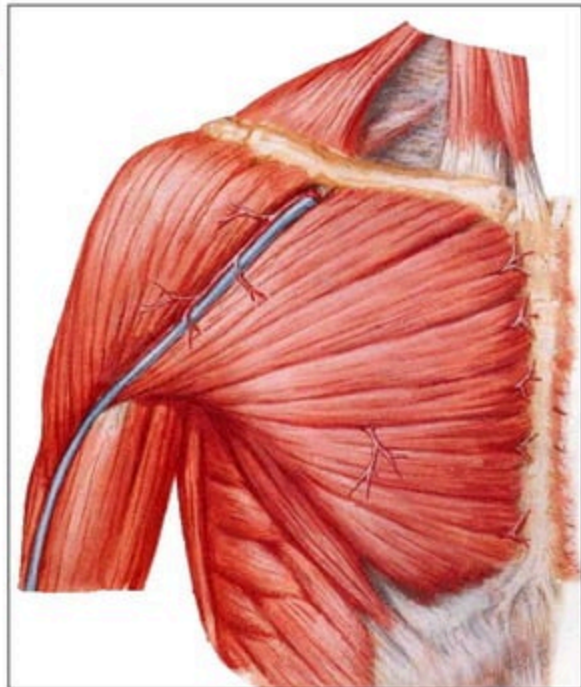


PECTORAL REGION AND AXILLA

- ***By:***
- ***Prof.Saeed Abulmakarem.***
- ***DR.Snaa AL-Shaarawy.***



OBJECTIVES

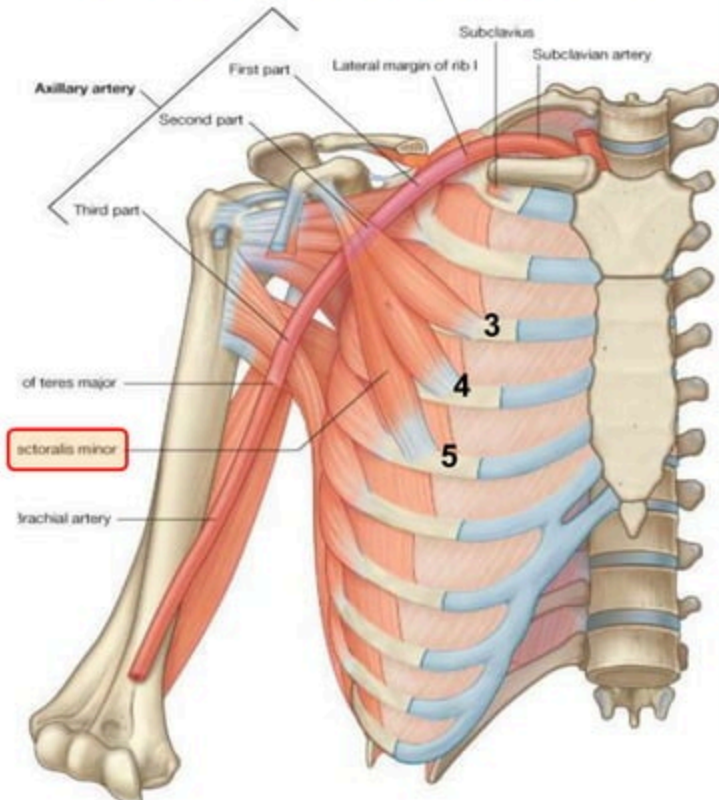
- By the end of the lecture the students should be able to :
- Identify and describe the muscles of the pectoral region.
 - Pectoralis major.
 - Pectoralis minor.
 - Subclavius.
 - Serratus anterior.
- Describe and demonstrate the boundaries and contents of the **axilla**.
- Describe the formation of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

Pectoralis Major



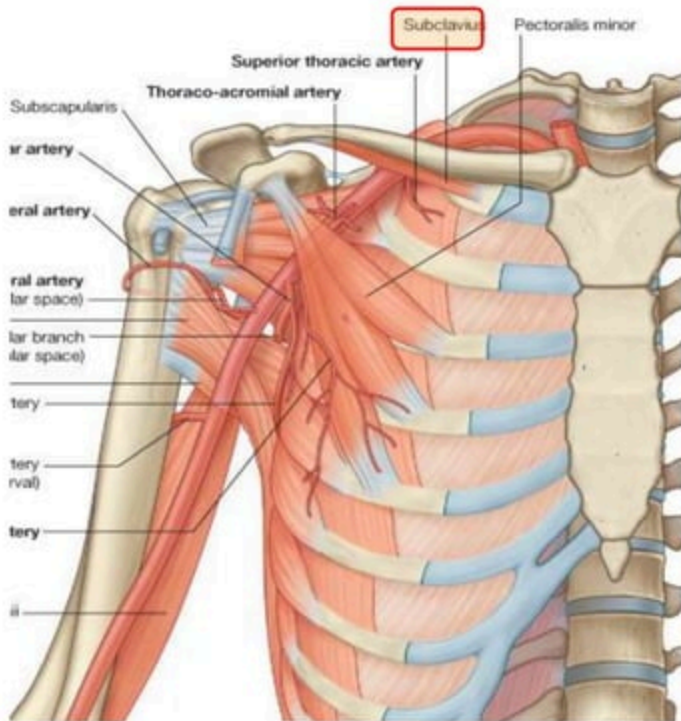
- **Origin** : 2 heads;
- **Clavicular head**: From;
- Medial $\frac{1}{2}$ of the front of the clavicle.
- **Sternocostal head**: From;
- Sternum.
- Upper 6 costal cartilages.
- Aponeurosis of the external oblique muscle.
- **Insertion** :
- Lateral lip of bicipital groove.
- **Nerve supply** :
- Medial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

