

# ***MSS Module***

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**Pectoral  
Region, Axilla  
& Female  
Breast**

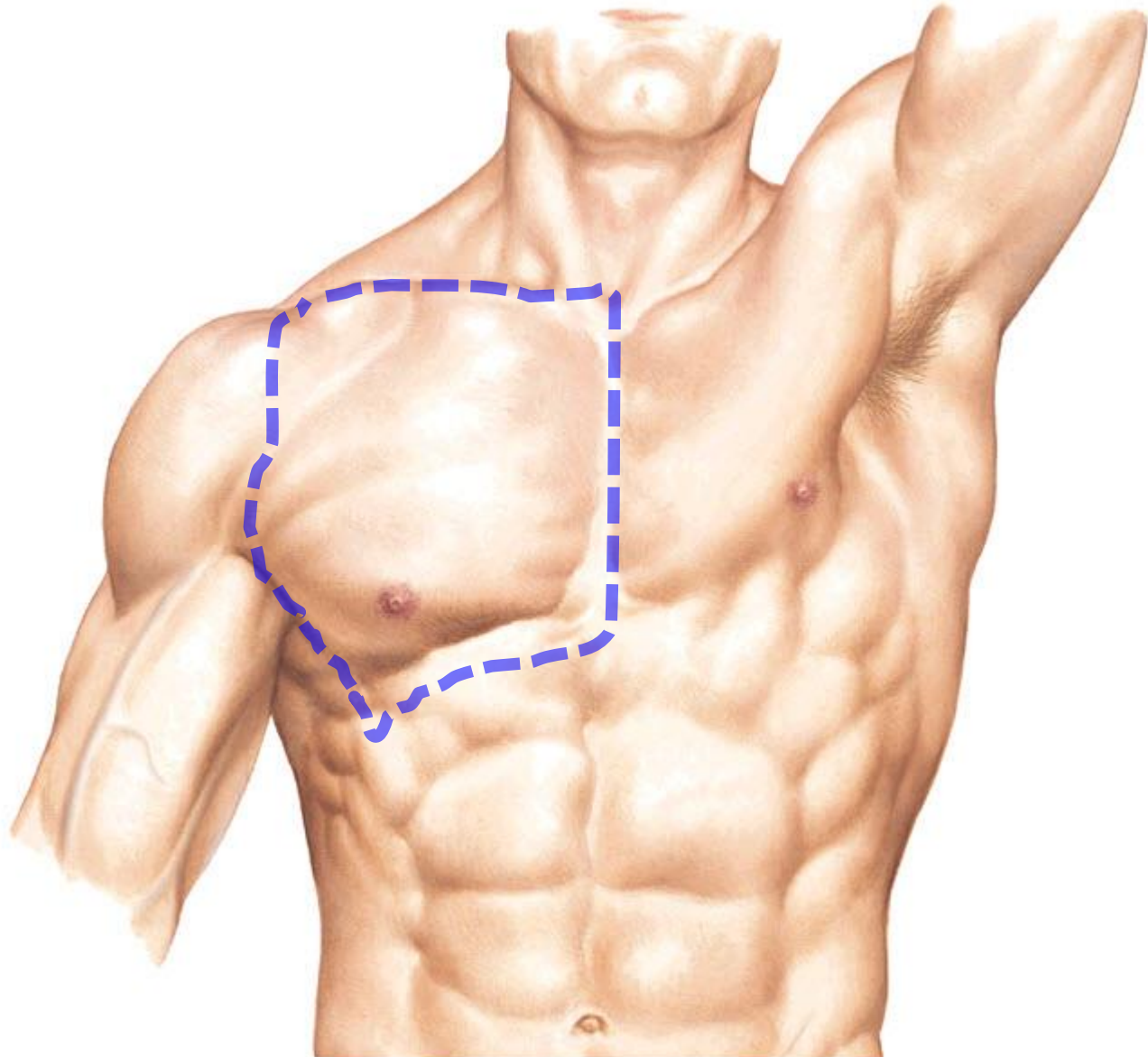


# ***Pectoral Region***

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- **By the end of this session, you should be able to:**
  1. Know the surface anatomy of the pectoral region.
  2. Recognize the different muscles in the region.
  3. Identify the nerve supply and the blood supply relevant to the area.
  4. Identify the anatomy of female breast in relevance to its lymphatic drainage

