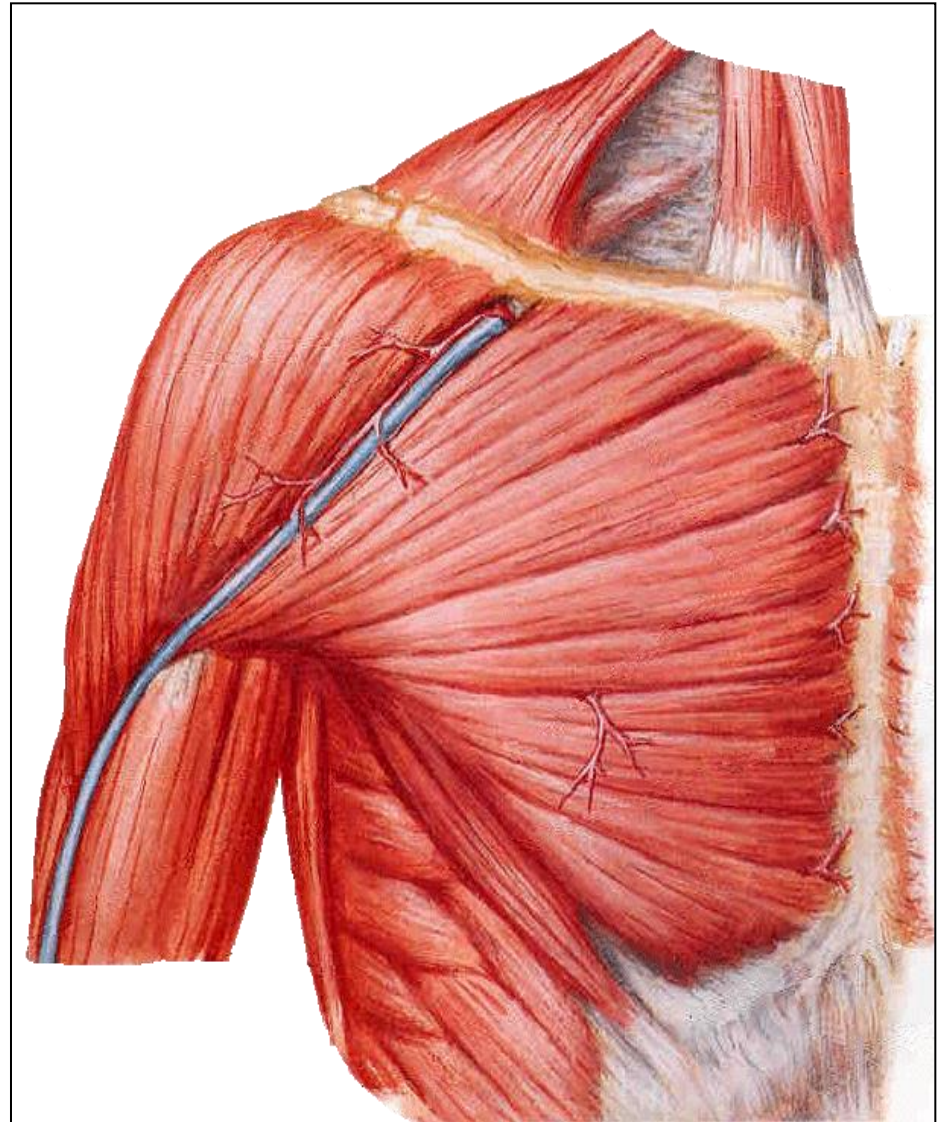


PECTORAL REGION AND AXILLA

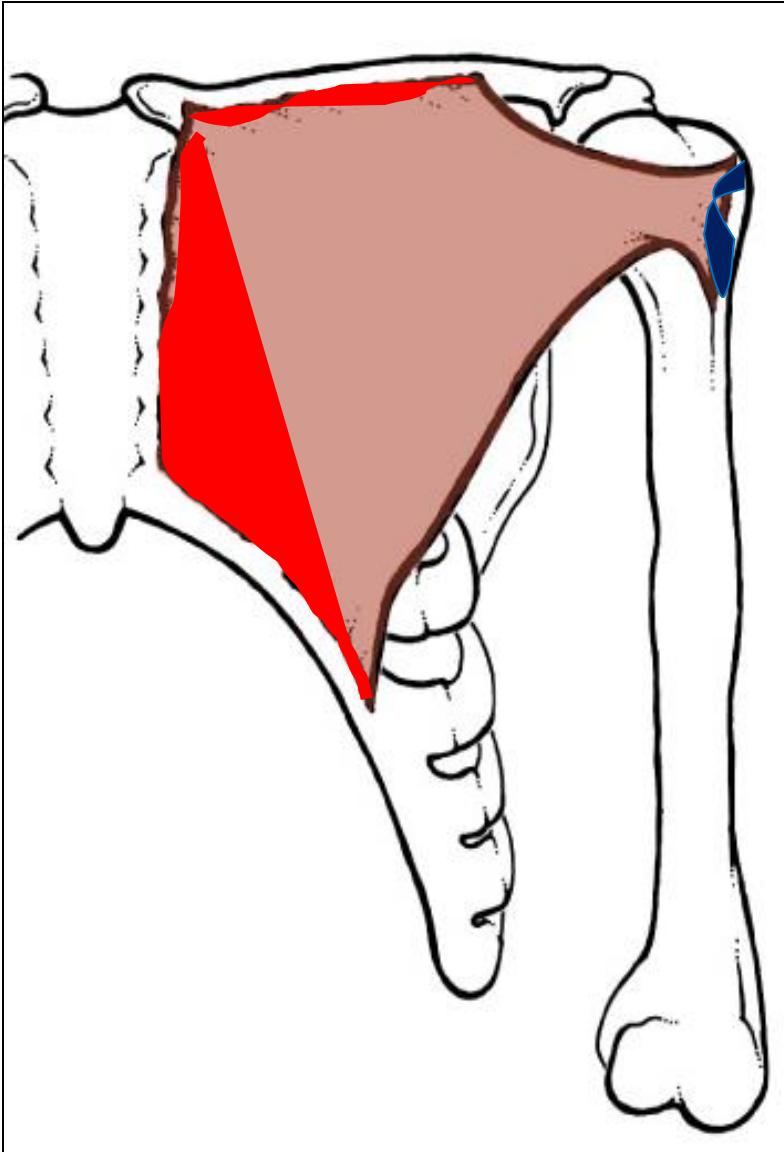


PROF. SAËED ABUEL MAKAREM

OBJECTIVES

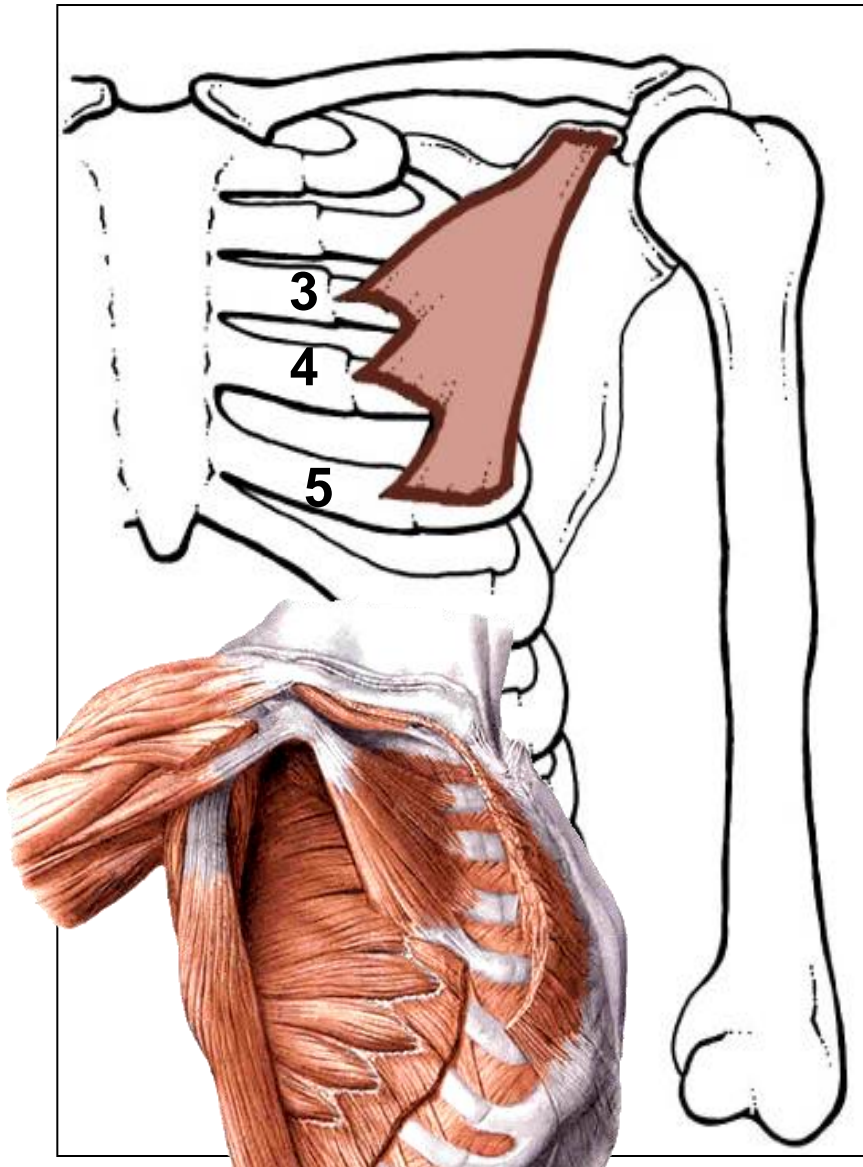
- **By the end of the lecture the students should be able to :**
- **Identify and describe the muscles of the pectoral region.**
 - **Pectoralis major.**
 - **Pectoralis minor.**
 - **Subclavius.**
 - **Serratus anterior.**
- **Describe and demonstrate the boundaries and contents of the axilla.**