Pectoralis Minor



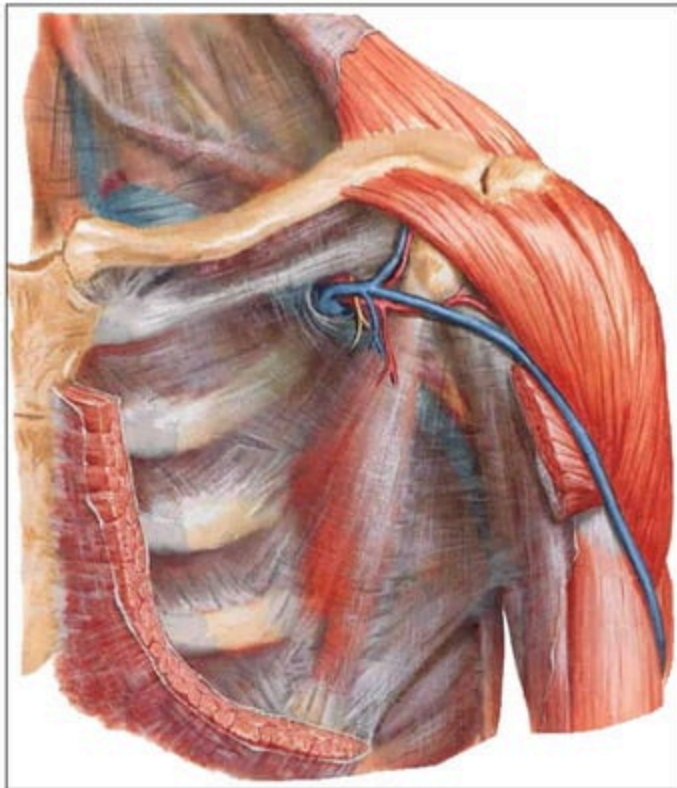
- **Origin:**
- From 3rd, 4th, & 5th ribs close to their costal cartilages.
- **Insertion:**
- Coracoid process.
- **Nerve supply:**
- Medial pectoral nerve.
- **Action:**
- Depression of the **shoulder**.
- Draw the **ribs** upward and outwards during deep inspiration.

Subclavius

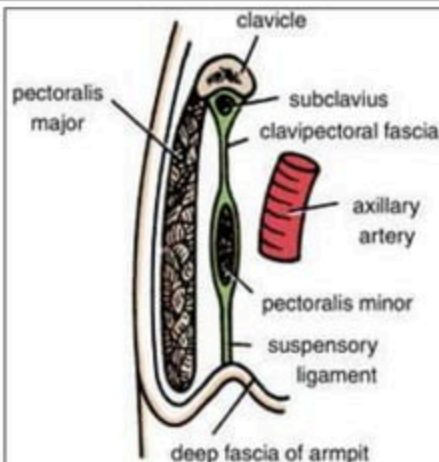


- **Origin:**
- From 1st rib at its costal cartilage.
- **Insertion:**
- Subclavian groove in the **middle 1/3** of the inferior surface of **clavicle**.
- **Nerve supply:**
- Nerve to subclavius from upper trunk of brachial plexus.
- **Action:**
- **Fixes** the **clavicle** during movement of shoulder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