# ***Surface Anatomy***



# Surface Anatomy

## Pectoral region

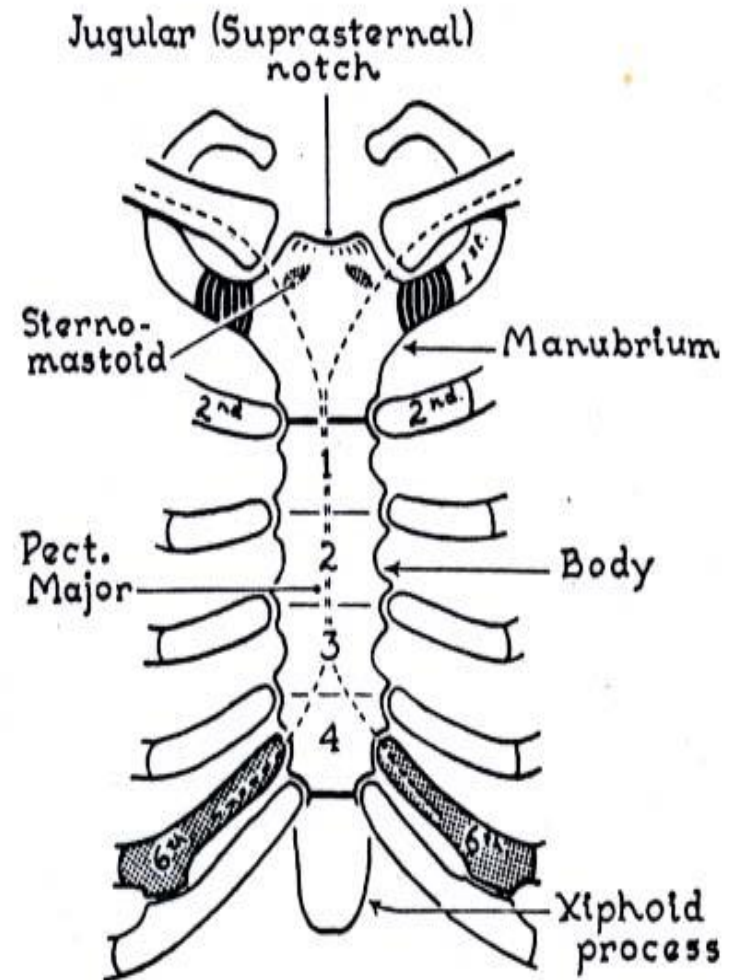
### Bony Landmarks

**Sternum:** Jugular notch  
(body of T2)

Sternal angle of Louise  
(T4-5)

Xiphosternal joint (T9)

