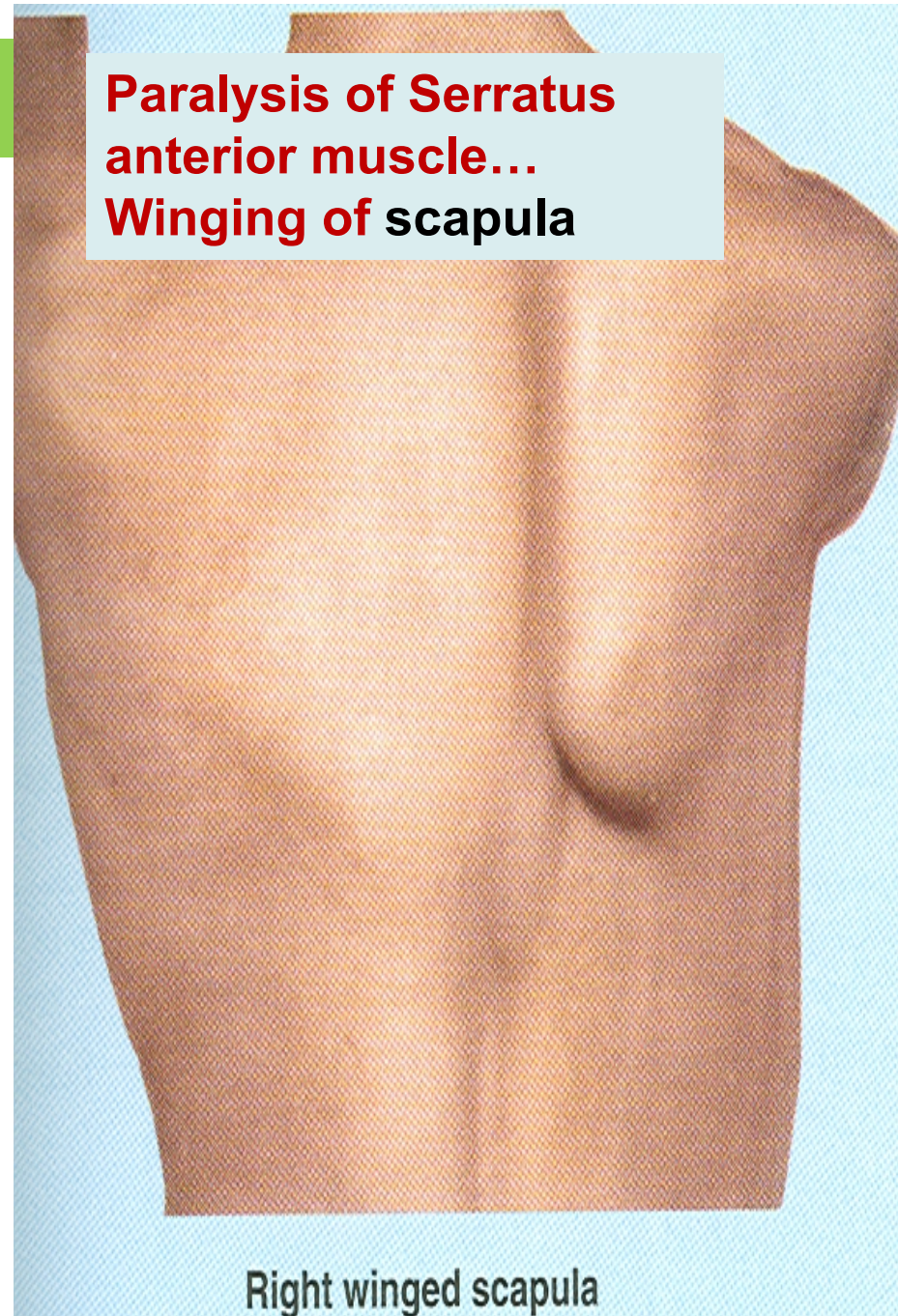
Lateral cord-3	Medial cord-5	Posterior cord-5
Lateral pectoral nerve.	Medial pectoral nerve.	Axillary nerve.
Musculocutaneous nerve.	Ulnar nerve.	Radial nerve.
Median nerve (lateral root).	Median nerve (medial root).	Upper & lower subscapular nerves.
	Medial cutaneous nerve of arm & forearm.	Thoracodorsal (N. to latissimus dorsi).



# Applied Anatomy

- Lesion of long thoracic nerve (C5,6,7) causes backward projection of medial border of scapula.
- This deformity is called **Winging of Scapula.**

**Paralysis of Serratus anterior muscle...  
Winging of scapula**



Right winged scapula

# SUMMARY

▪ Muscles of the pectoral region are connecting the upper limb with anterior and lateral thoracic wall:

- Pectoralis major.
- Pectoralis minor.
- Subclavius.
- Serratus anterior.

▪ **The axilla** is a pyramidal space situated between the upper part of arm and the side of the chest, it has 4 walls (anterior, posterior, medial and lateral), base, and apex.

▪ **The axilla** is an important space as it transmits the neurovascular bundle from the neck and thorax to the upper limb.

It contains:

- Axillary vessels.
- Cords and branches of the brachial plexus.
- Axillary lymph nodes.