Clavipectoral Fascia



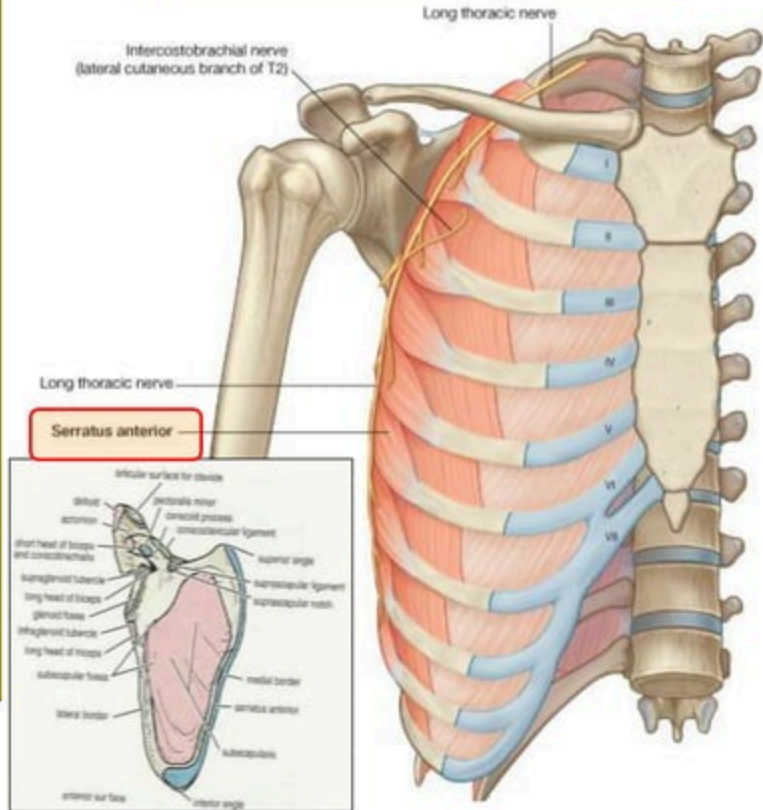
- It is a **thickened** membrane of **deep fascia** between the subclavius and pectoralis minor.
- It is pierced by :
 - Lateral pectoral nerve.
 - **Thoraco- acromial artery**
 - **Cephalic vein.**
 - Few lymph vessels.



Origin:

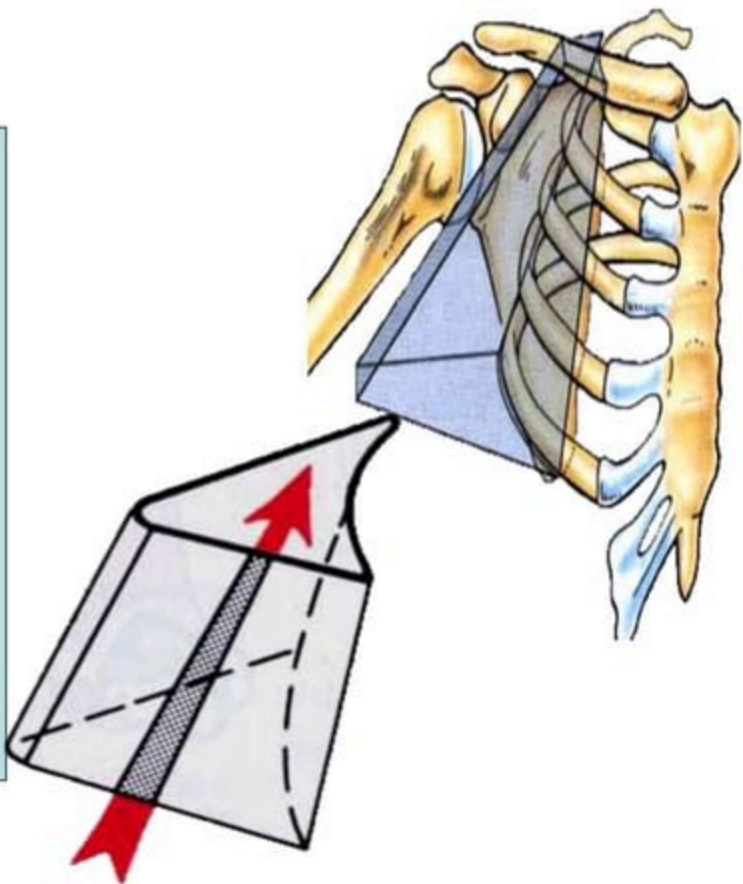
- Upper eight ribs.
- Insertion:
- anterior aspect of the medial border and inferior angle of scapula.
- Nerve supply:
- Long thoracic nerve (from roots of brachial plexus, C5,6,7).
- Action:
- Draws the scapula forward in boxing, (protrusion).
- Rotates scapula outwards in raising the arm above 90 degree.