Pectoralis Major



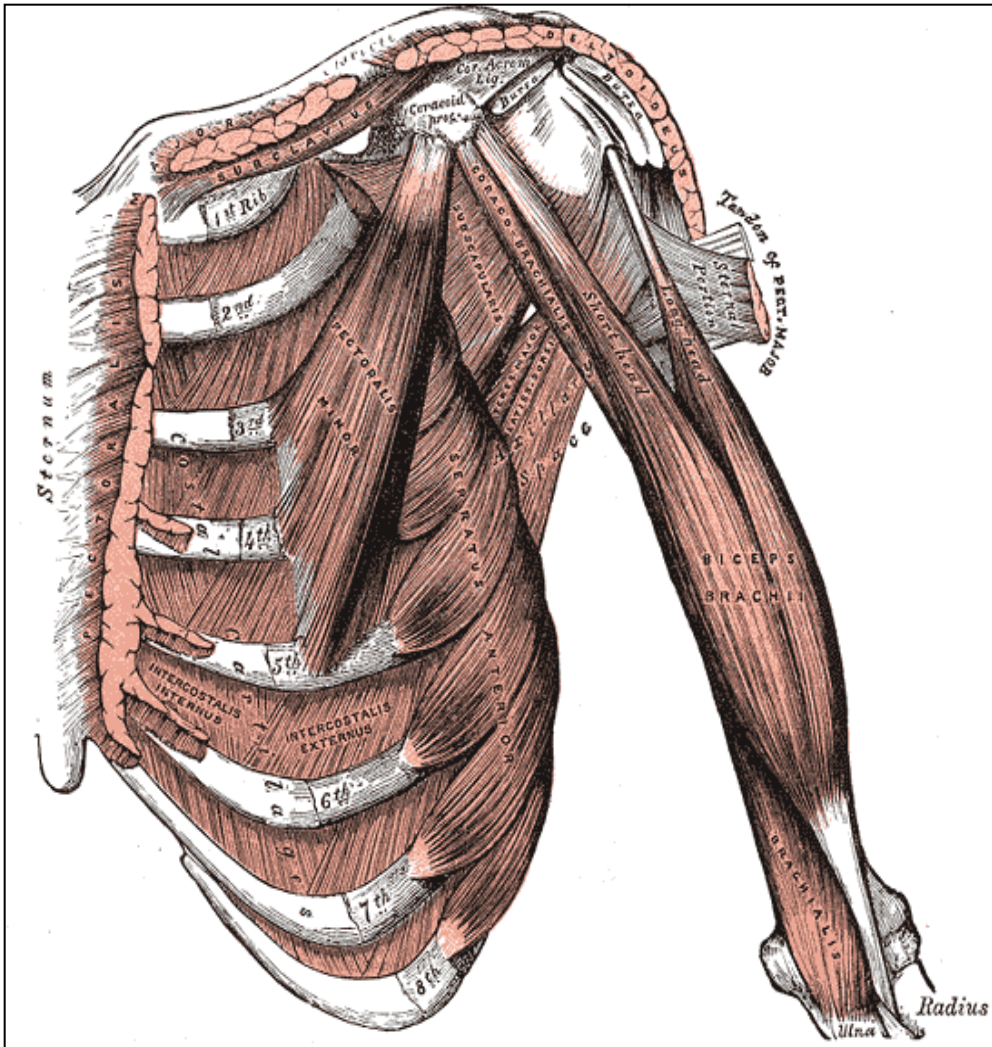
- **Origin :**
- **Clavicular head:**
- From medial ½ of the front of the clavicle.
- **Sternocostal head: From ,**
- Sternum.
- Upper 6 costal cartilages.
- Aponeurosis of external oblique.
- **Insertion :**
- **Lateral lip of bicipital groove.**
- **Nerve supply :**
- **Medial & lateral pectoral nerves.**
- **Action :**
- **Adduction and medial rotation of the arm.**
- **Clavicular head helps in flexion of arm (shoulder).**

Pectoralis Minor



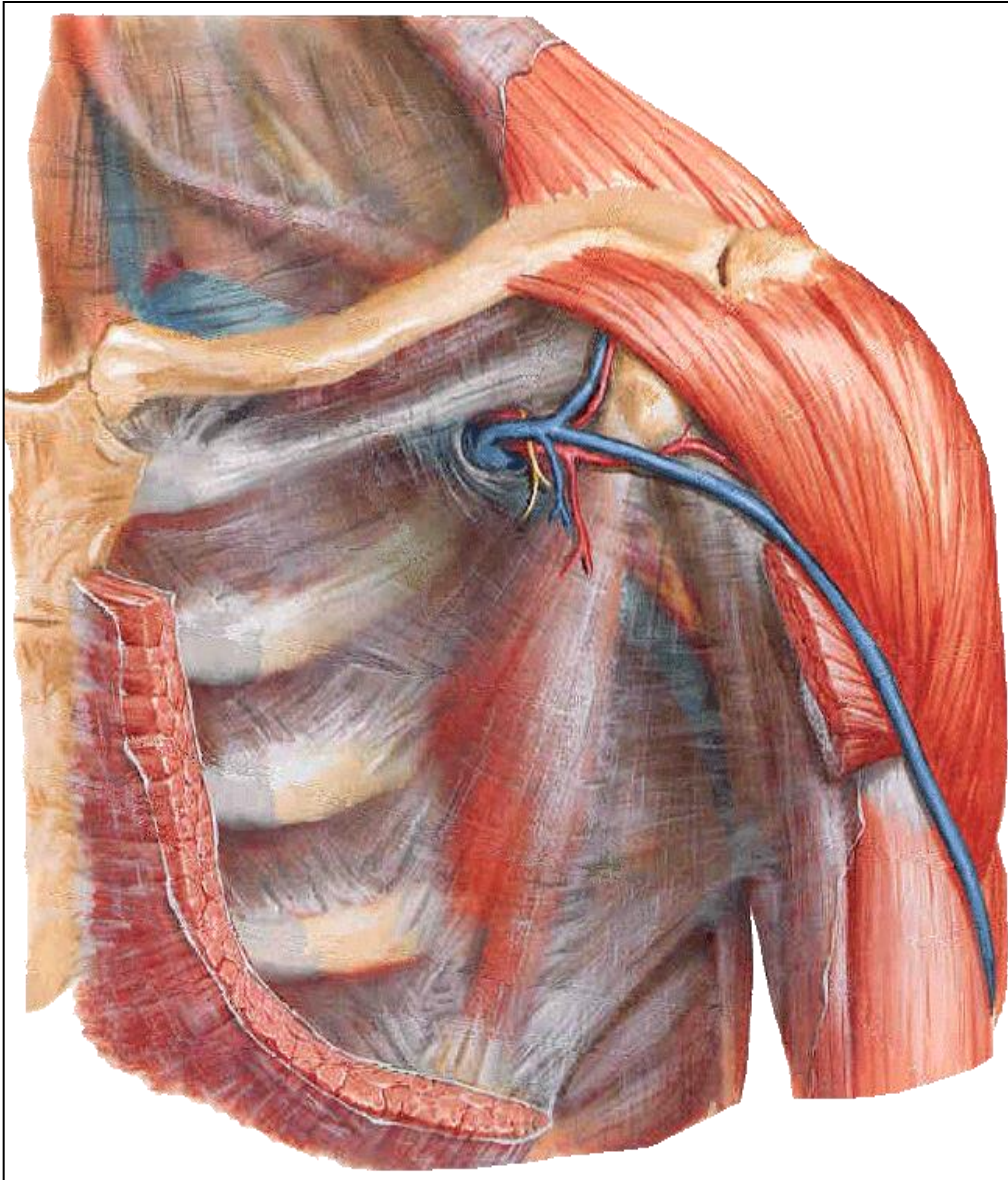
- **Origin:**
- from 3rd , 4th , and 5th ribs close to their costal cartilages.
- **Insertion:**
- coracoid process.
- **Nerve supply:**
- medial pectoral nerve.
- **Action:**
- Depression of shoulder.
- Draw the ribs upward and outwards during deep inspiration.

