

Pectoral and Axilla

و من يتهب صعود الجبال... يعيش أبد
الدهر بين الحفر

Musculoskeletal Block
ANATOMY
team 435



C O L O R C O D E S

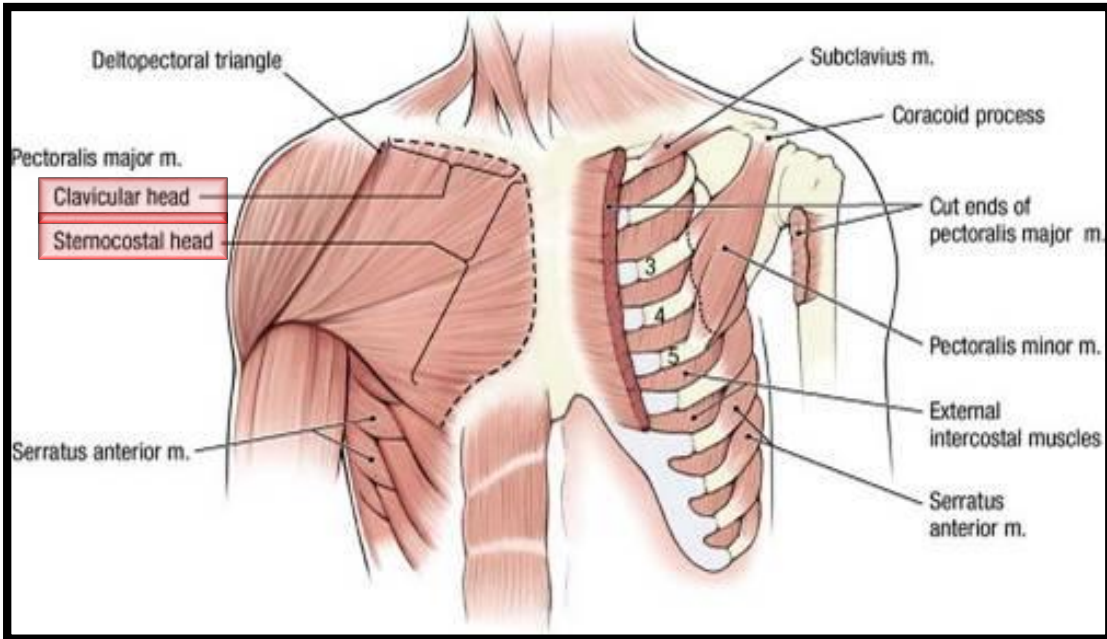
- IMPORTANT NOTES
- EXTRA NOTES
- DEFINITION

OBJECTIVE

- 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: It has two heads of Origin they are:

1- Clavicular head:

Which is attached to the MEDIAL HALF of the ANTERIOR (front) part of the CLAVICLE

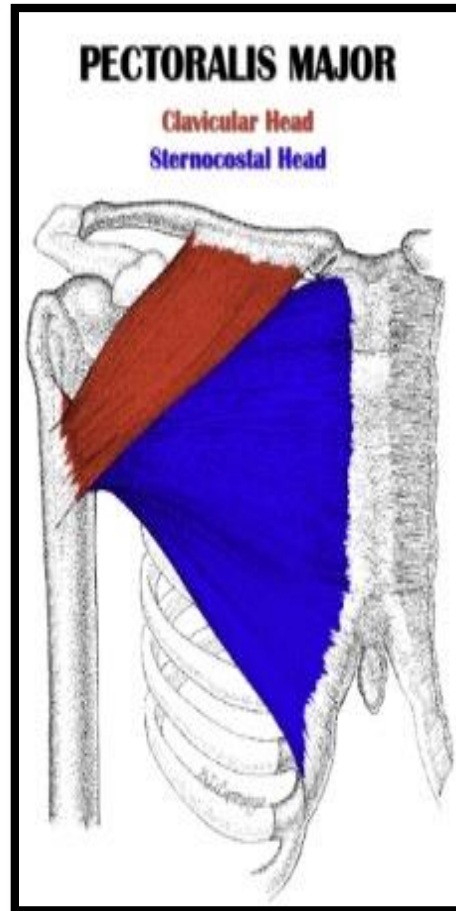
2- SternoCostal head:

Which is attached to

A- Sternum

B- the upper 6 costal cartilages

C- Aponeuroses of the external oblique



INSERTION

Lateral lip of bicipital groove.

Nerve supply :

Has **two** nerves, they are:

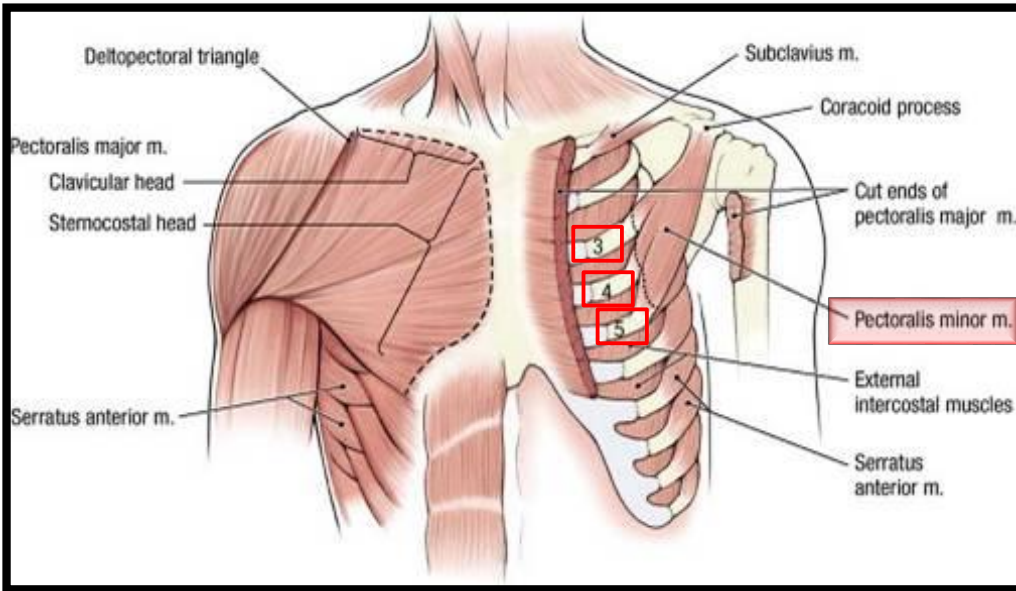
- **Medial pectoral nerve.**
- **lateral pectoral nerve.**

Action :

- **Adduction** of the arm
- **medial rotation** of the arm.
- Clavicular head helps in **flexion** of arm (shoulder joint).
- Also helps in **climbing**



Pectoralis Minor



Origin:

from **3rd**, **4th**, & **5th** ribs close to their costal cartilages.

Insertion:

Coracoid process.

Nerve supply:

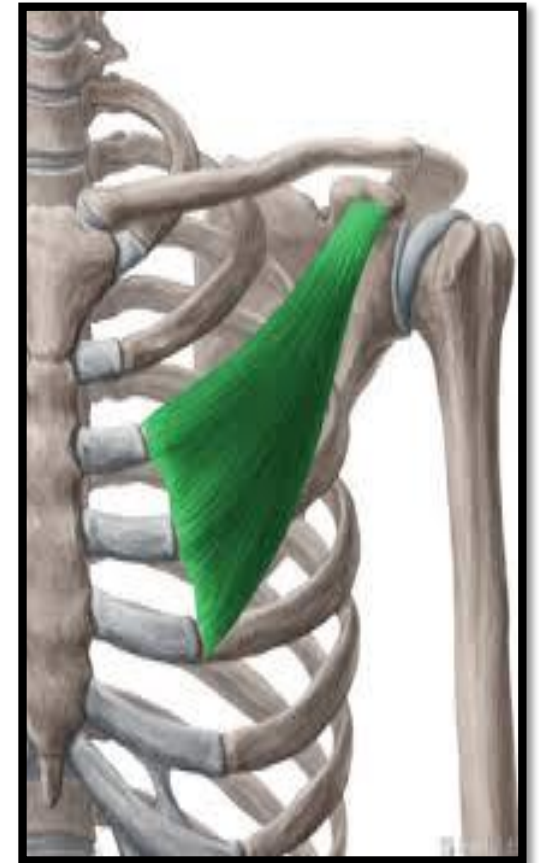
Only **one** nerve, that is

-**Medial** pectoral nerve.