Serratus anterior



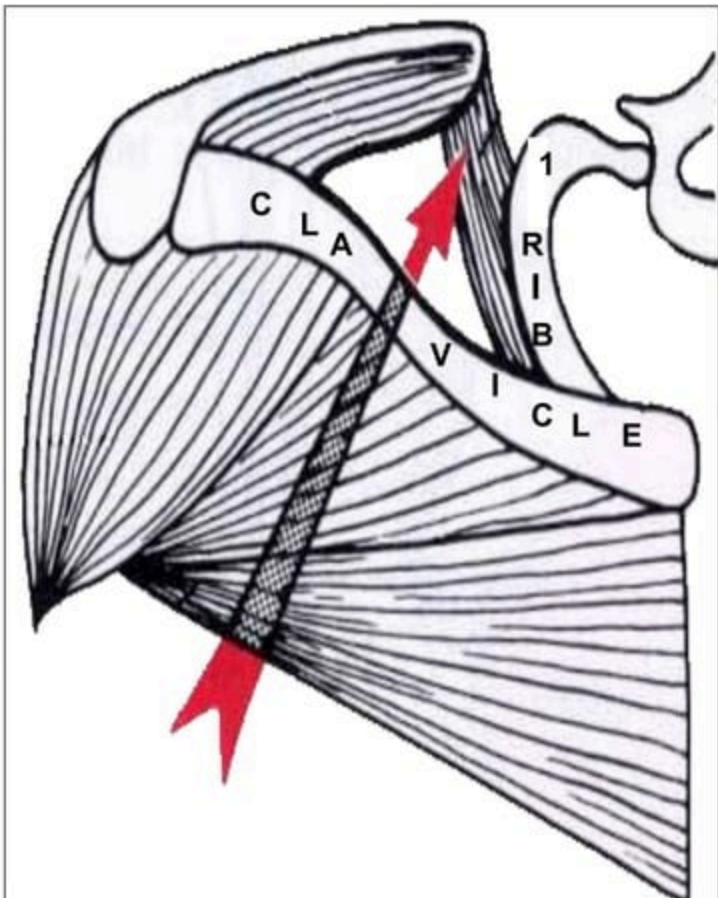
AXILLA

- 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.**

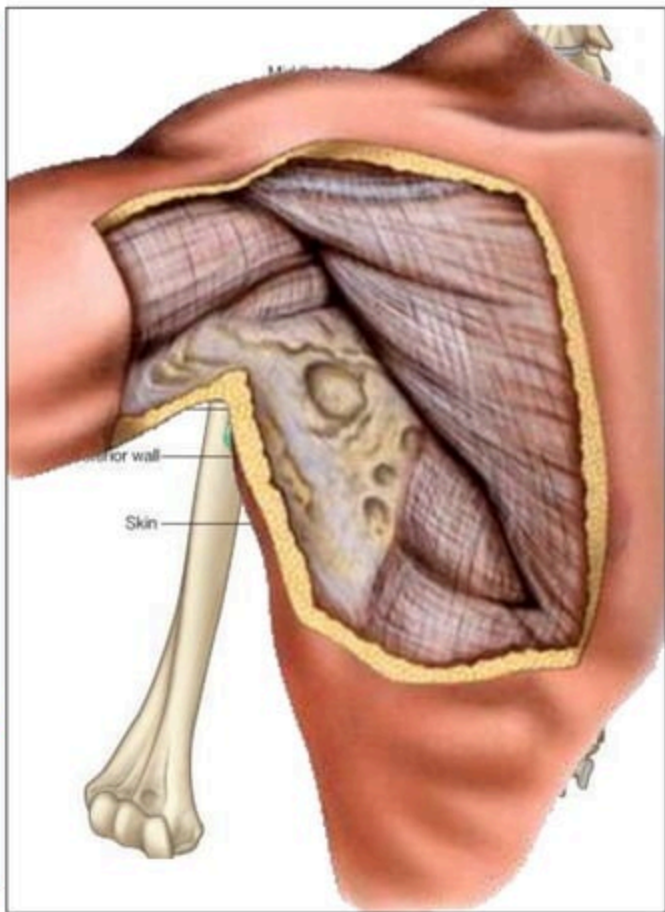


- **Base:**

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

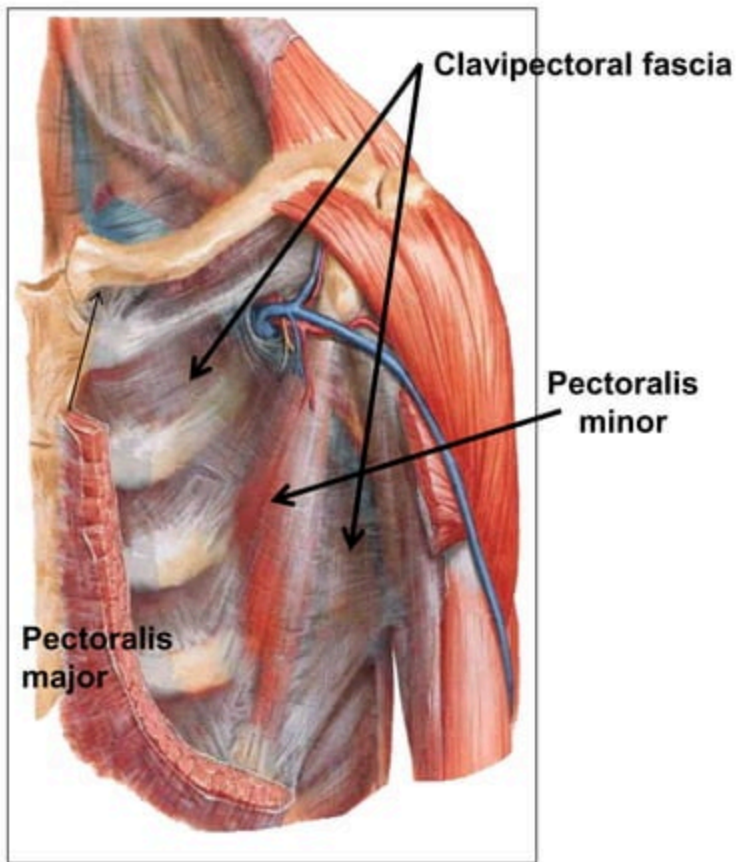
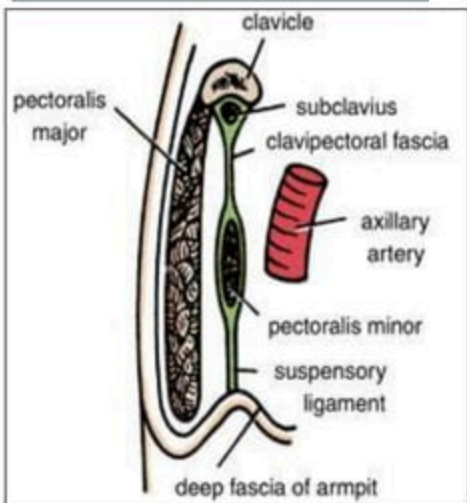
- **is bounded:**