Subclavius

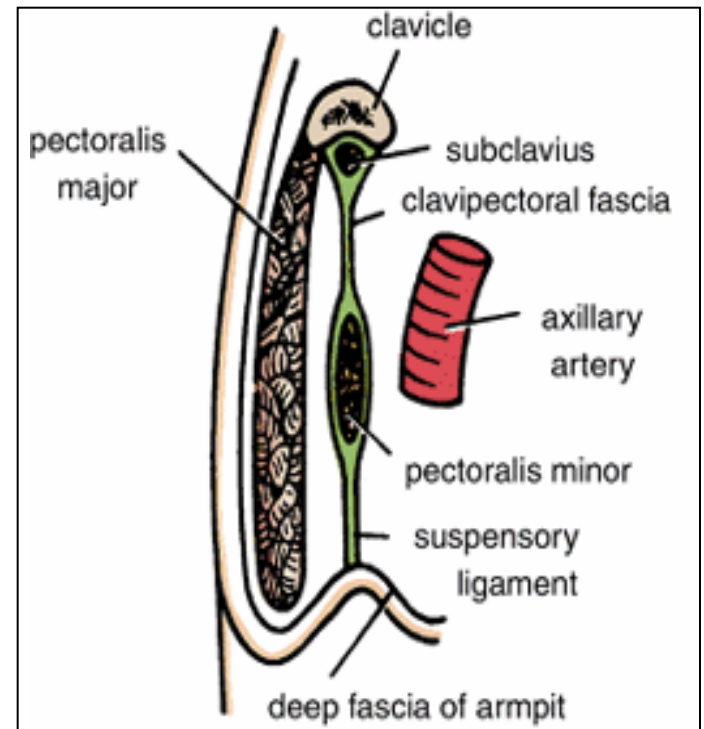


- **Origin:**
- From 1st rib at its junction with the 1st costal cartilage.
- **Insertion:**
- Subclavian groove at the inferior surface of middle 1/3 of clavicle.
- **Nerve supply:**
- Nerve to subclavius from upper trunk of brachial plexus.
- **Action:**
- Steadies the clavicle during movement of the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

Clavipectoral Fascia



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



Origin:

- Upper eight ribs.
- Insertion:
- Ventral aspect of the medial border and inferior angle of the scapula.

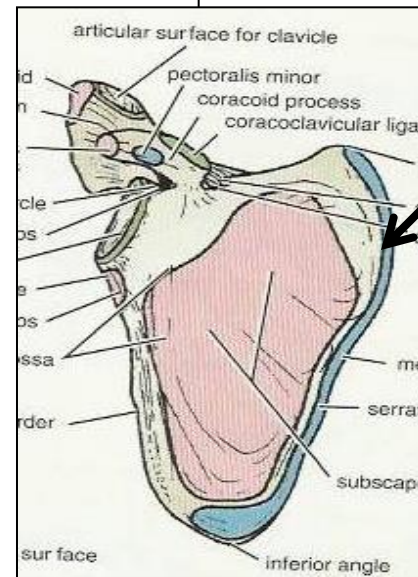
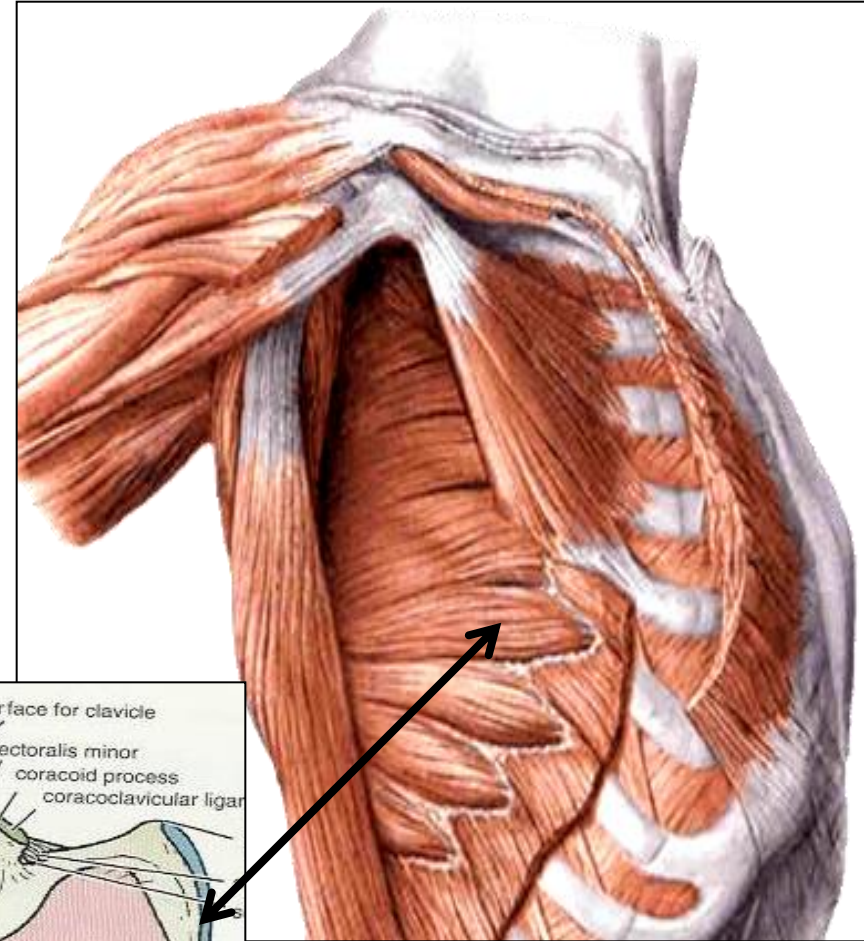
Nerve supply:

- Long thoracic nerve, (nerve of Bell or nerve to serratus anterior).

Action:

- Draws the scapula forward (protrusion, in boxing).
- Rotates scapula outwards in raising the arm above 90 degree.