-Action:

-**Depression of shoulder.**

-**Draw the ribs** upward & outwards during deep inspiration



Location:

It's deep to pectoralis major

Subclavius

Origin:

From 1st rib and its **costal cartilage**.
(1st costochondral junction)

Insertion:

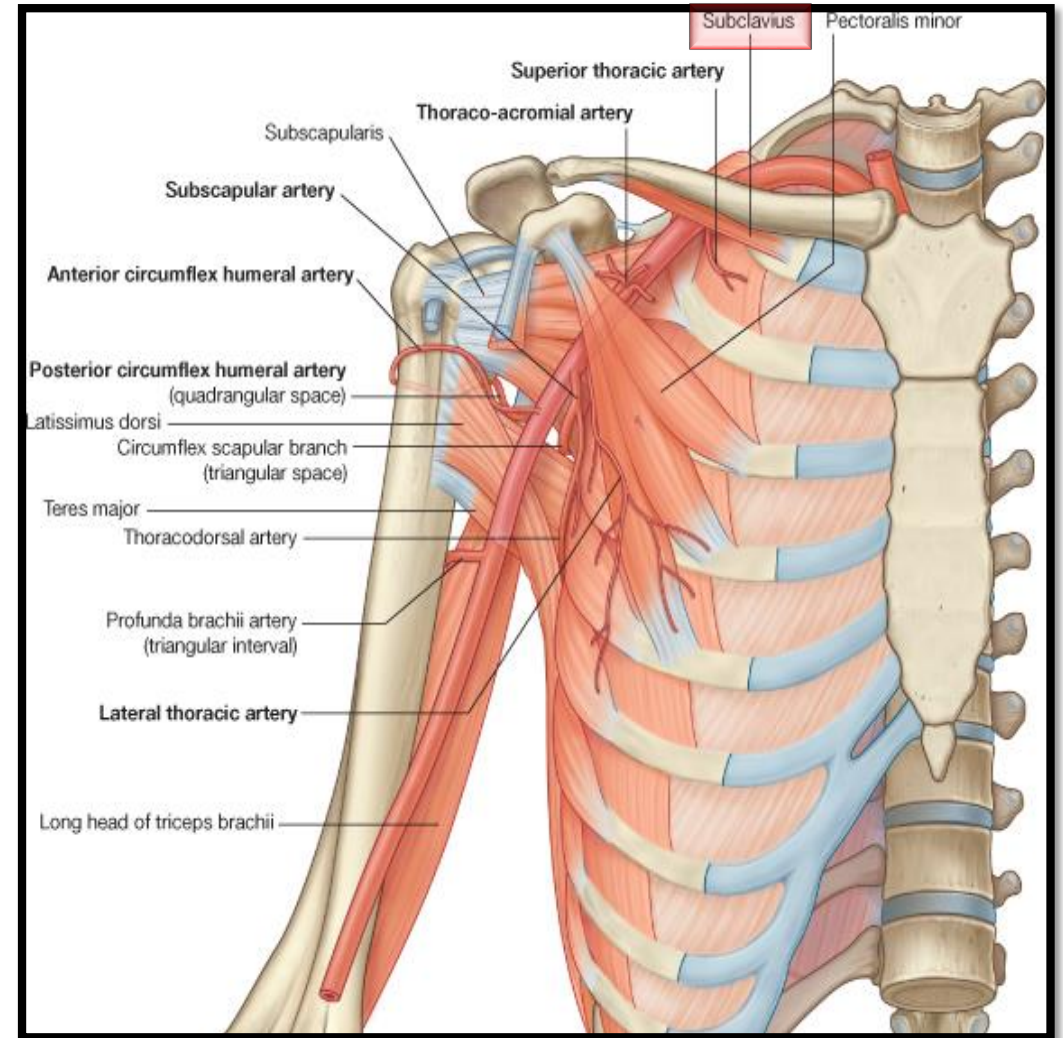
Subclavian groove at the middle 1/3 of the inferior surface of clavicle.

Nerve supply:

Nerve to subclavius from upper trunk of the brachial plexus.

Action:

Steadies or fixes the clavicle during movement of the shoulder joint.

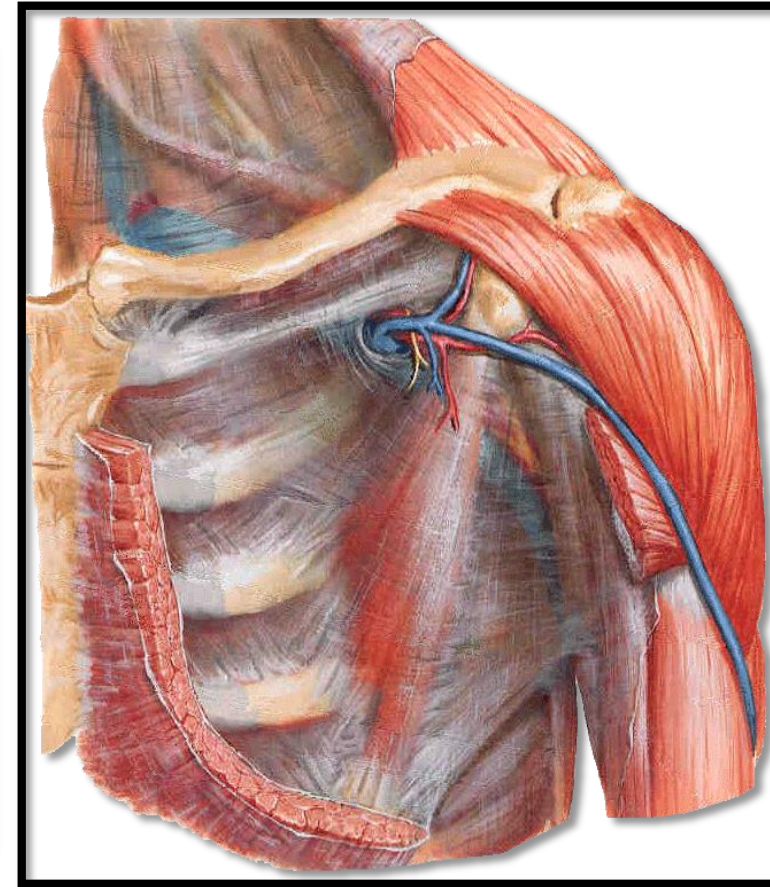
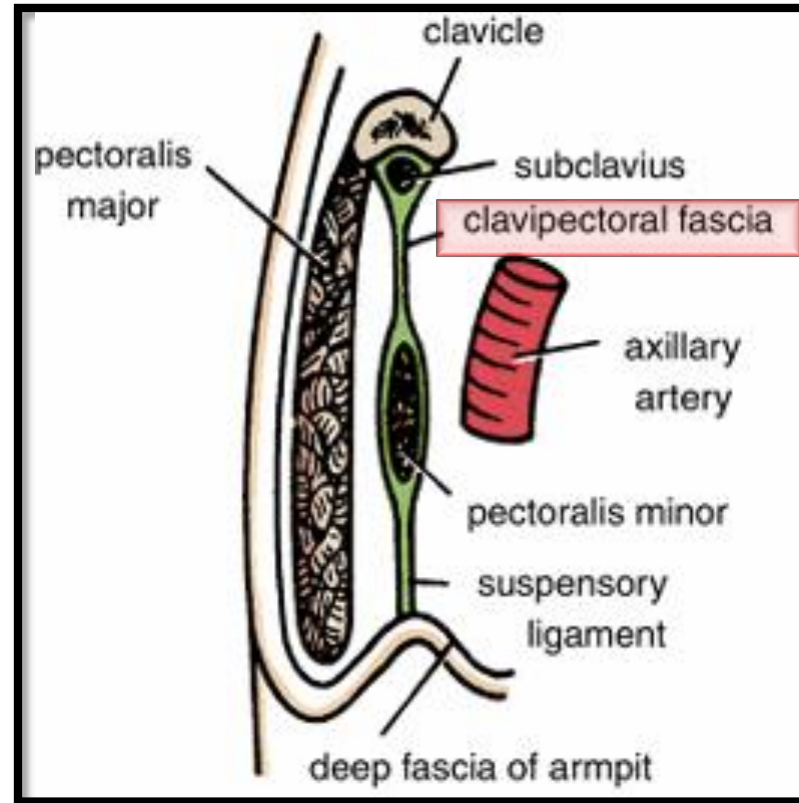


Clavipectoral Fascia

It is a thickened membrane of deep fascia between the **subclavius (above)** and **pectoralis minor (below)**.

It is pierced by:

1. Lateral pectoral nerve.
2. Thoraco-acromial artery.
3. Cephalic vein.
4. Few lymph vessels.



Origin:

Upper eight ribs.


Insertion:

Anterior aspect of the medial border and inferior angle of the scapula.