- **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.**

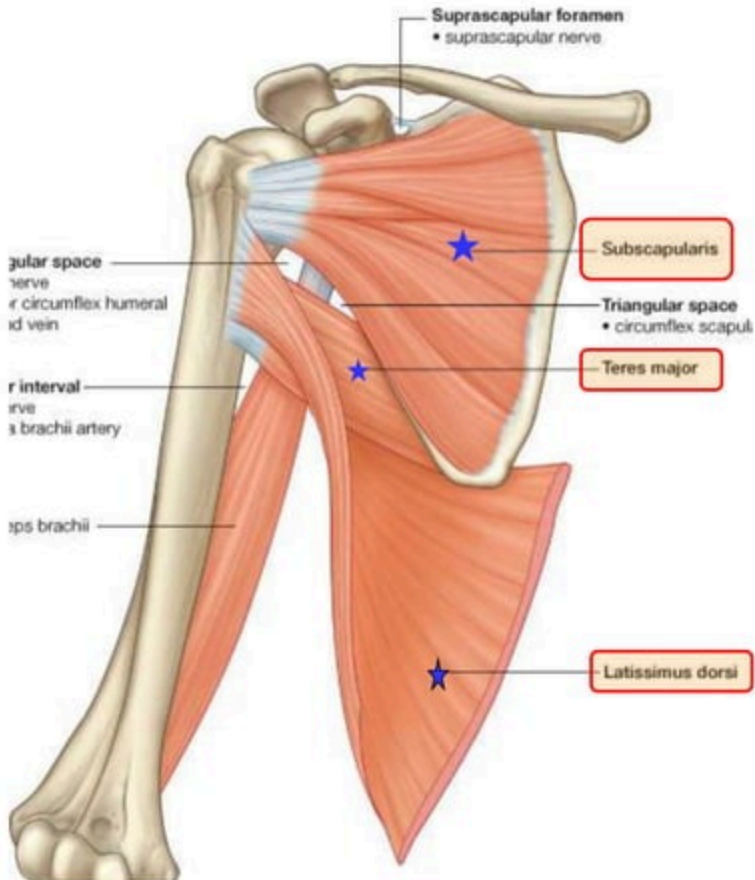


■ Anterior wall:

- Is formed by :
 - Pectoralis major
 - Pectoralis minor
 - Subclavius
 - Clavipectoral fascia:



- **Posterior wall:**
- Is formed by:
 - **Subscapularis.**
 - **Latissimus dorsi.**
 - **Teres major muscles.**