In addition to  
Ribs & costal cartilage till  
the Anterior Axillary Fold



# *Superficial Structures*

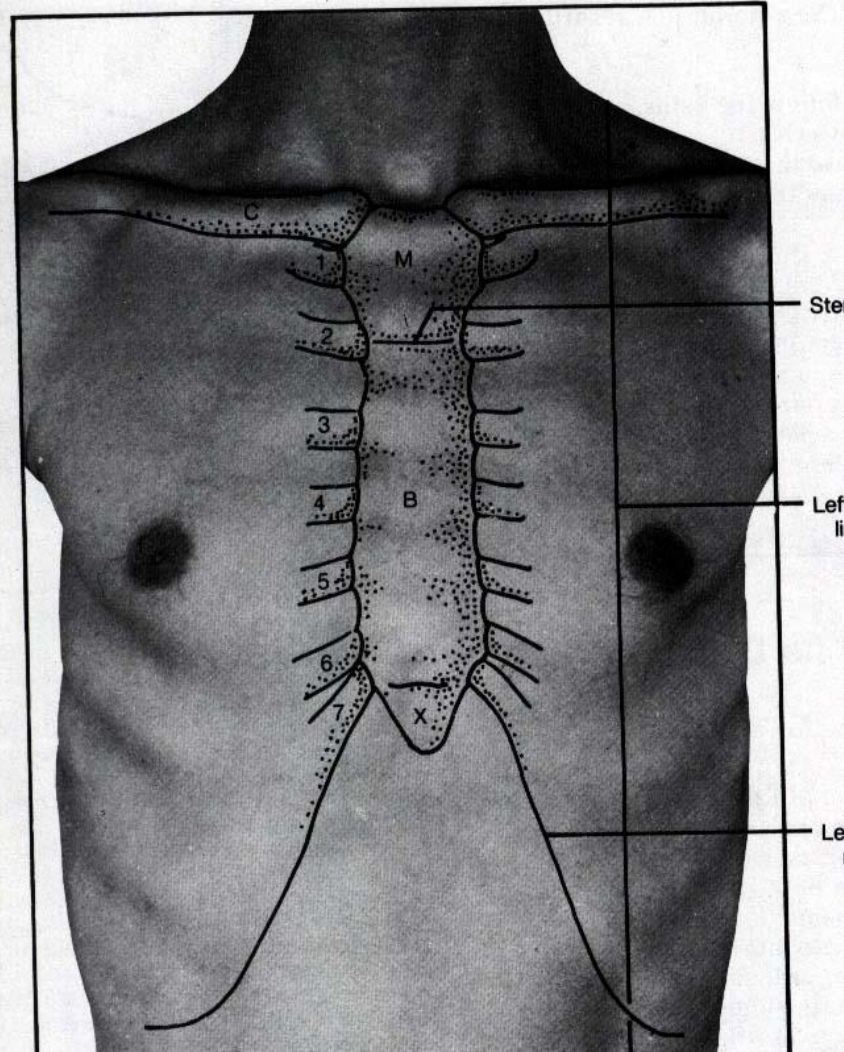
Skin & derivative of skin  
(breast)