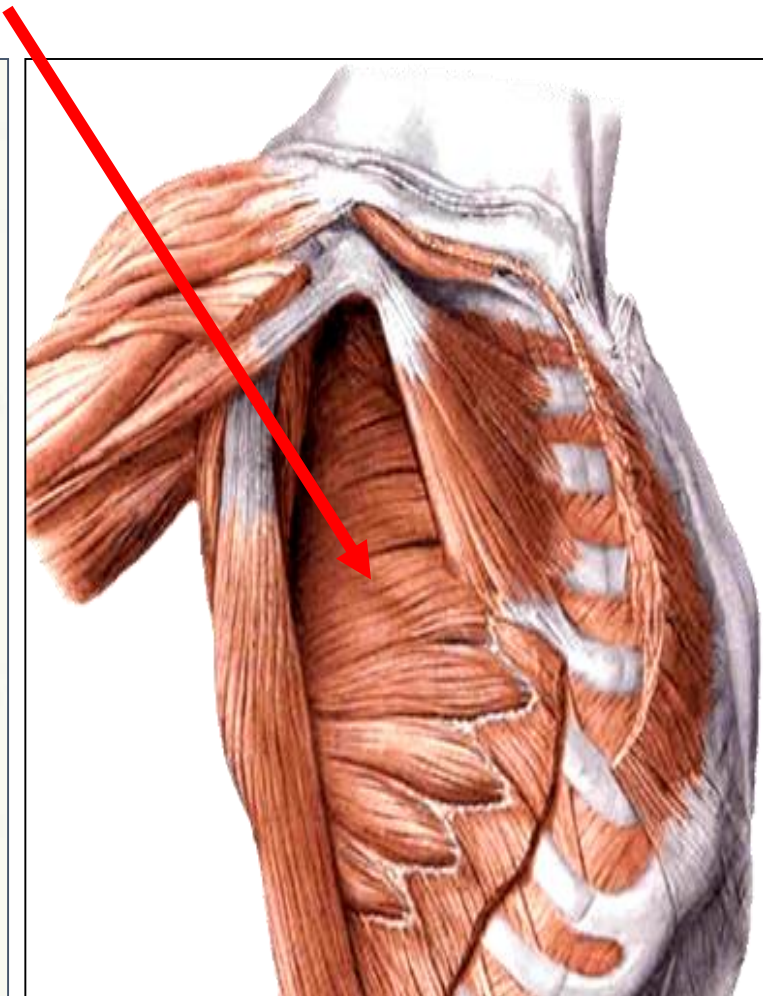
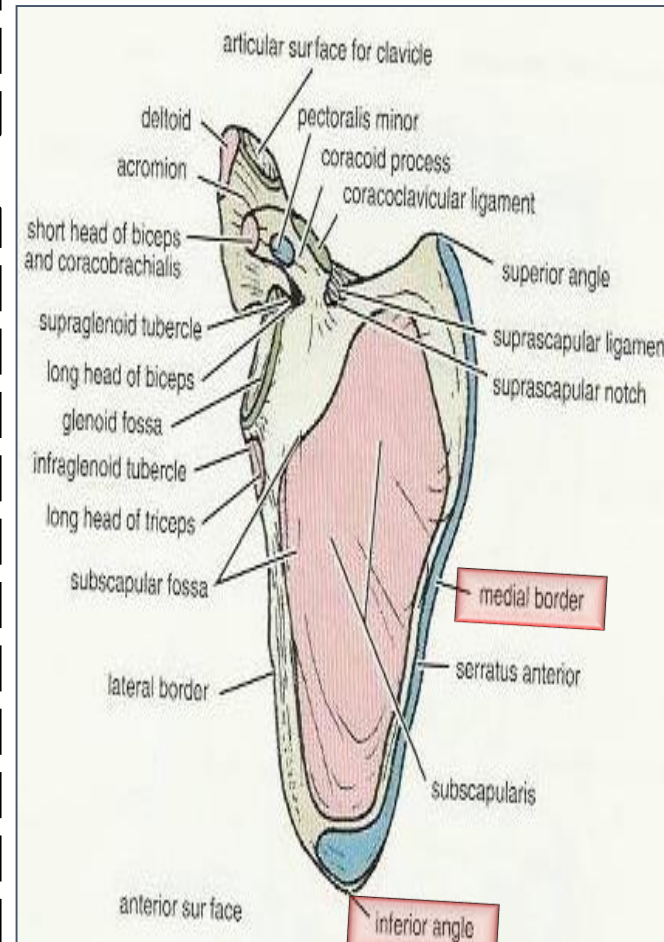
Nerve supply:

- **(from roots of brachial plexus, C5,6,7).**
Supplied by a nerve which has 3 names:
 - Long thoracic nerve
 - or (Nerve of **Bell**)
 - or (Nerve to serratus anterior)

Action:

1. Draws the scapula forward (protrusion, in boxing).  Boxers muscle
2. Rotates scapula outwards in raising the arm above 90 degree.
3. Keep the scapula adherent to the chest wall.

Serratus anterior



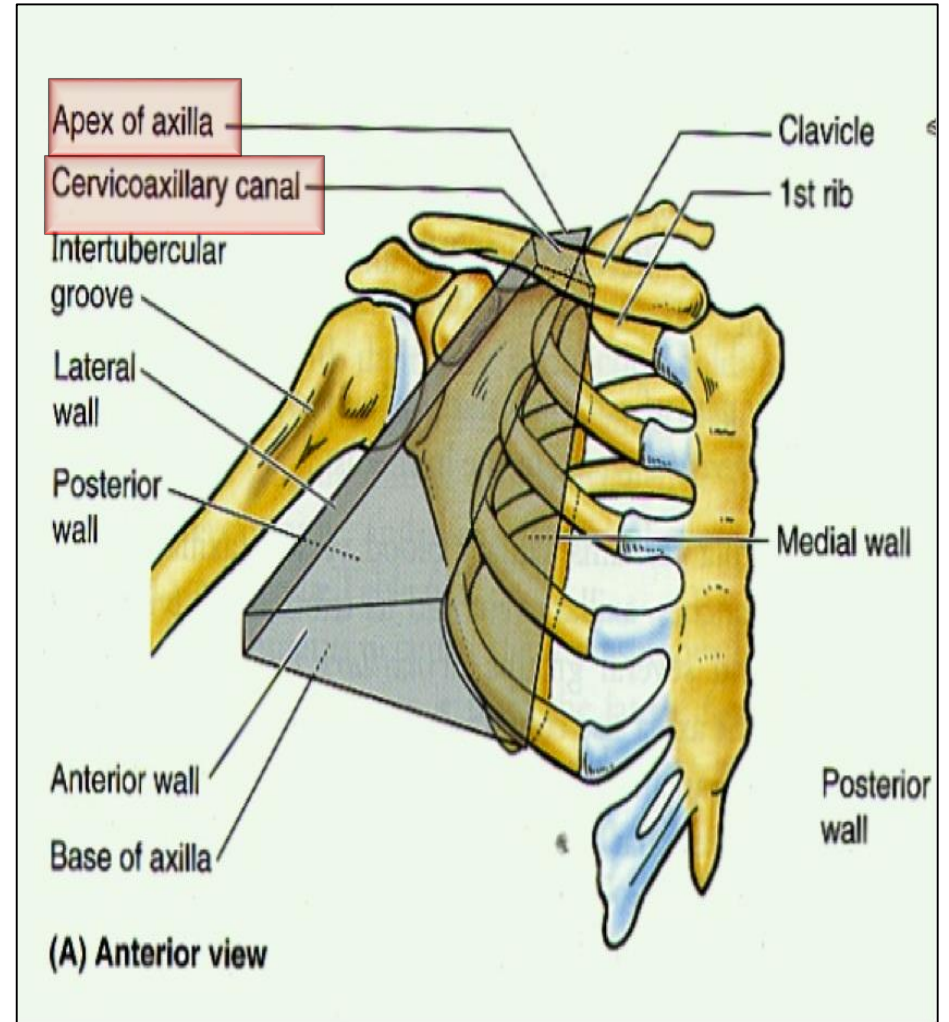
Axilla:

- It is a **pyramidal** shaped space, located between the upper arm and side of the chest (منطقة الإبط)
- The Axilla has:
 - 1- an **Apex**
 - 2- a **Base**
 - 3- **Four Walls**
- major **neurovascular** structures pass between the neck, thorax and upper limb **through the Axilla**