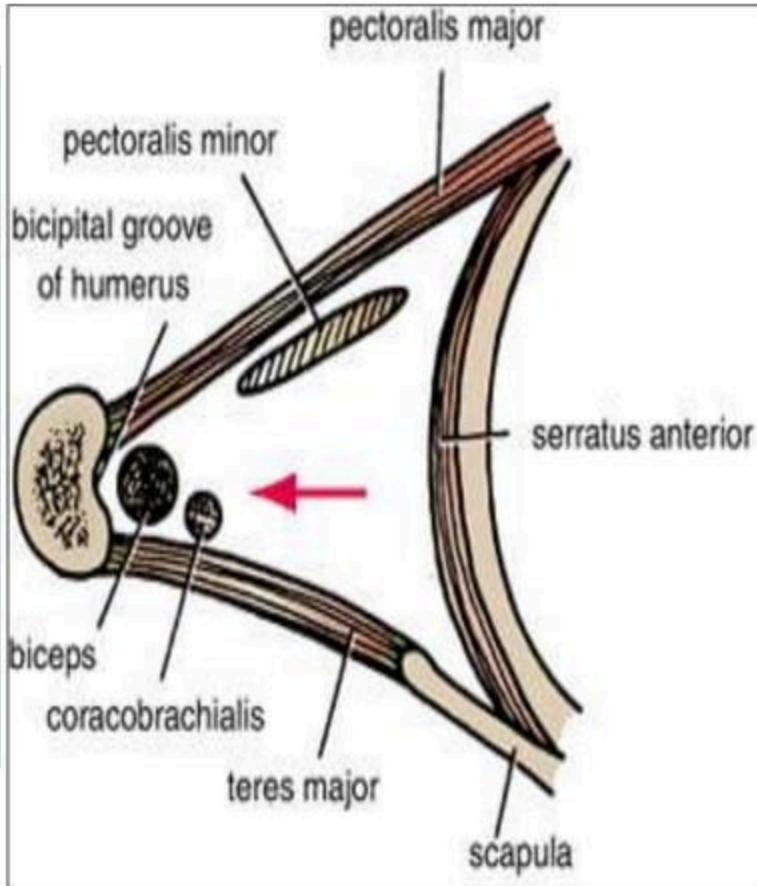


■ The medial wall:

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

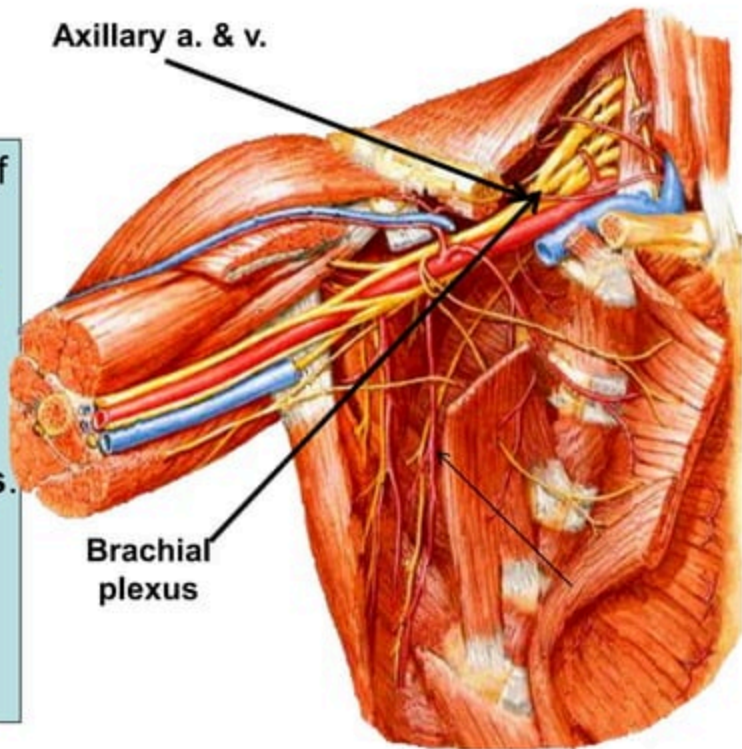
■ The lateral wall:

- It is narrow and formed by:
 - **Coracobrachialis.**
 - **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 ?

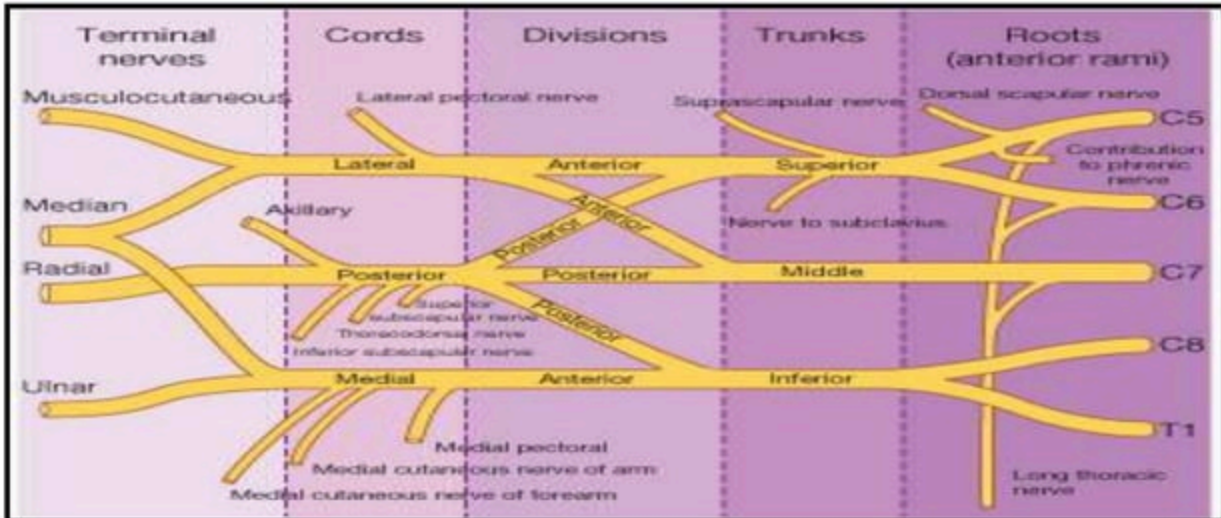
Brachial Plexus is a network of nerves that present at the root of the neck to enter the upper limb.