**Breast** : nipple, areolar,  
mammary gland (♀)

**Surface Anatomy**  
*(position):*

**Nipple** – 4-5 inches from the  
midline, 4<sup>th</sup> intercostal space

**Breast** – between rib 2-7



# ***Pectoral Fascia***

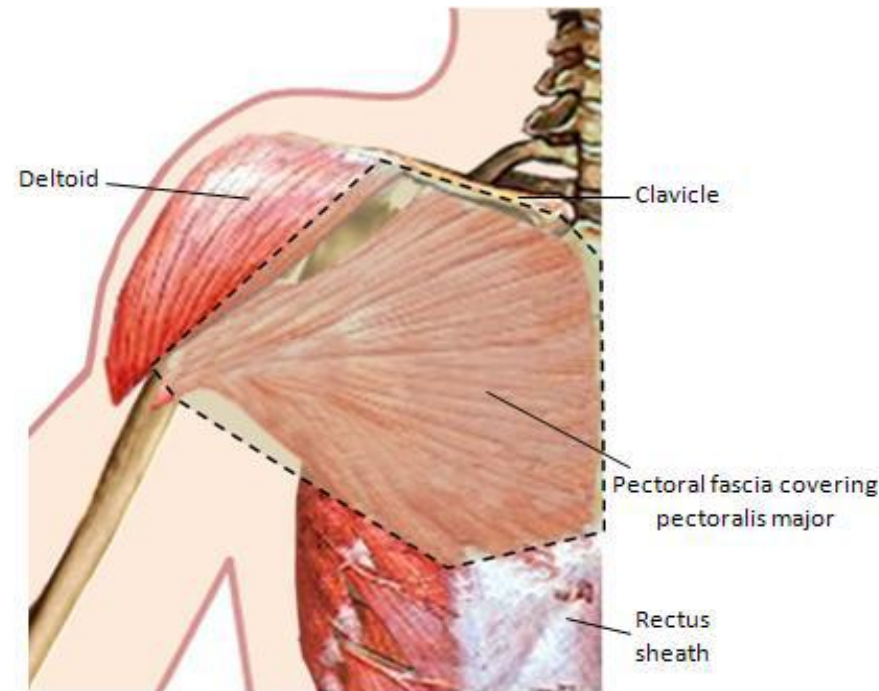
## ***Attachments:***

***Superiorly:*** to the clavicle.

***Inferiorly:*** Till the fibrous sheath of the Rectus Abdominis.

***Medially:*** to the front of the sternum.

***Laterally:*** continuous with fascia that covers the deltoid muscle (shoulder).



# ***Pectoralis Major***

**Origin : 2 heads**

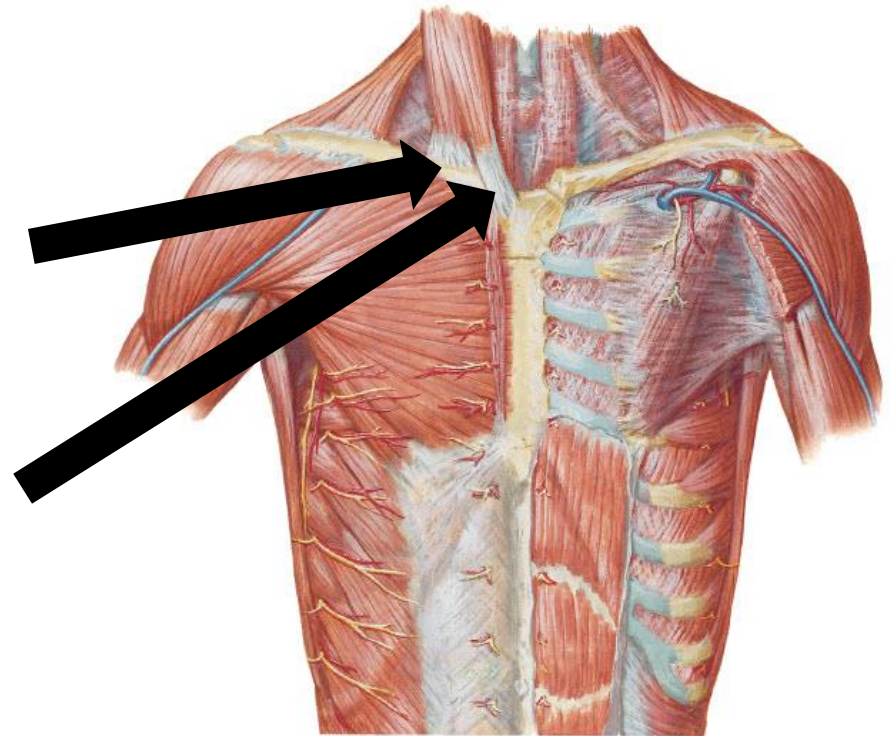
## **Clavicular head:**

- From medial 1/2 of the front of the clavicle.

## **Sternocostal head:**

**From;**

- Sternum.
- Upper 6 costal cartilages.
- Aponeurosis of external oblique muscle.