Boundaries of the Axilla

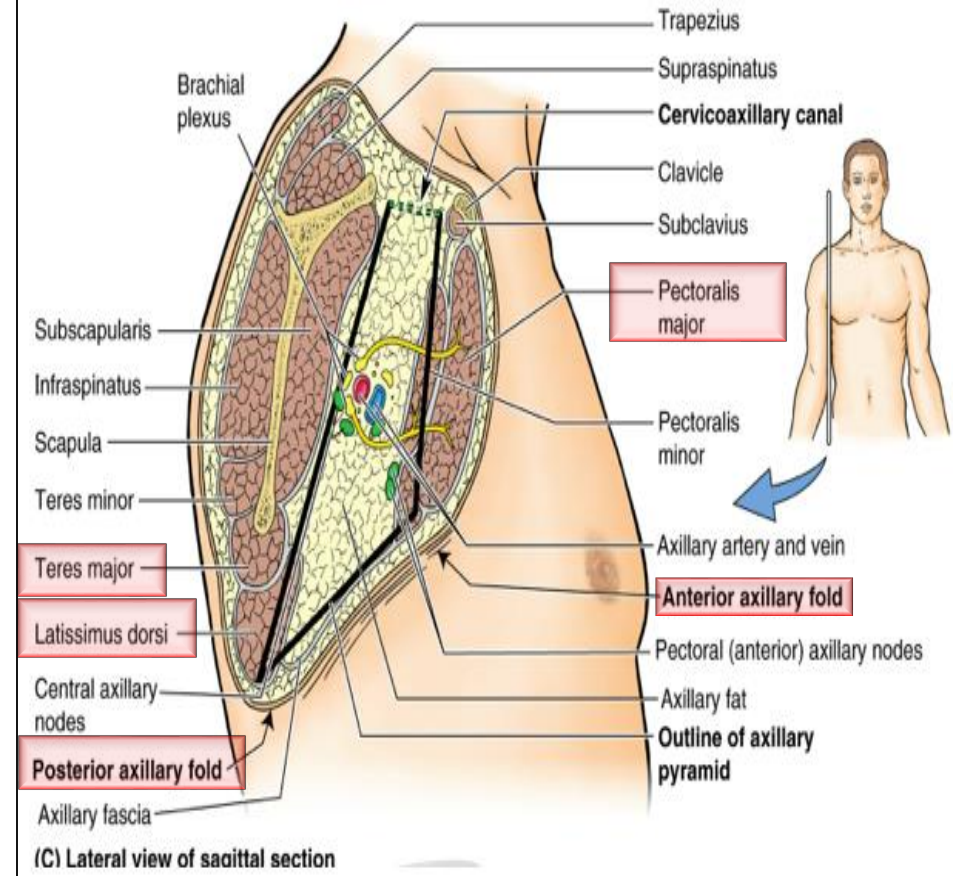
- **Apex:** (القمة)
- It is directed **upwards** and **medially** into the root of the neck.
- is bounded by **3 bones**:
 - Clavicle **anteriorly**.
 - Upper border of the scapula **posteriorly**.
 - Outer border of the first rib **medially**.
 - It is called the **cervico-axillary canal**.



Boundaries of the Axilla

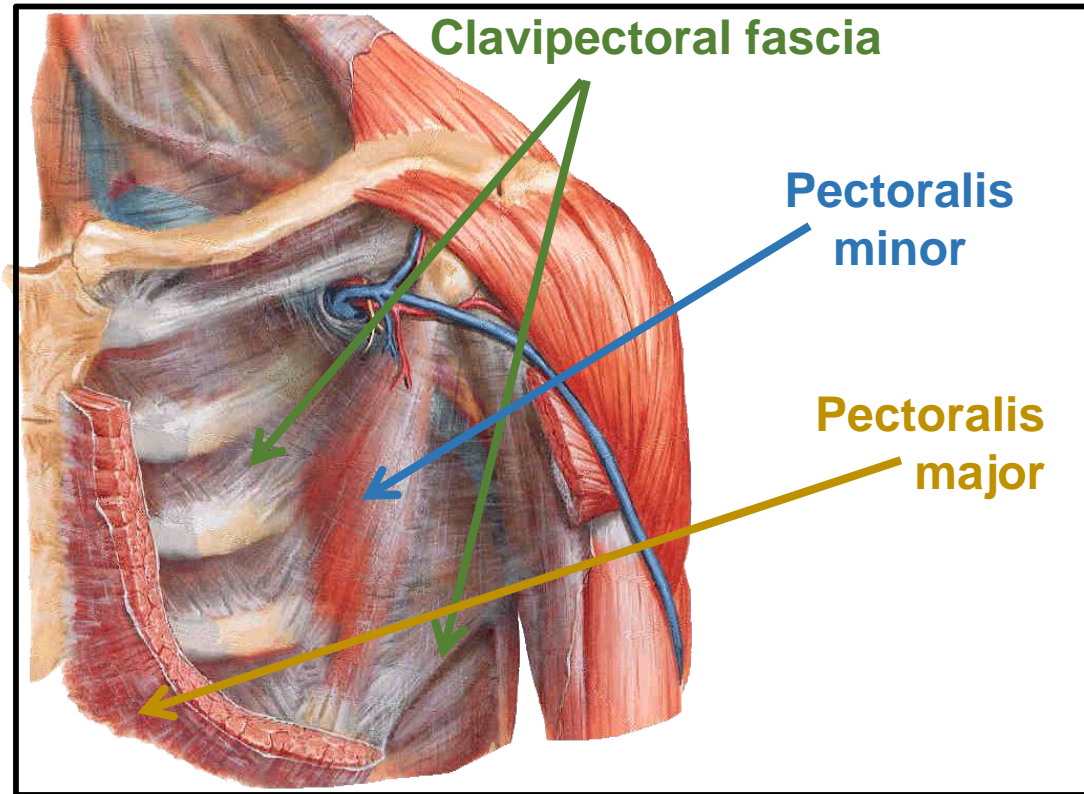
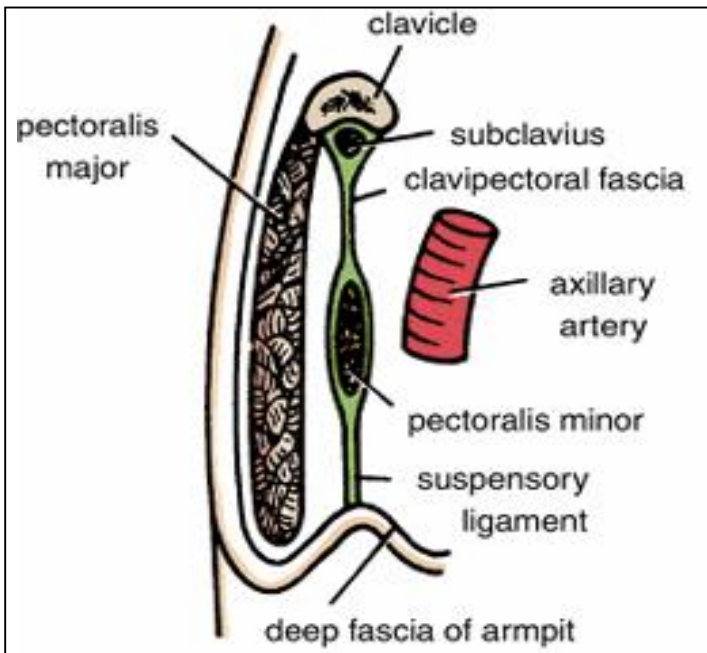
- **Base:**
 - Formed by skin stretching between the **anterior** and **posterior** walls.
 - is bounded:
 - **In front** by the **anterior axillary fold** (formed by the lower border of the **Pectoralis major**).
 - **Behind** by the **posterior axillary fold** (formed by the tendons of **latissimus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

AXILLARY BOUNDARIES



Anterior wall:

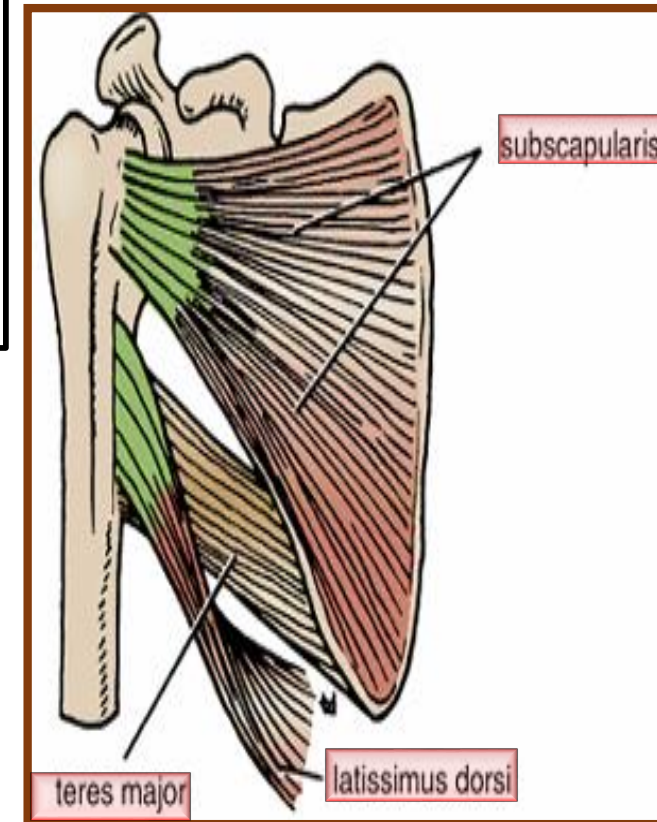
- Consists of:
 - Pectoralis major.
 - Pectoralis minor.
 - Subclavius.
 - Clavipectoral fascia.