Serratus anterior

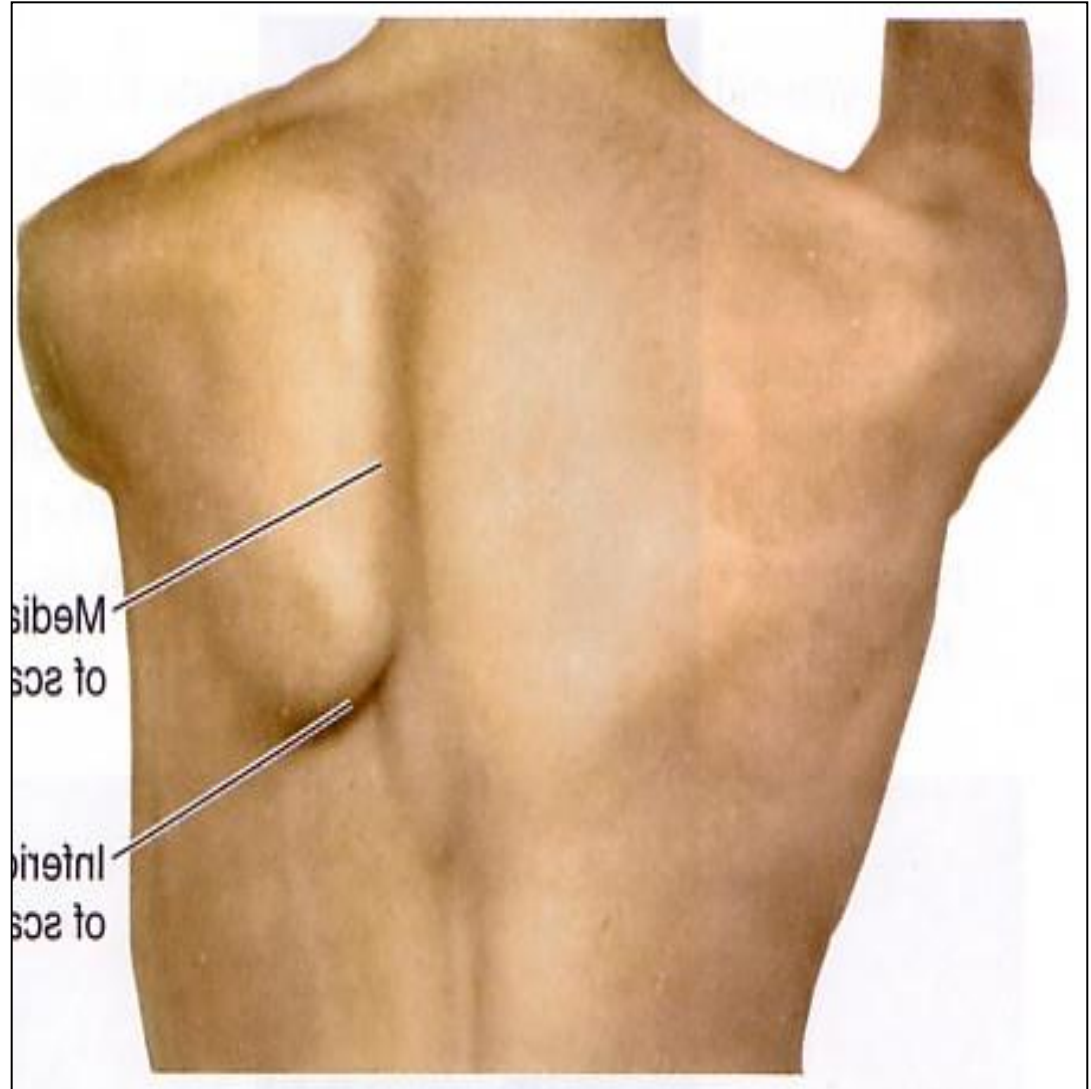


Winging of scapula

The long thoracic nerve runs on the anterolateral chest wall usually.

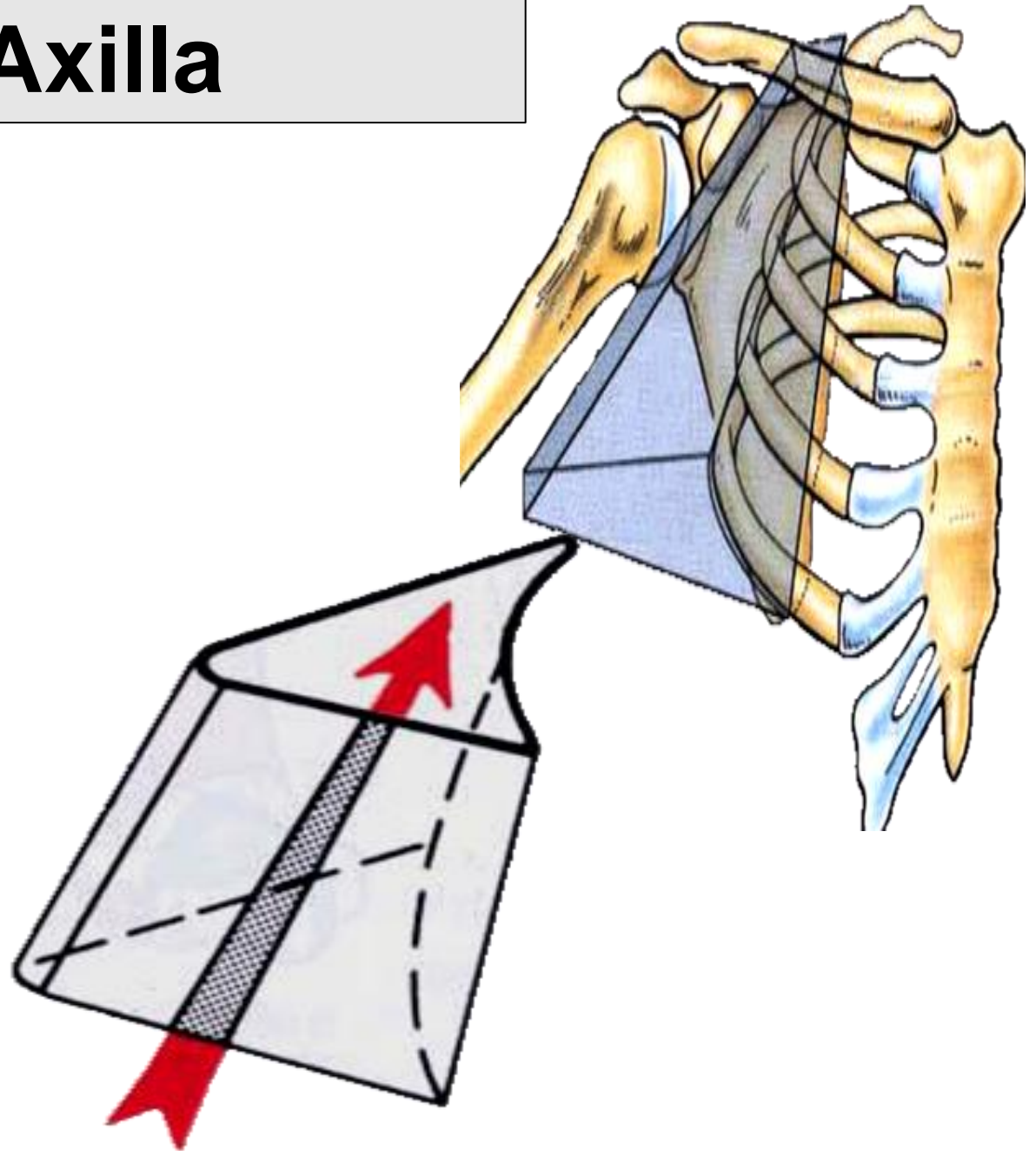
It is damaged in radical mastectomy operations or injury of chest wall.

Effect of lesion of this nerve : winging of the scapula.



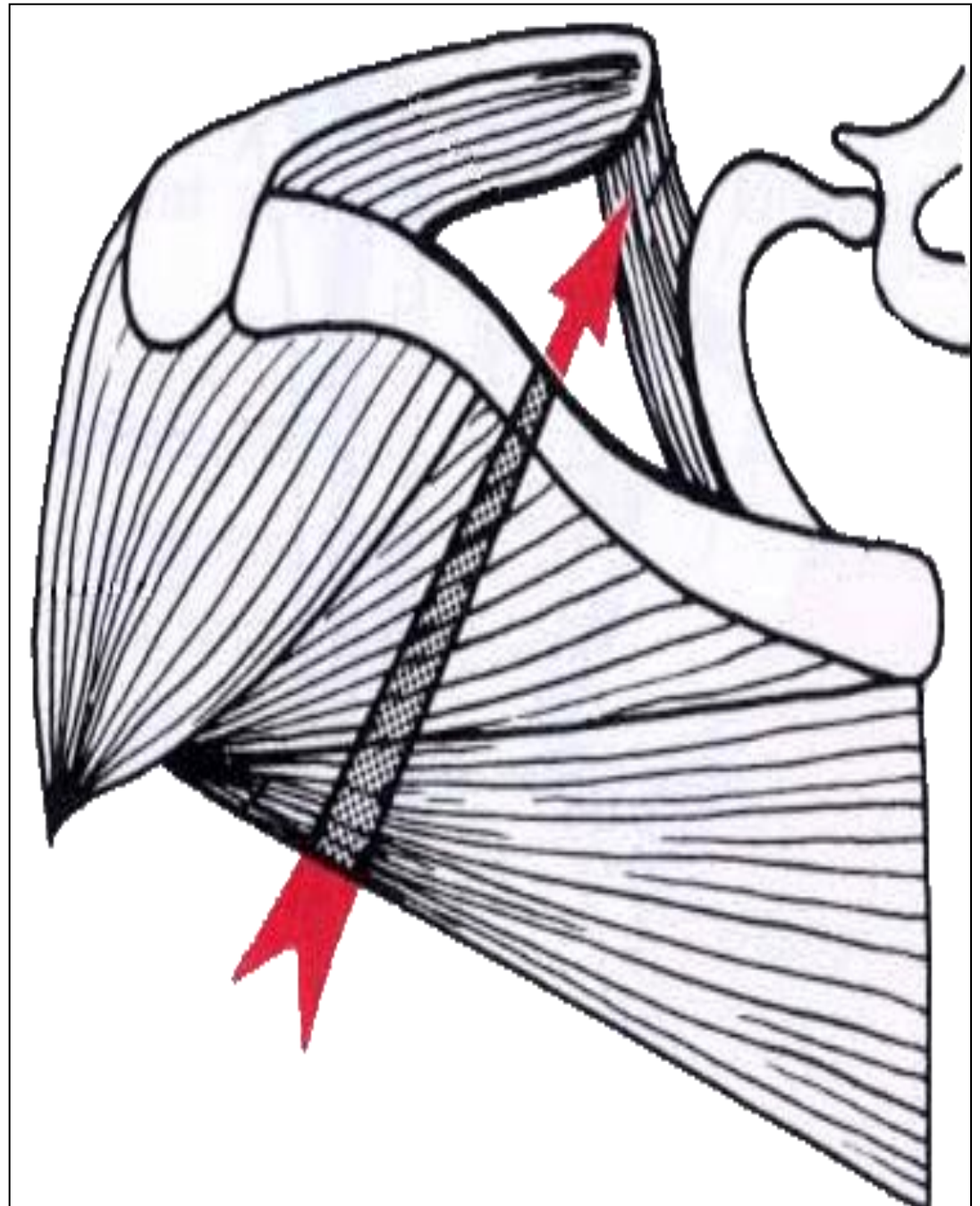
The Axilla

- A pyramidal 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 limb.
- Axilla has an **apex**, a **base** and **four walls**.