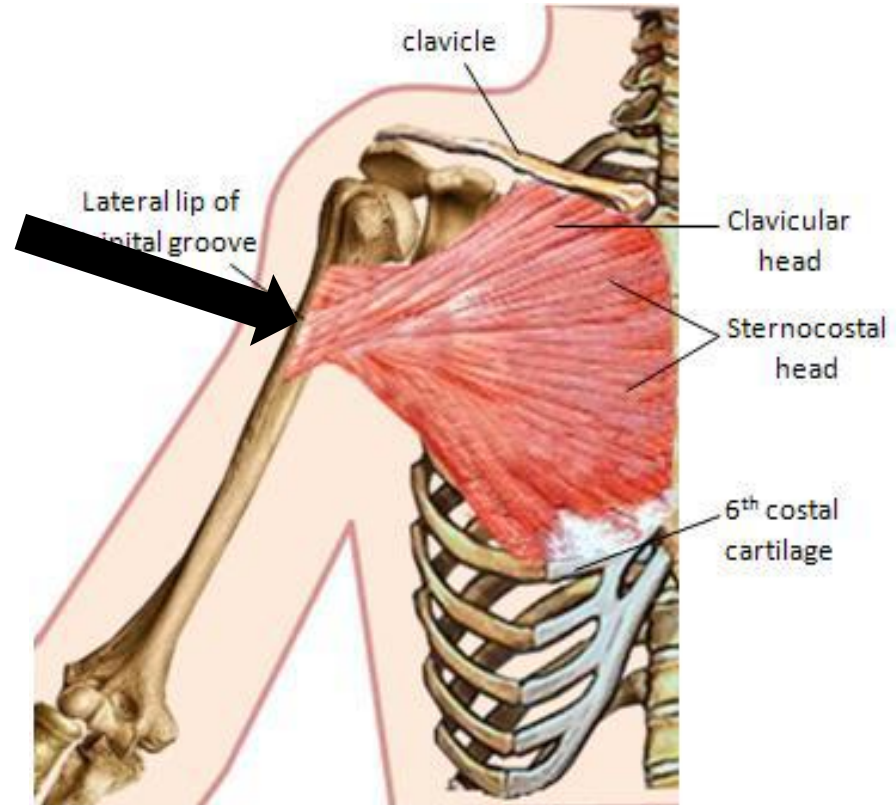
# ***Pectoralis Major***

## ***Insertion:***

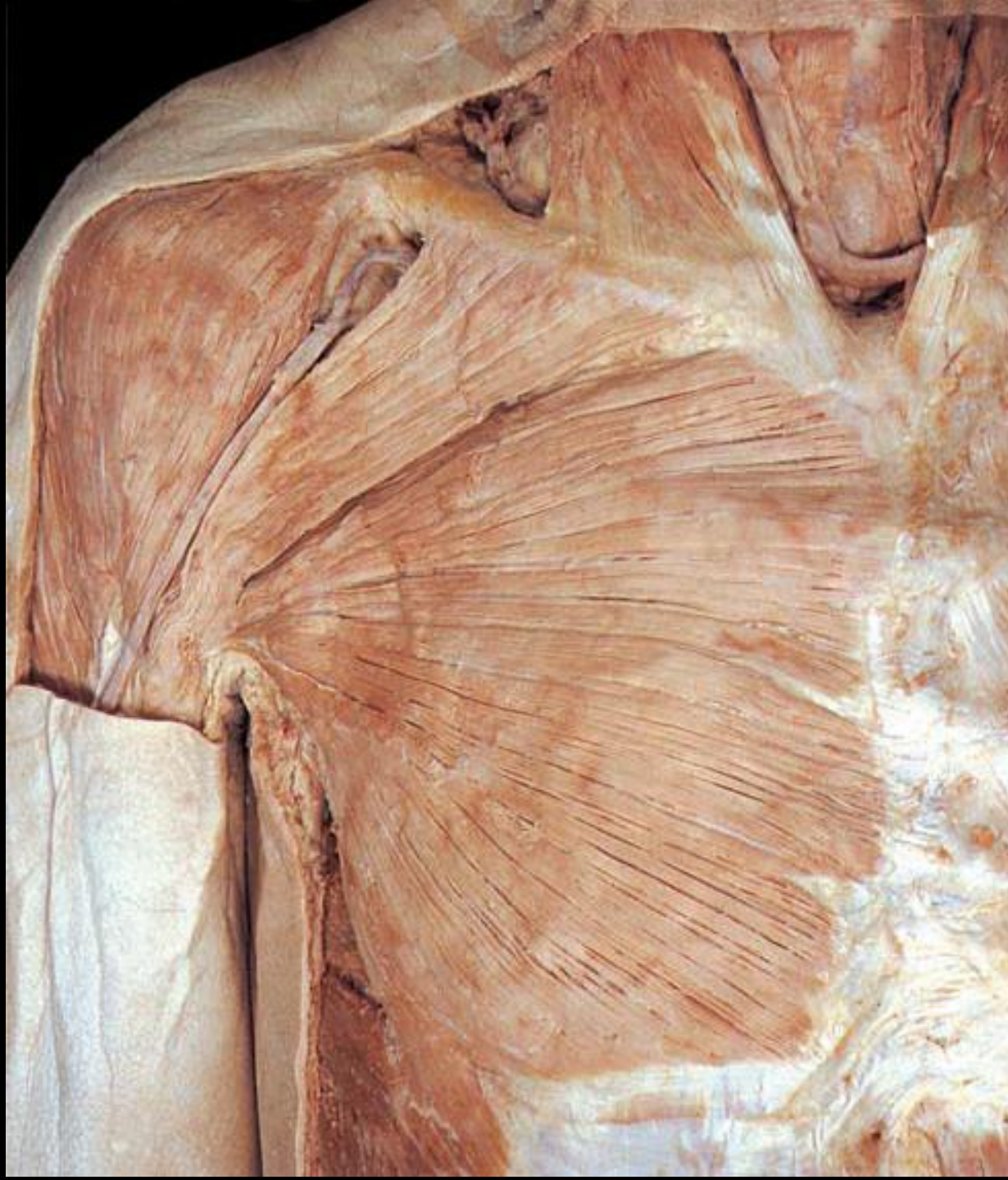
- Lateral lip of bicipital groove forming *Anterior Axillary fold* on its way.