- Fascia** is a specialized system of the body that has an appearance similar to a spider's web. It is a system of separate coverings and other functions.

Posterior wall:

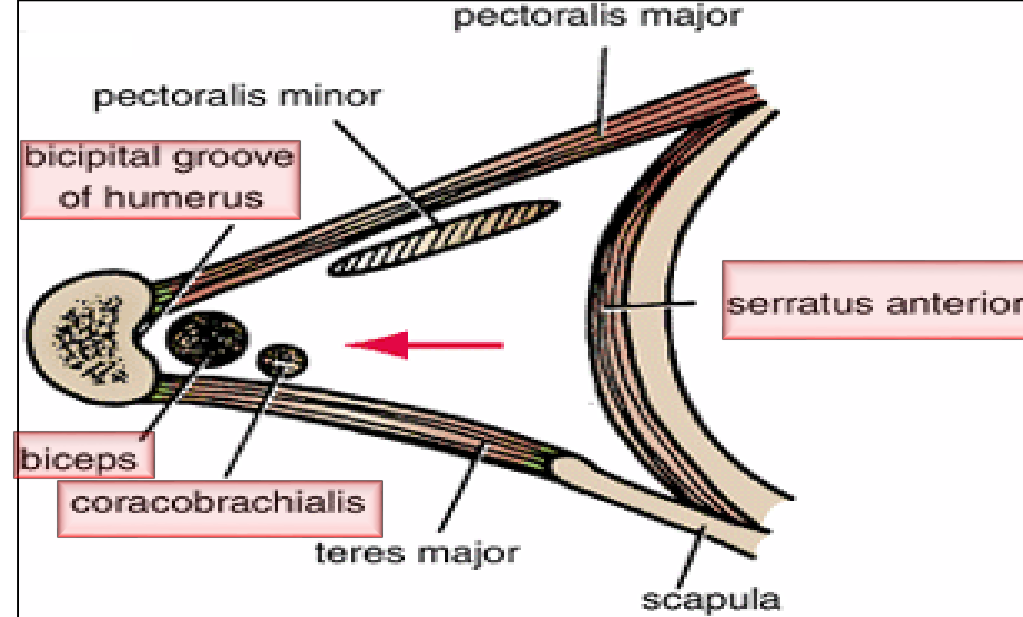
- Consists of:
 - Subscapularis.
 - Latissimus dorsi.
 - Teres major.



■ The medial wall:

■ Consists of:

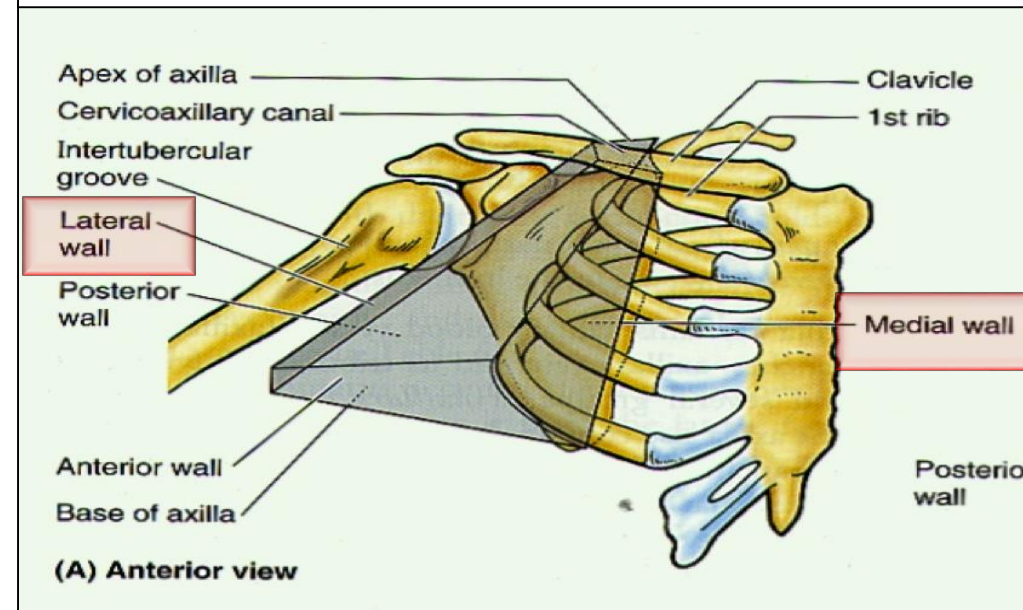
- Serratus anterior.
- Upper 4 or 5 ribs & Intercostal muscles: (several groups of muscles that run between the ribs).



■ The lateral wall:

■ It is narrow and formed by:

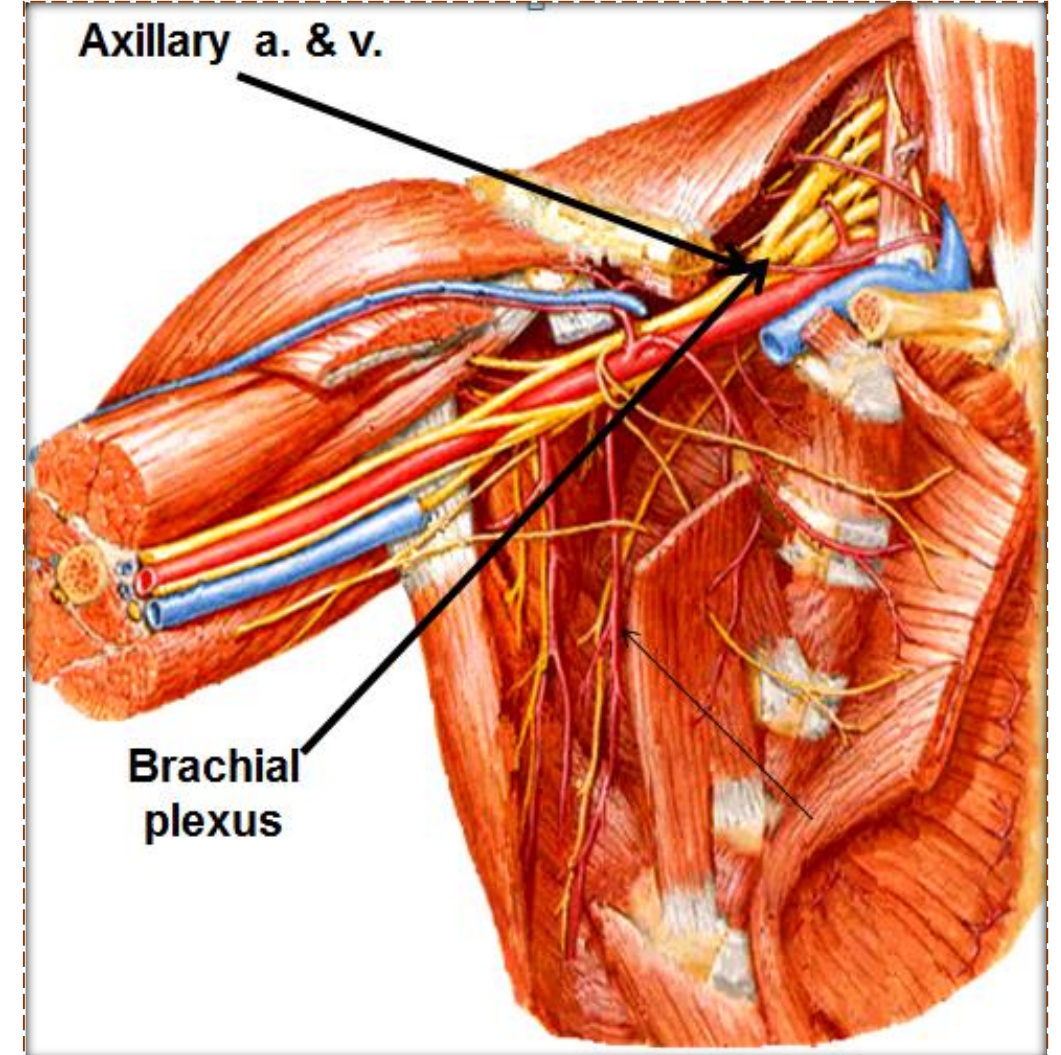
- Coracobrachialis.
- Biceps brachii.
- Intertubercular groove of the humerus.



Contents of the Axilla:

- a- Cords and braches of **brachial plexus**
 - b- Axillary **artery** and its branches
 - c- Axillary **vein** and its tributaries
 - d- Axillary **lymph nodes**
 - e- Axillary **fat**
 - f- Loose connective tissue
- The **neurovascular bundle** is enclosed in **loose connective tissue sheath***, called **axillary sheath**

Sheath: غشاء



Brachial Plexus

What is a brachial plexus ?

- It's a network of nerves that present at the root of the neck to enter the upper limb.