Boundaries of the Axilla

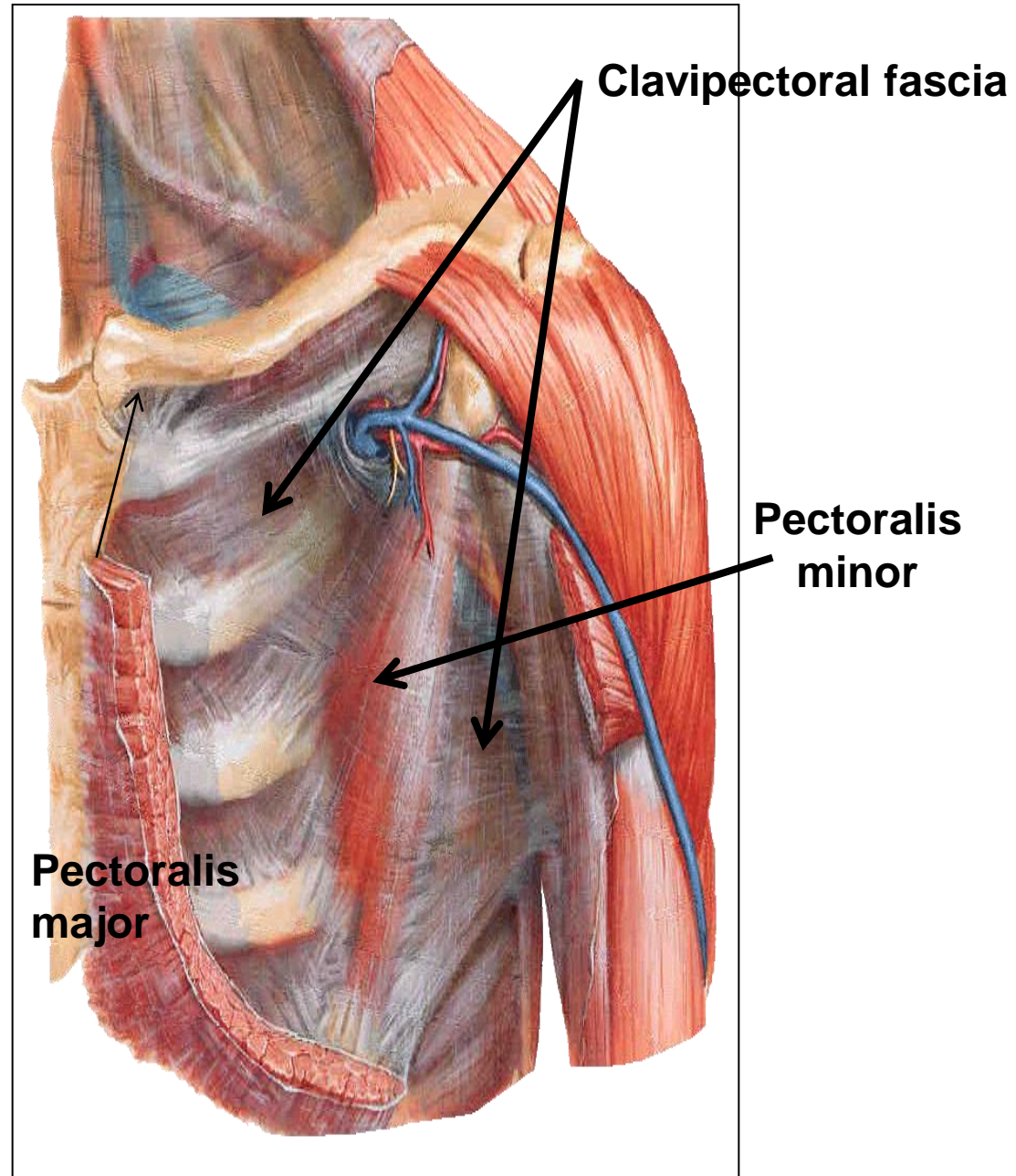
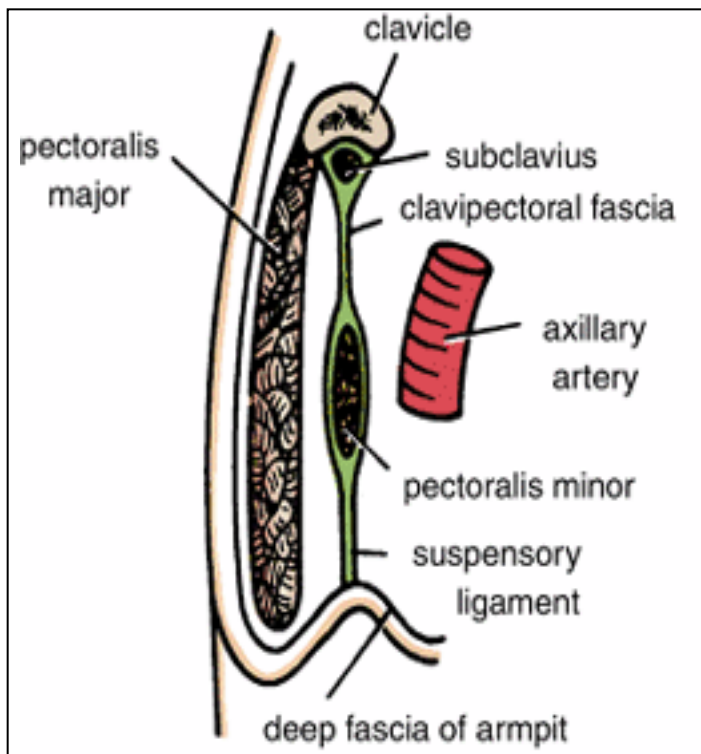
- **Apex:**
- Is directed upwards into the root of the neck
- is bounded, by 3 bones:
 - Clavicle **anteriorly**.
 - Upper border of the scapula **posteriorly**.
 - Outer border of the first rib **medially**.
 - It is called **cervico-axillary canal**.