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.

Roots of C5 & C6 unite to form---- **Upper trunk**
Root of C7 continuous as the----- **Middle trunk**
Roots of C8 & T1 unite to form---- **Lower trunk**

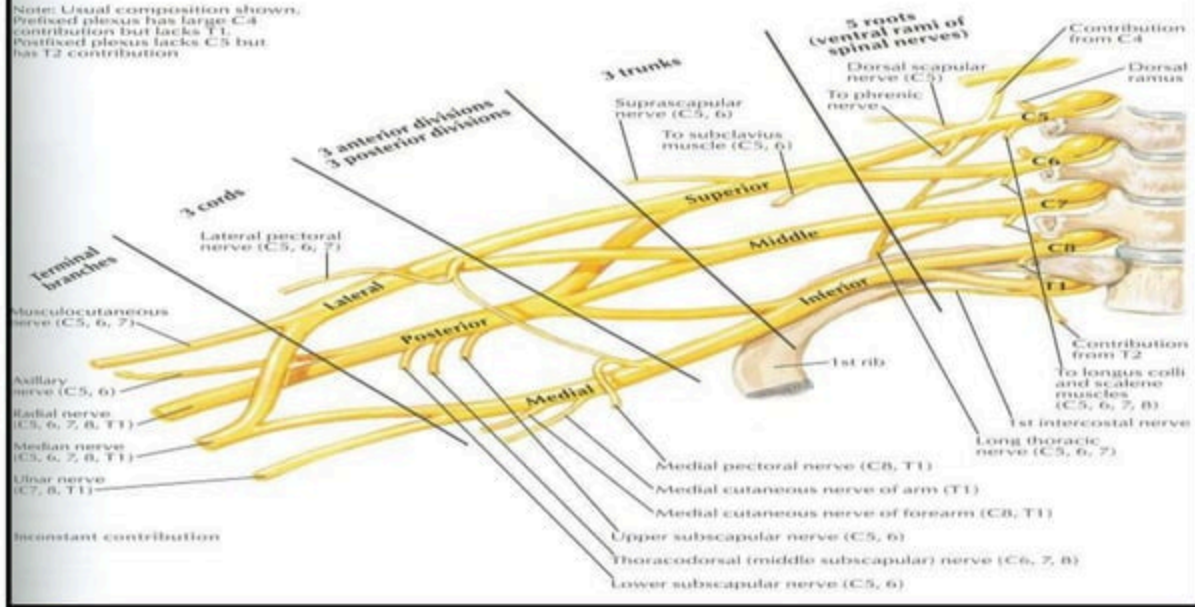


The Plexus can be divided into 5 stages:

- ❖ **Roots:** in the posteriorΔ
- ❖ **Trunks:** in the posteriorΔ
- ❖ **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. 16

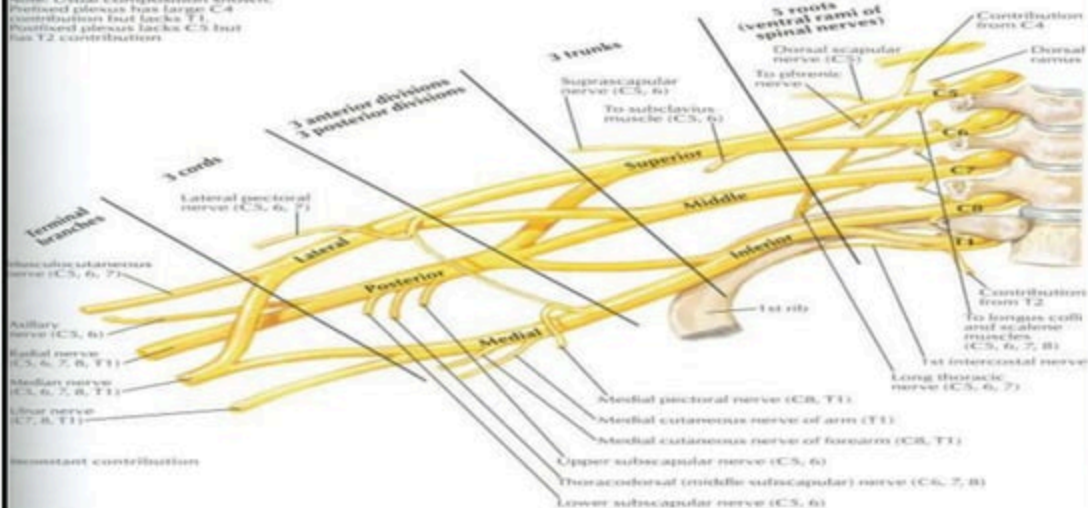
Note: Usual composition shown.
 Pretracheal plexus has large C4 contribution but lacks T1.
 Posttracheal plexus lacks C5 but has T2 contribution.