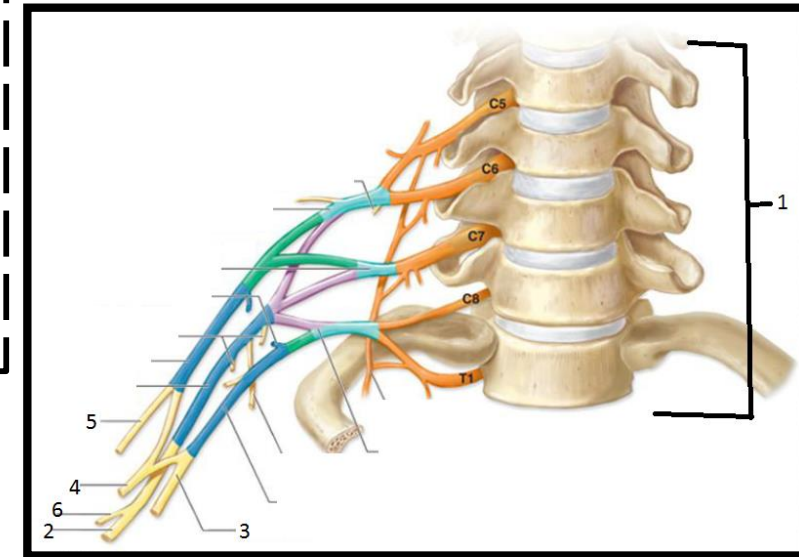
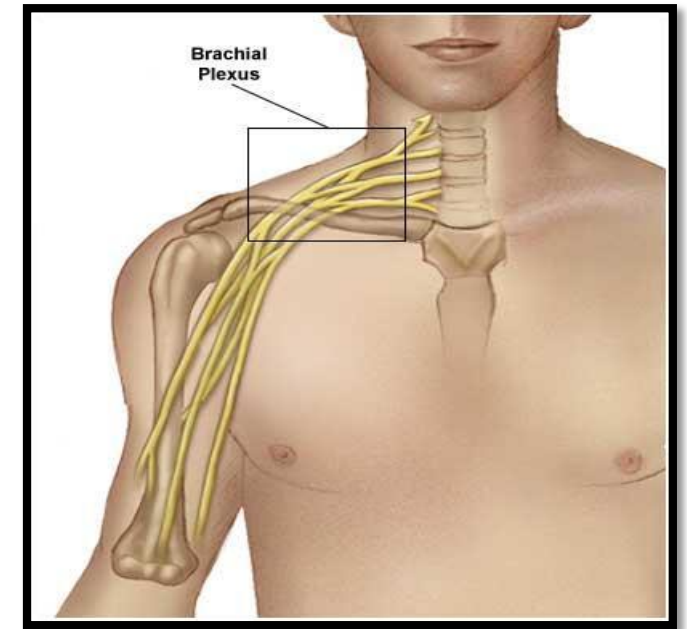
Location and formation:

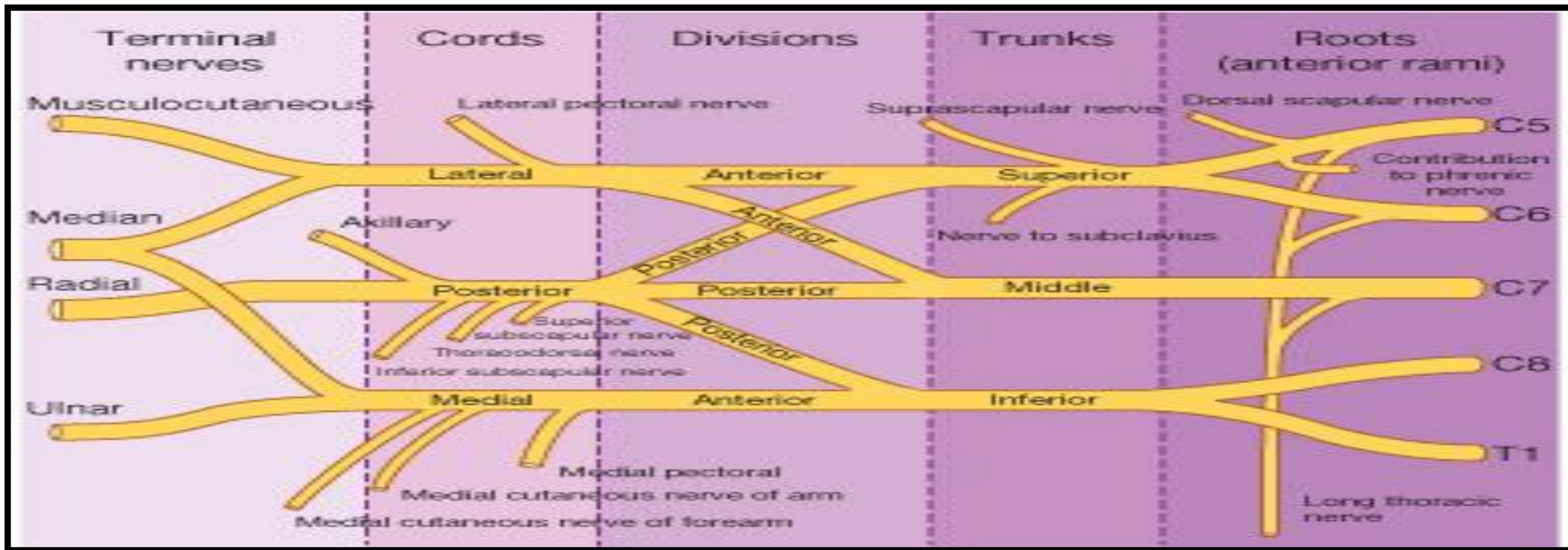
- It is present in the **posterior triangle of the neck and axilla.**
- It is formed by the union of the **anterior Rami of C 5th, 6th, 7th, 8th**, and the **1st thoracic spinal nerve.**

Stages of roots:

- The roots of C5 and C6 unite to form → Upper trunk
- The root of C7 continues to the → Middle trunk
- The roots of C8 and T1 unite to form → Lower trunk

* C for Cervical and T for Thoracic





The plexus can be divided into 5 stages:

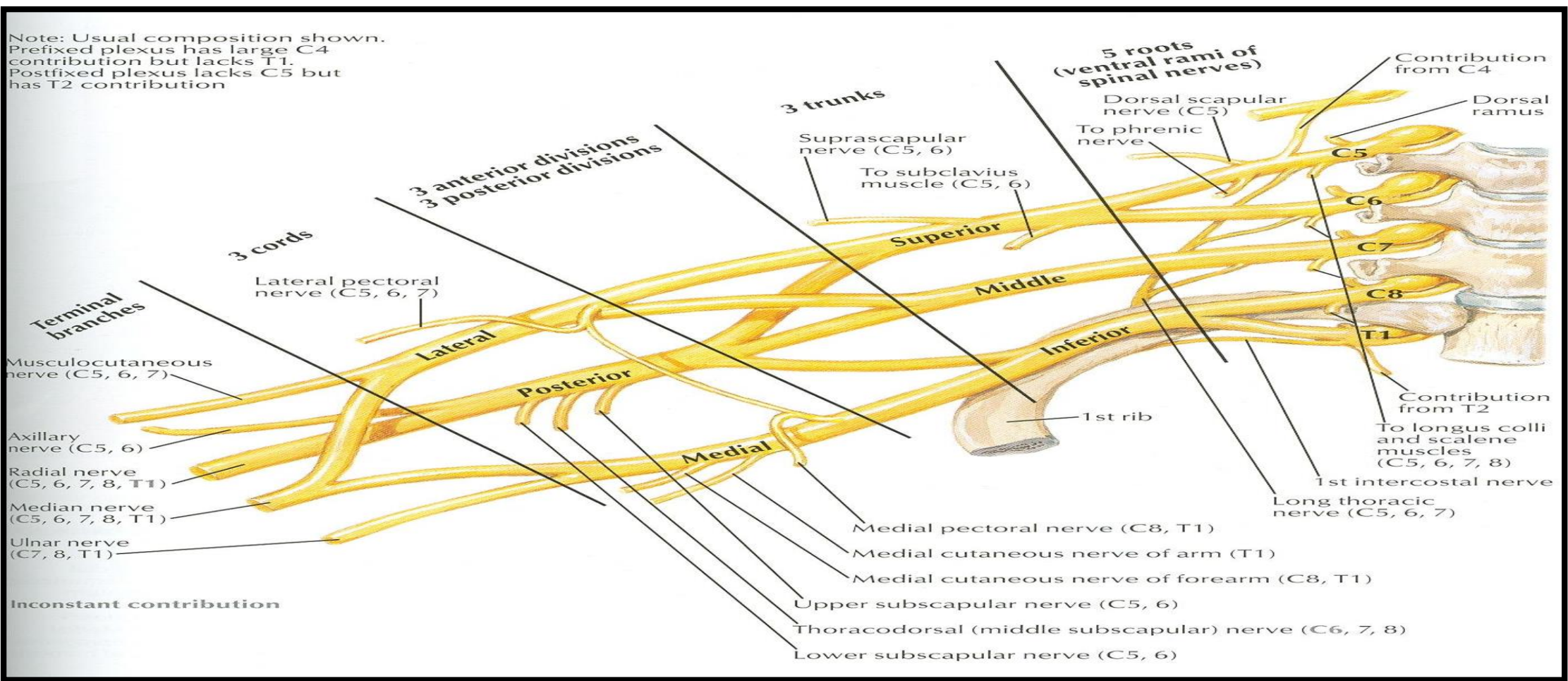
- **Roots** : in the posterior triangle of the neck
- **Trunks** : in the posterior triangle of the neck
- **Divisions** : behind the clavicle (apex of the axilla)
- **Cords** : **in the axilla**
- **Branches** : **in the axilla**