## ***Nerve supply :***

- Medial & lateral pectoral nerves.



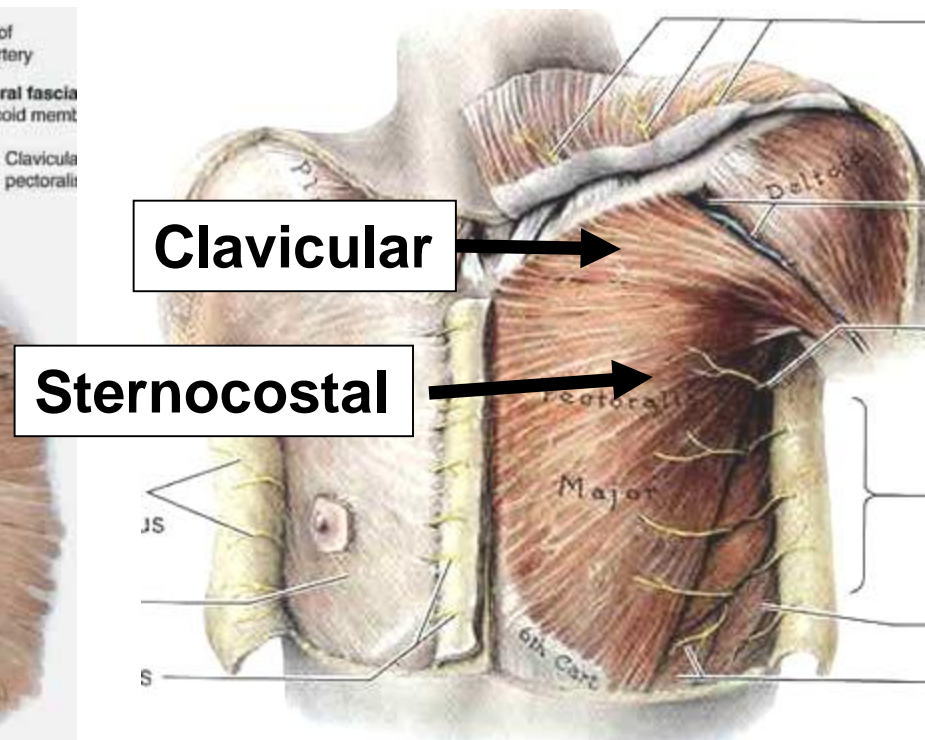
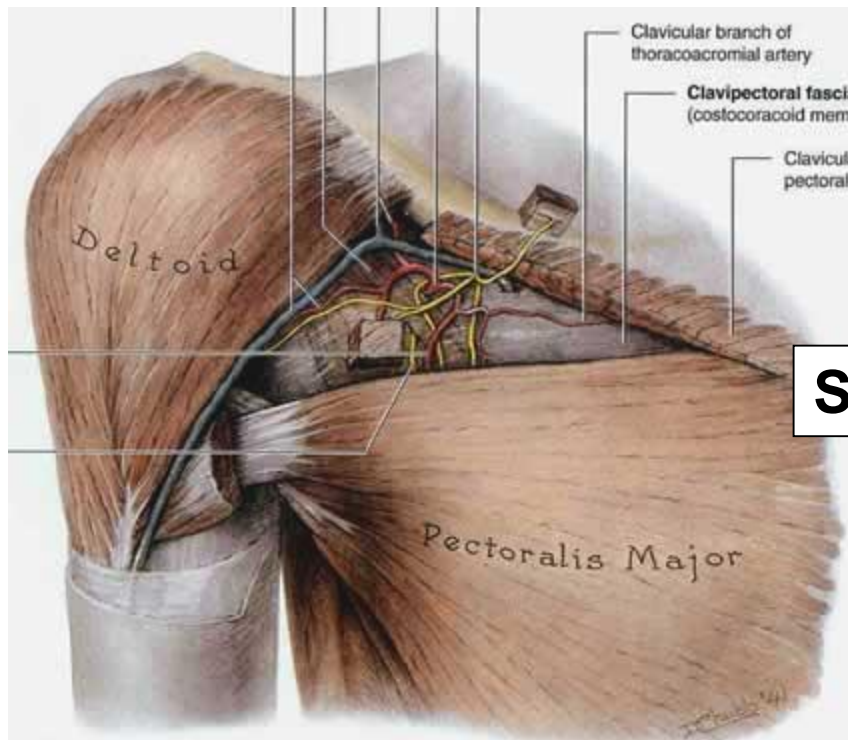