- **Anterior wall:**

- Is formed by

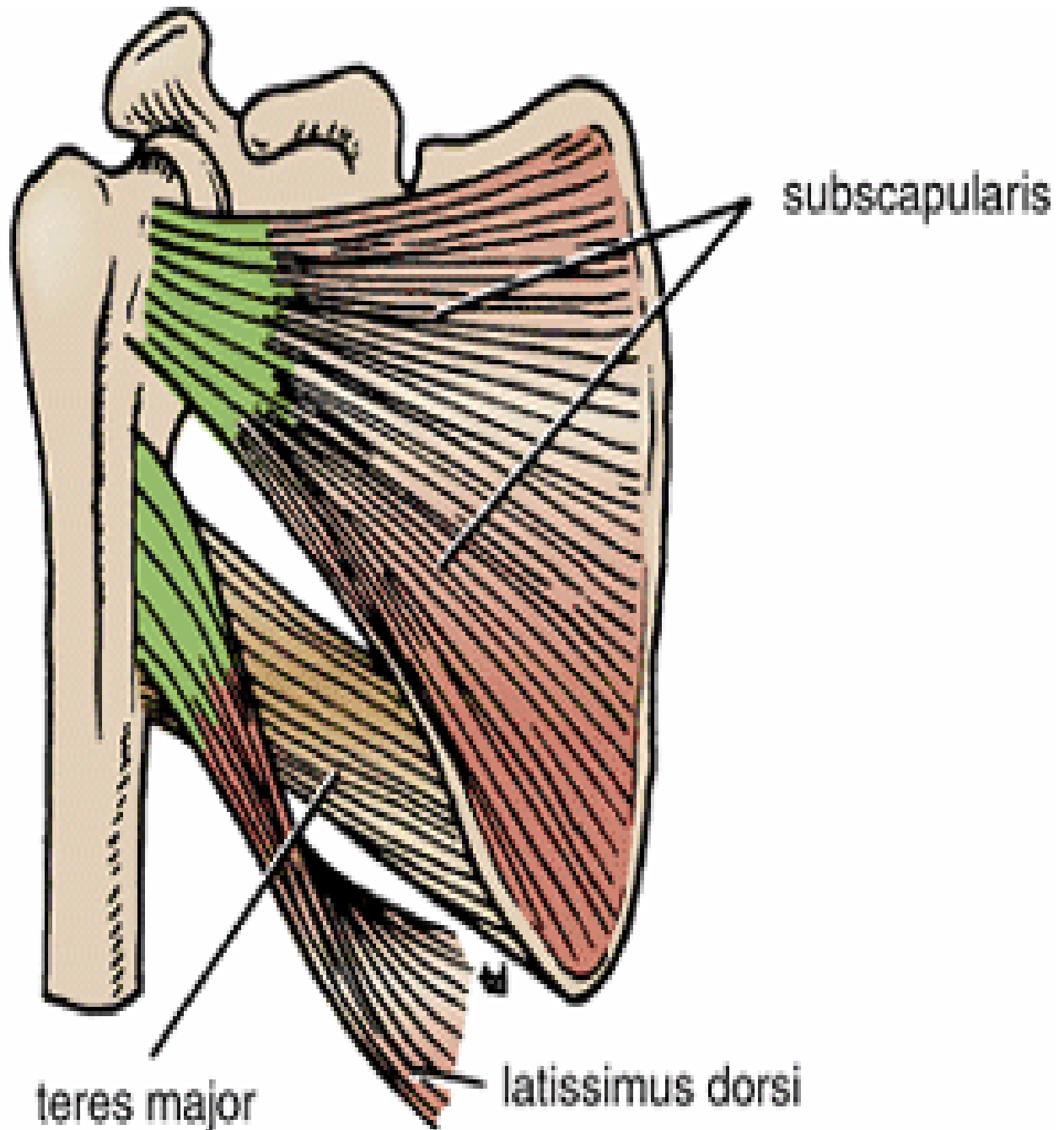
- Pectoralis major
- Pectoralis minor
- Subclavius
- Clavipectoral fascia:



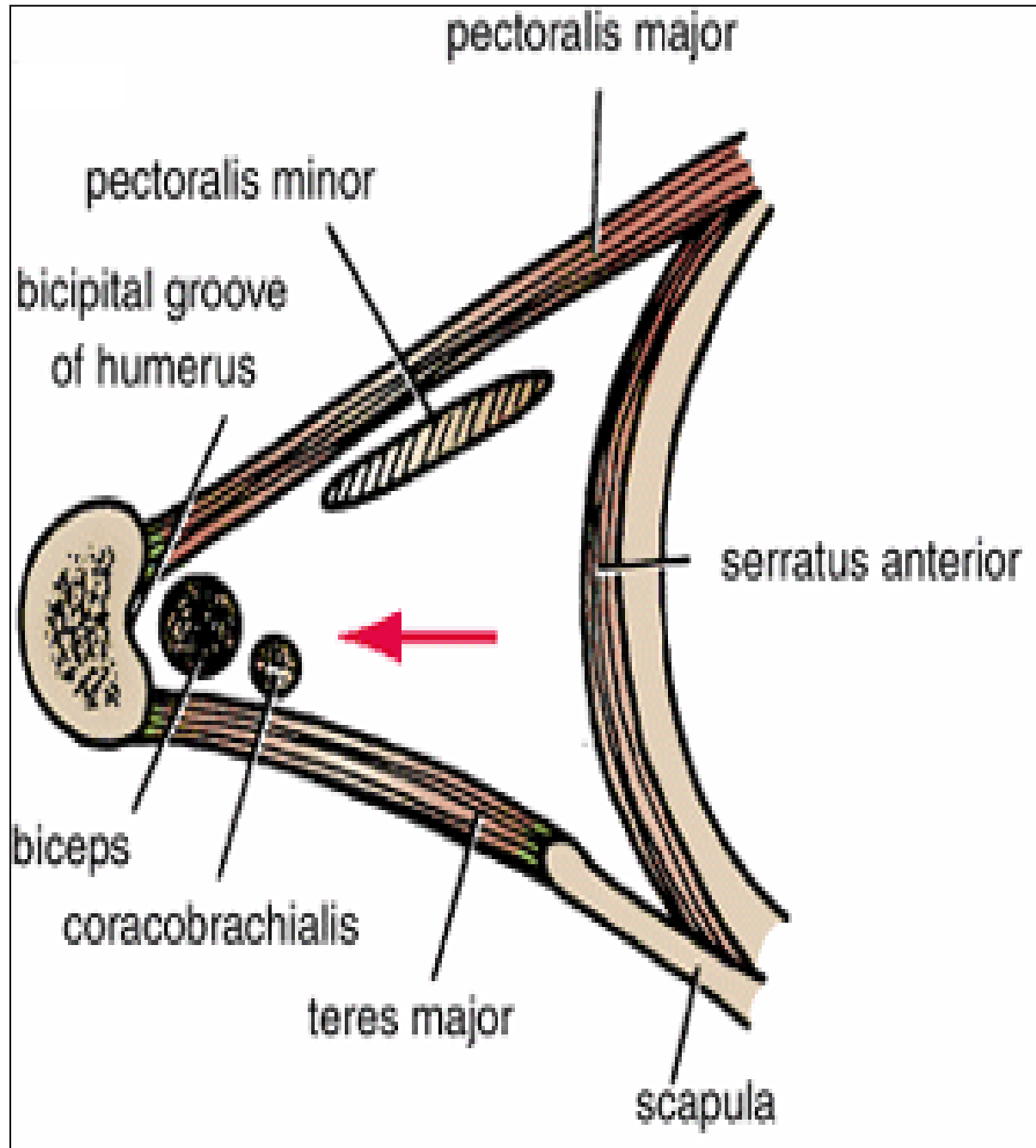
- **Posterior wall:**

- Is formed by:

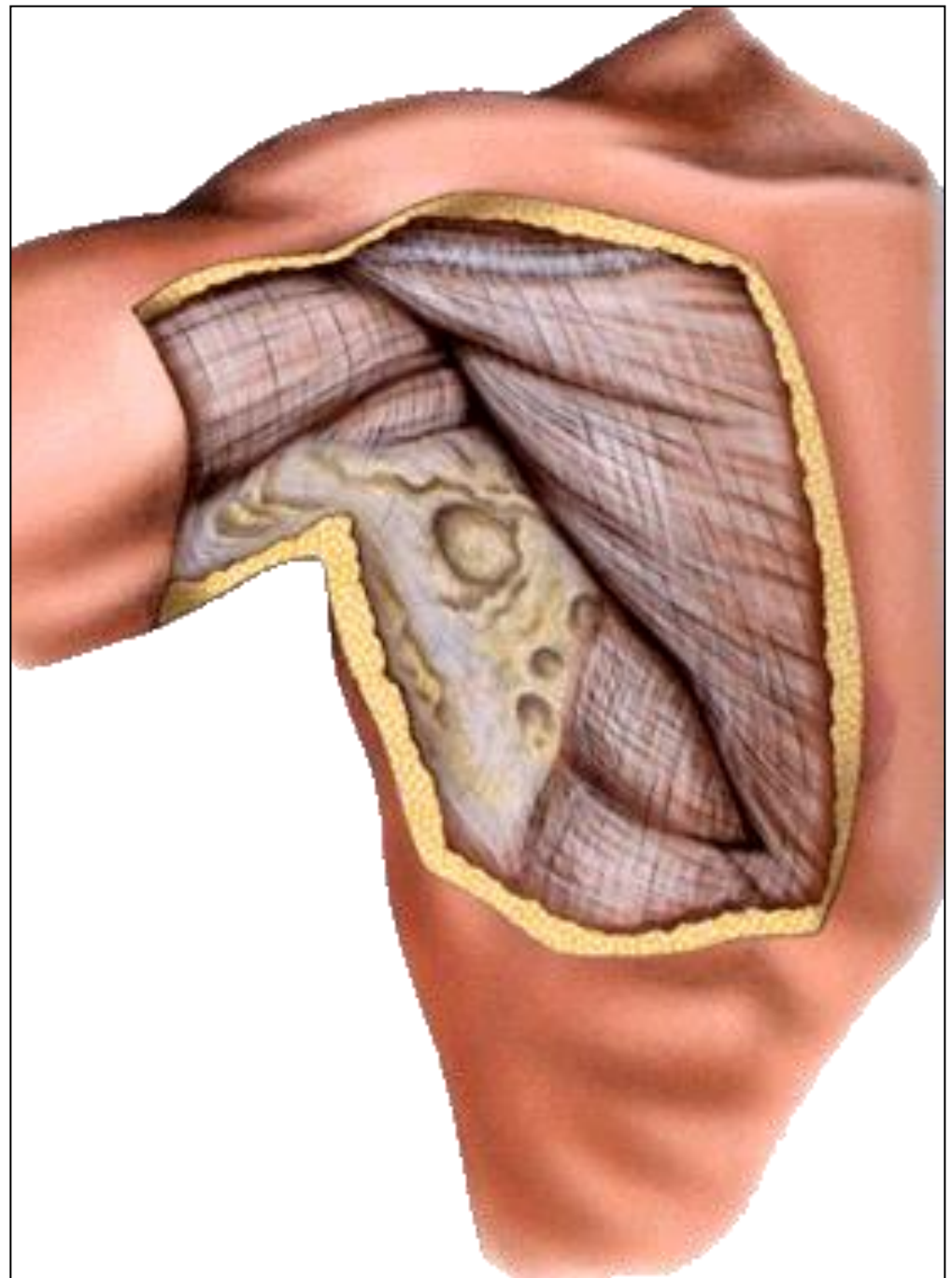
- Subscapularis
- Latissimus dorsi
- Teres major muscles