Note : the **first two** stages lie in **the posterior triangle**, while the **last two** stages lie **in the axilla**

Brachial Plexus



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



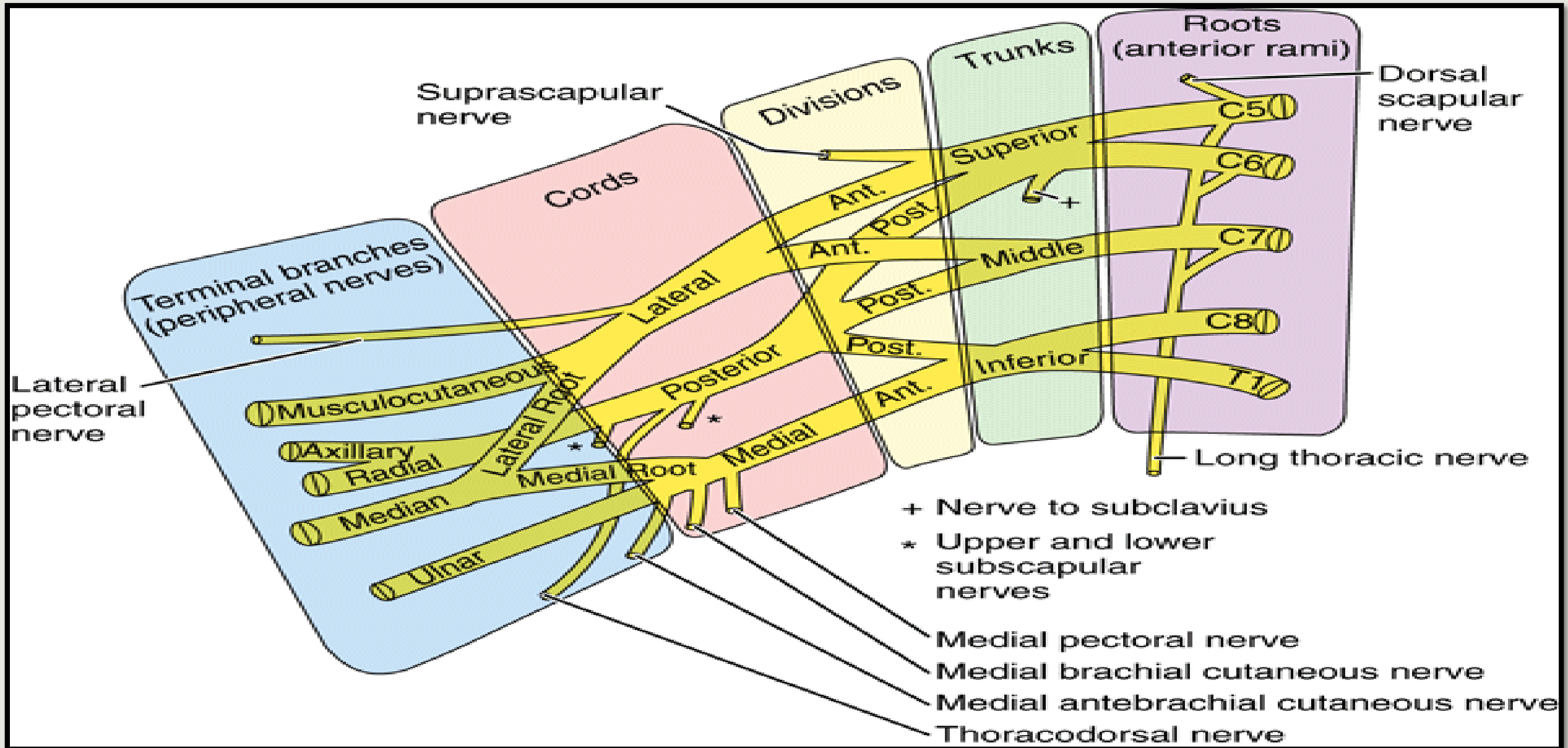
Brachial Plexus

Cords and divisions of Brachial Plexus:

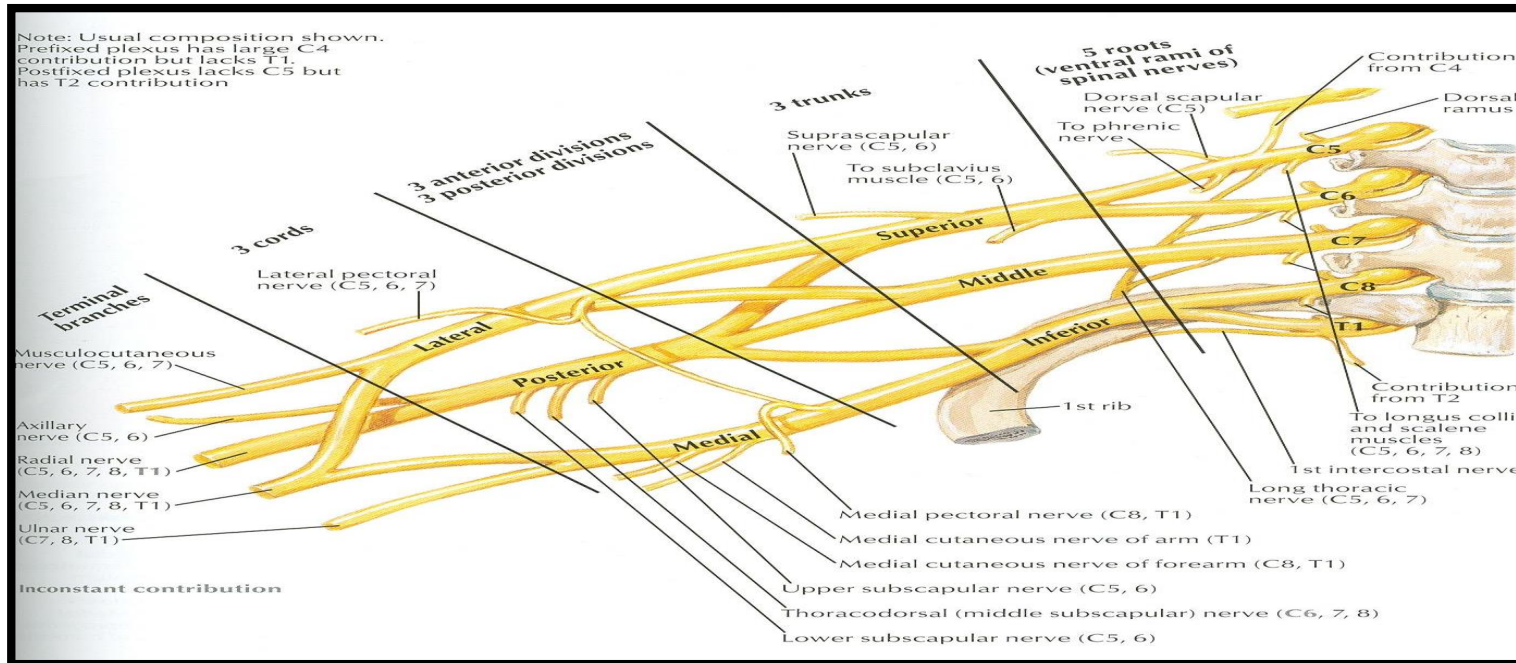
- The anterior division (C5-C7) of the upper (superior) and middle trunks unite to form the Lateral cord.
- The anterior division (C8,T1) of the lower(inferior) trunk continues as the medial cord.
- All the posterior (C5-C8,T1) divisions of three trunks form the posterior cord .



صورة أسهل للفهم



Brachial Plexus



Branches

- Lateral Cord (3) :**
- Lateral pectoral nerve.
 - Musculocutaneous nerve.
 - Lateral root of median nerve.

- Medial cord (5) :**
- Medial pectoral nerve.
 - Ulnar nerve.
 - Medial root of median nerve.
 - Medial cutaneous nerve of arm.
 - Medial cutaneous nerve of forearm.