- ❖ 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**.

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.

Note: Usual composition shows:
Posterior plexus has large C4 contribution but lacks T1.
Posterior plexus lacks C5 but has T2 contribution.



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.

Dislocation of shoulder joint.....Winging of Scapula.

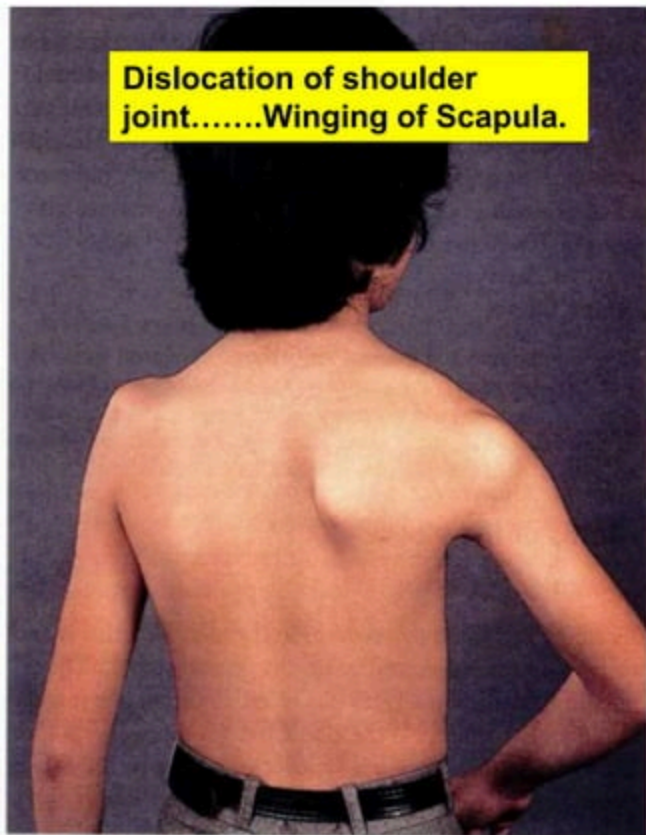
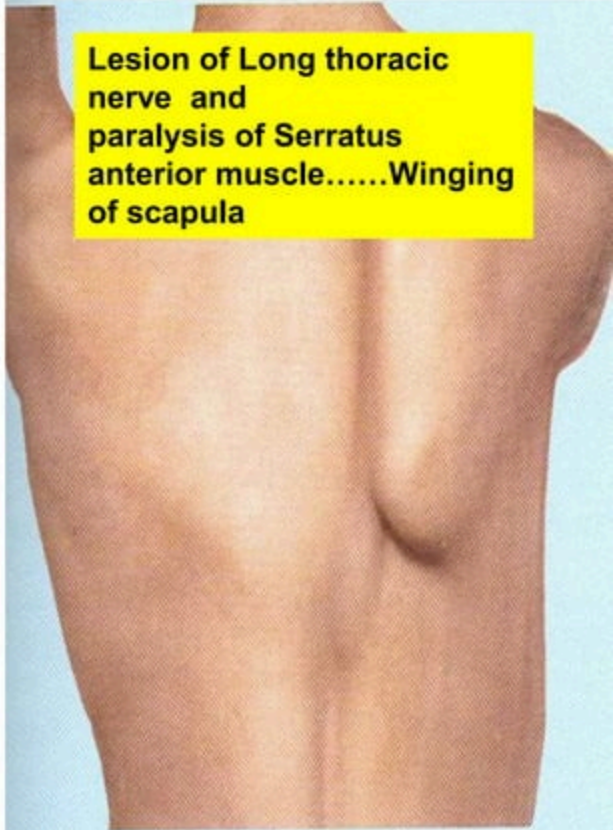


Fig. 22.15 Multidirectional voluntary dislocation of the shoulder. This 9-year-old boy can voluntarily dislocate his shoulder posteriorly.

Lesion of Long thoracic nerve and paralysis of Serratus anterior muscle.....Winging of scapula



Right winged scapula

THANK YOU

1. Which one of the following muscles performs adduction of the arm ?
- a. Pectoralis minor.
 - b. Pectoralis major.
 - c. Subclavius.
 - d. Serratus anterior.
2. Serratus anterior is innervated by :
- a. Thoracodorsal nerve.
 - b. Long thoracic nerve.
 - c. Axillary nerve.
 - d. Radial nerve.
3. Which one of the following muscles contributes in rotation of the scapula above the head?
- a. Pectoralis major.
 - b. Pectoralis minor.
 - c. Serratus anterior.
 - d. Teres major.
4. Which one of the following muscles forms the lateral wall of axilla ?
- a. Pectoralis major.
 - b. Pectoralis minor.
 - c. Serratus anterior.
 - d. Biceps brachii.
5. Which stage of the brachial plexus lies in the axilla ?
- a. Roots.
 - b. Divisions.
 - c. Trunks.
 - d. Cords.