- **The medial wall:**
- Is formed by:
 - Serratus anterior
 - Upper 4 or 5 ribs & Intercostal muscles .
- **The lateral wall:**
- Is formed by:
 - Coracobrachialis
 - Biceps brachii
 - Intertubercular groove of the humerus.

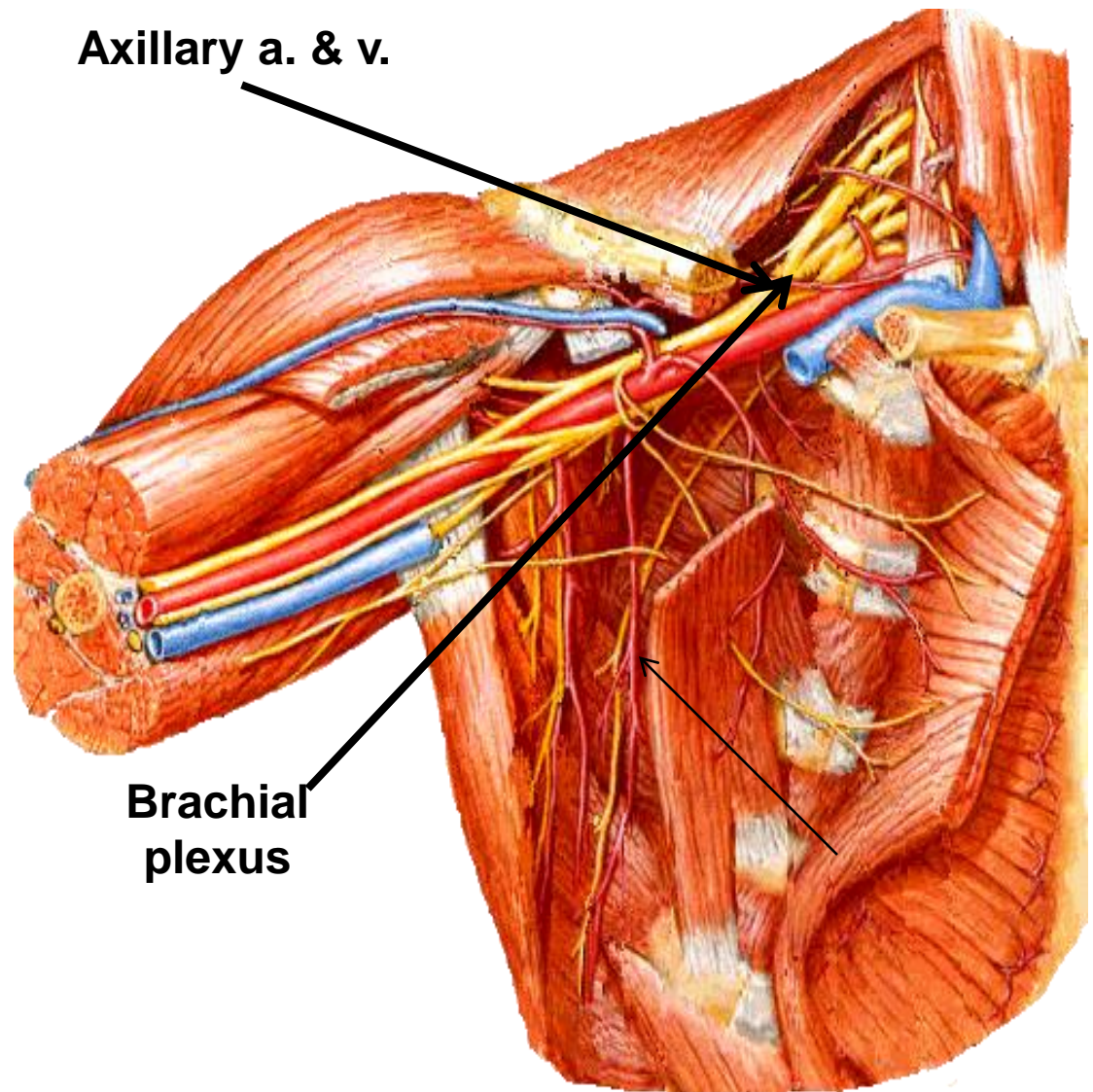


- **Base:**
- Formed by skin stretching between the anterior and posterior walls.
- It is bounded:
 - **In front** by the anterior axillary fold (formed by the lower border of the Pectoralis major muscle).
 - **behind** by the posterior axillary fold (formed by the tendons of latissimus dorsi and teres major muscles).
 - **medially** by upper 4 to 5 ribs & the chest wall.



Contents of The Axilla

- Cords and branches of 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 present at the root of the neck to enter the upper limb.

Location & Formation

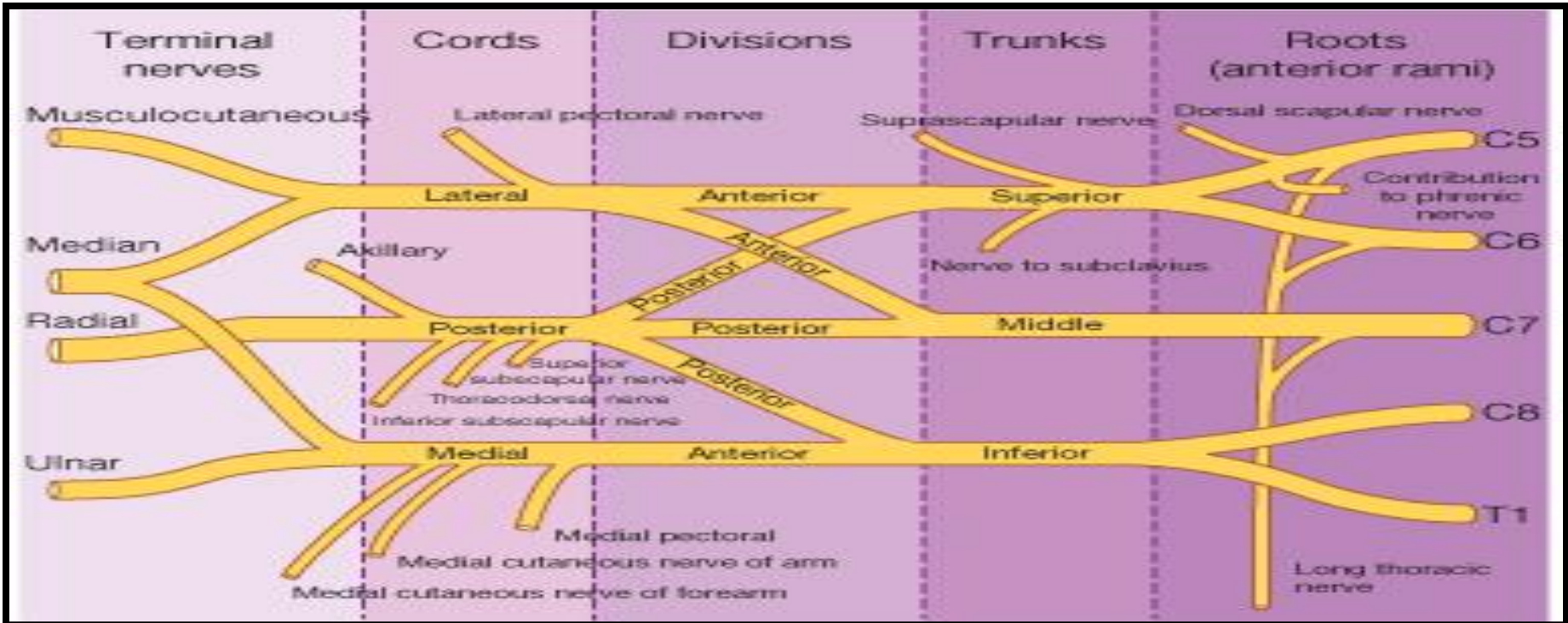
Brachial Plexus is present in the **posterior triangle** of the **neck & axilla**.