- Posterior cord (5) :**
- Axillary nerve.
 - Radial nerve.
 - Upper subscapular nerve.
 - Lower subscapular nerve.
 - Thoracodorsal or nerve to latissimus dorsi.



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

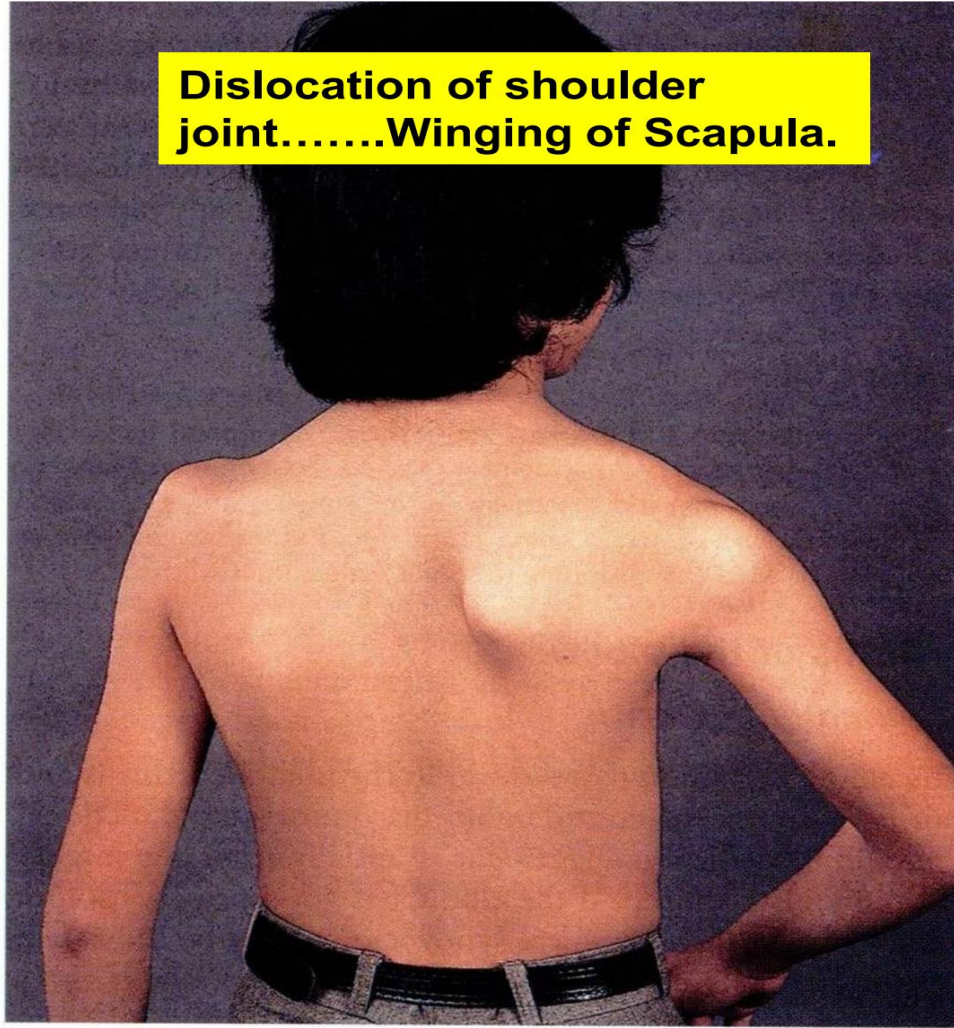
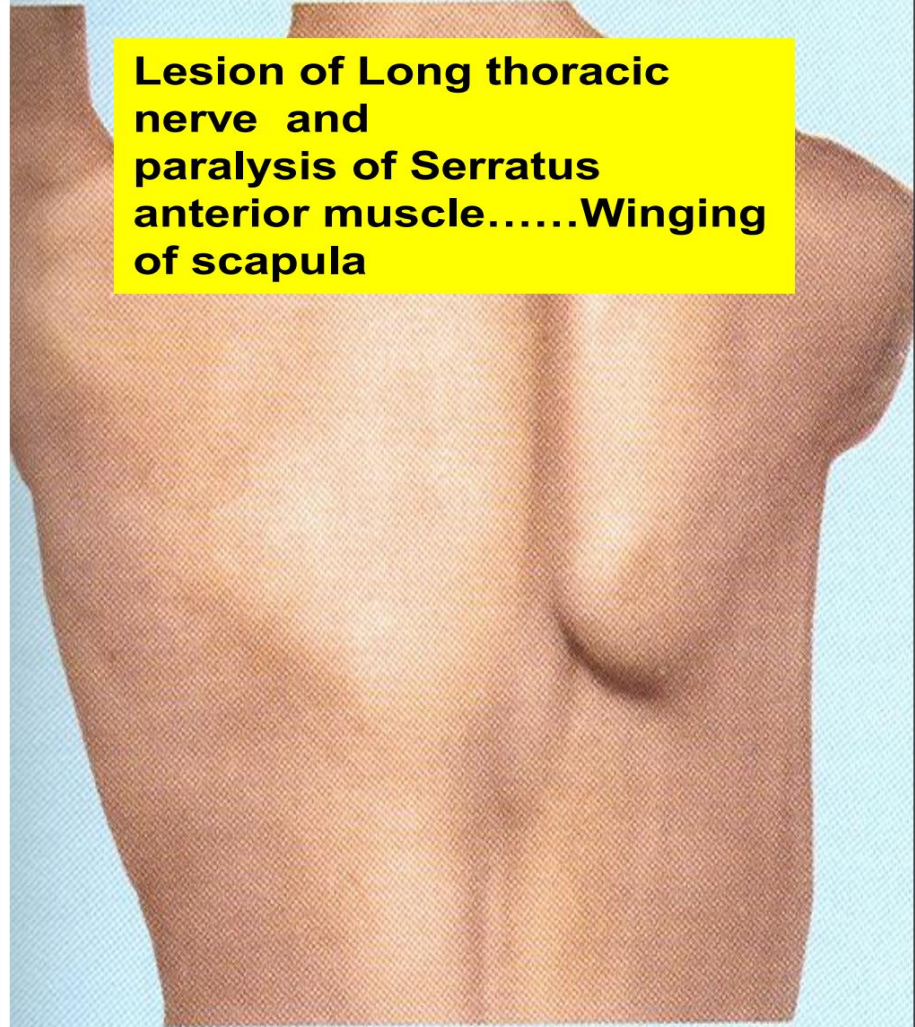


Fig. 22.15 Multidirectional voluntary dislocation of the shoulder. This 9-year-old boy can voluntarily dislocate his shoulder posteriorly.

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



Right winged scapula

Extra slide found in girls lecture

Summary:

- There are **4 muscles** of the **pectoral region** connecting the **upper limb** with **anterior and lateral thoracic wall**:
 - 1-Pectoralis major
 - 2-Pectoralis minor
 - 3-Subclavius
 - 4-Serratus anterior
- The axilla is a **4 side pyramid** located **between the upper part of arm and the side of the chest**, it has **4 walls** (anterior, posterior, medial and lateral), a **base**, and an **apex**.



- The axilla is an important space because **it transmits the neurovascular bundle from the neck and thorax to the upper limb**
- **It contains:**
 - a) **Axillary vessels**
 - b) Cords and branches of the **brachial plexus**
 - c) **Axillary lymph nodes**, all imbedded in the **axillary fat**



New Terminology

1-apex: القمة

*The Top Or Highest Part Of Something, Especially One Forming A Point
The Pointed End Of A Cone-shaped Part.*

2-Sheath: غمد او غطاء

a close-fitting cover for something, especially something that is elongated in shape



Video: Axilla anatomy

https://www.youtube.com/watch?v=C-om_Ubz6jU

Video: 2 minutes tutorial

<https://www.youtube.com/watch?v=0R-UmyjGVN0>



part.1 (15 questions)

<https://www.onlineexambuilder.com/brachial-plexus-part-1/exam-49544>

part.2 (7 questions)

<https://www.onlineexambuilder.com/brachial-plexus-part-2/exam-49554>

هذا العمل إجتهد من طلاب و طالبات
إن أصبنا فمن الله وإن أخطانا فمن أنفسنا و من الشيطان

TEAM MEMBERS:

Group (1) Leader:

Mohammed Al Ghamdi

Group(1) members:

Abdulaziz Al Hammad

Asem Al Wehaibi

Abdulrahman Al Shehri

Abdulaziz Al Saif

Abdulrahman Yaslam

Ibrahim Al Asous

Firas Al Momen

Mana Al Muhaideb

Hossam Al Ashhab

TEAM LEADERS:

Bodour julaidan

Elham Alzahrani

Abdullah Alfuraih

Editing Team (boys):

Khaled Al Jedia

Rawhdan Al Nahdi

Abdulwahab Sanari

- For questions and suggestions
you can contact us on
Anatomy435@gmail.com