It is formed by the union of the anterior Rami of the C 5th, 6th, 7th & 8th and the 1st thoracic spinal nerve.

The roots of C5 & C6 unite to form---- Upper trunk

The root of C7 continues as the----- Middle trunk

The roots of C8 & T1 unite to form---- Lower trunk

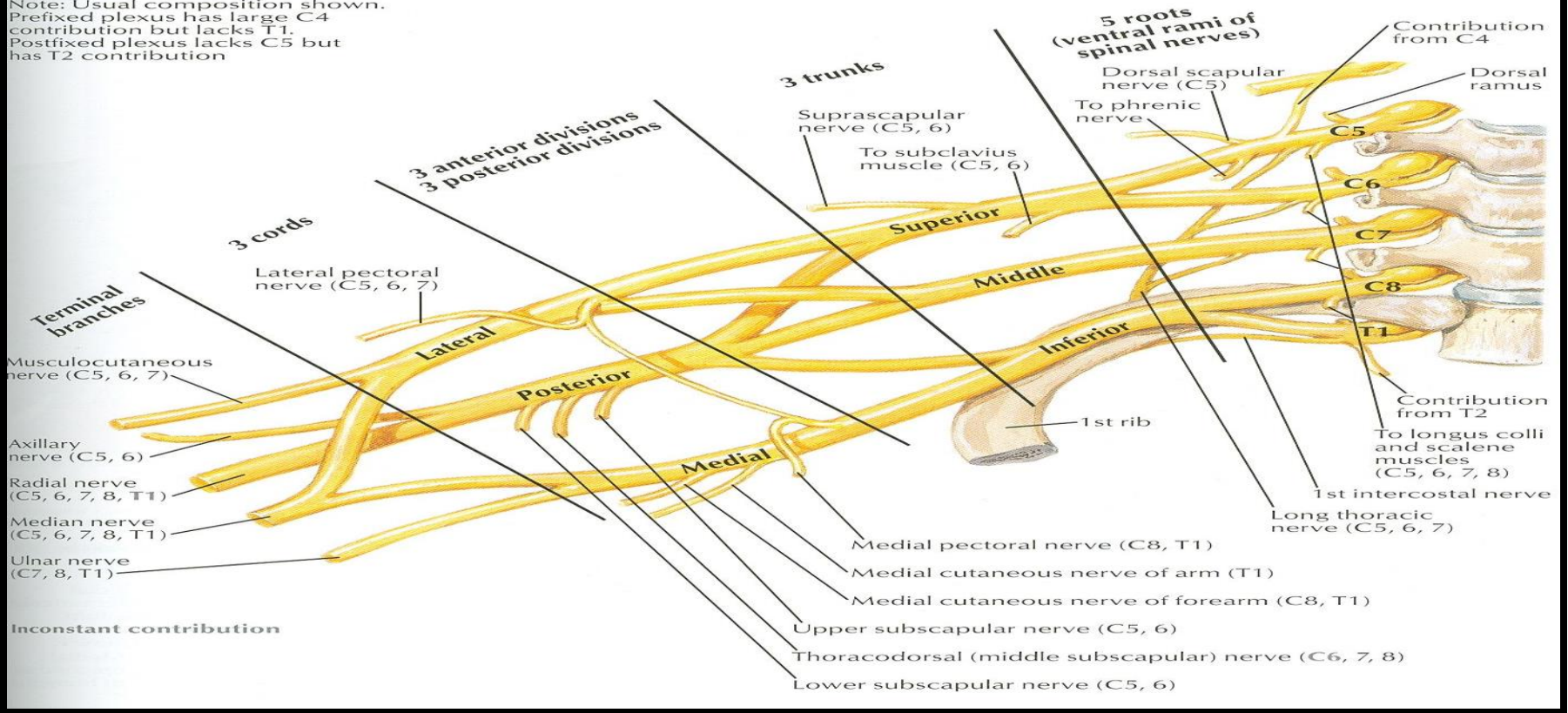


The Plexus can be divided into 5 stages:

- ❖ **Roots:** in the posterior Δ of the neck.
- ❖ **Trunks:** in the posterior Δ of the neck.
- ❖ **Divisions:** behind the clavicle (apex of the axilla).
- ❖ **Cords:** in the axilla.
- ❖ **Branches:** in the axilla.

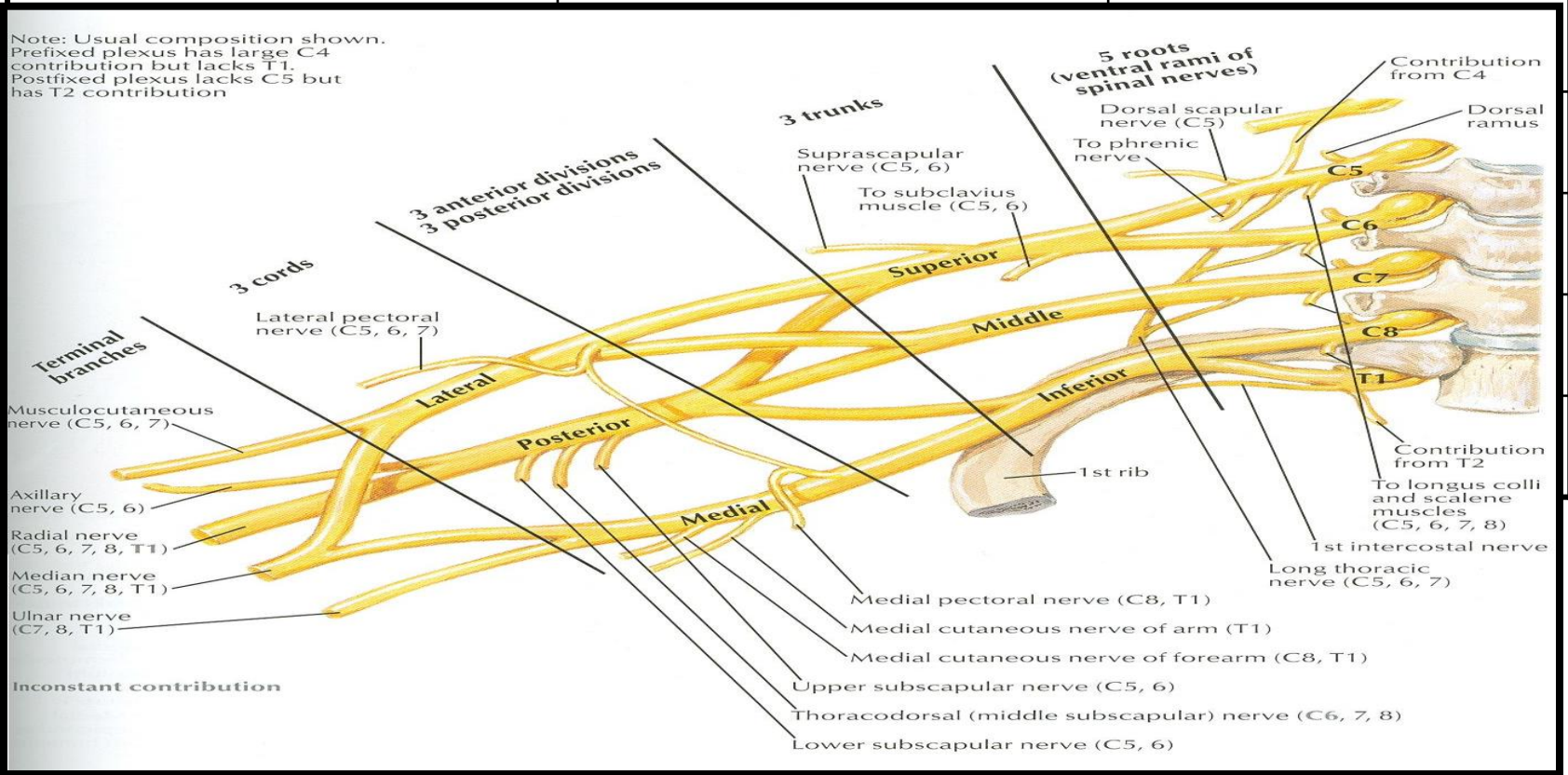
NB. The First 2 stages lie in the posterior triangle, while last 2 stages lie in axilla.

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**.
- ❖ **Cords are named according to their relation to the 2nd part of the axillary artery**

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 or N. to latissimus dorsi.



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 4 side pyramid 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, all imbedded in the axillary fat.

GOOD LUCK