# ***Pectoralis Major - Action***

**Both Parts (Adduction, Medial Rotation)**

- 1. Clavicular head (Flexion)**
  - 2. Sternocostal head (Obliquely adducts the humerus towards the opposite hip. )**
- **The pectoralis major is one of the main climbing muscles, pulling the body up to the fixed arm.**



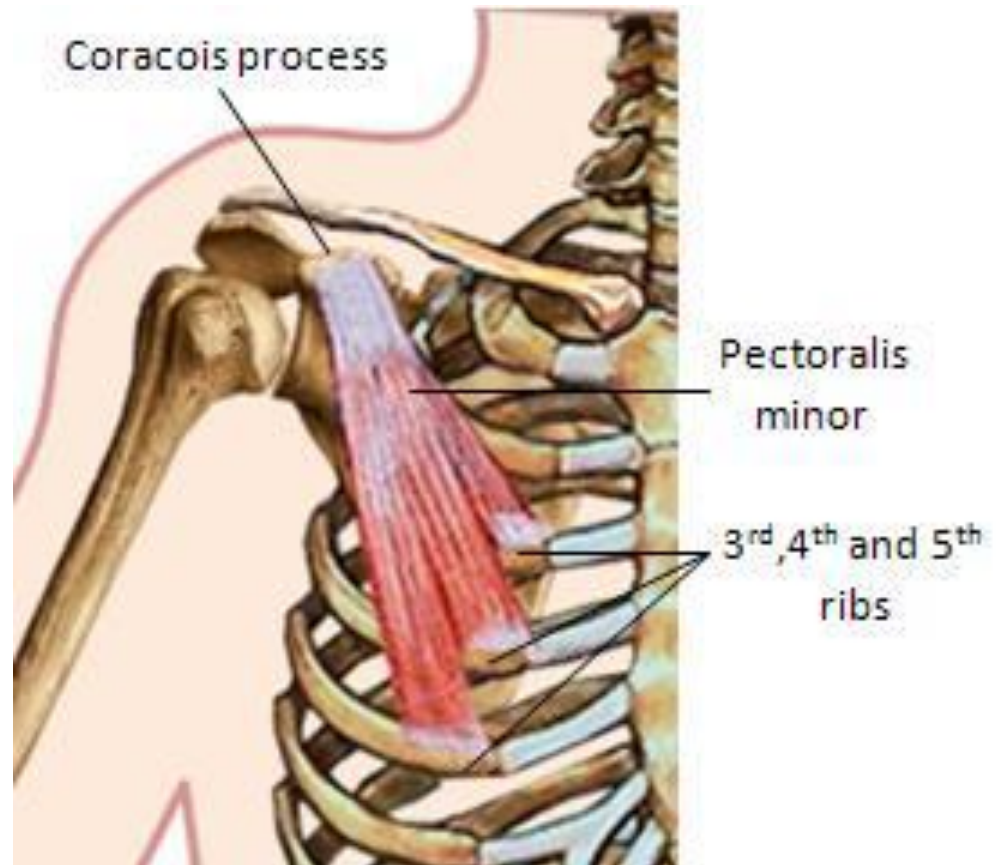
# ***Pectoralis Minor***

- ***Origen:***

3<sup>rd</sup>, 4<sup>th</sup> & 5<sup>th</sup> ribs (just lateral to costal cartilages).

- ***Insertion:***

Upper surface and medial border of coracoid process.



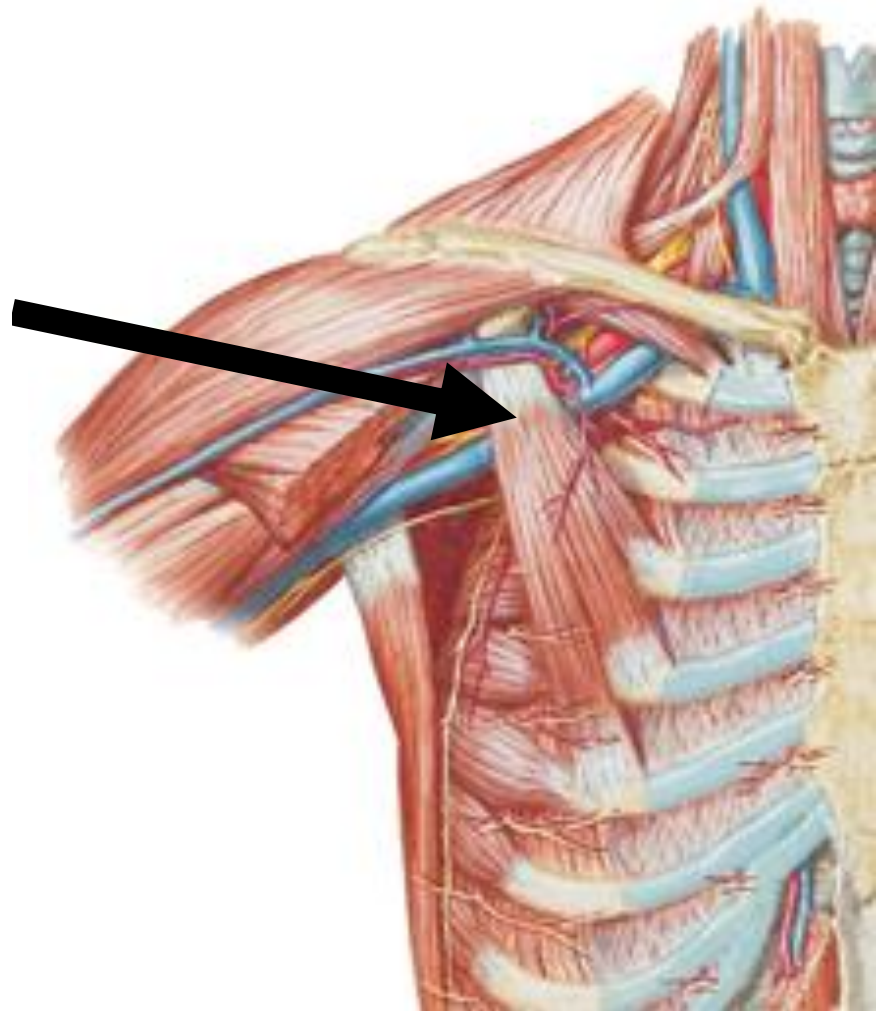
# ***Pectoralis Minor***

## ***Action:***

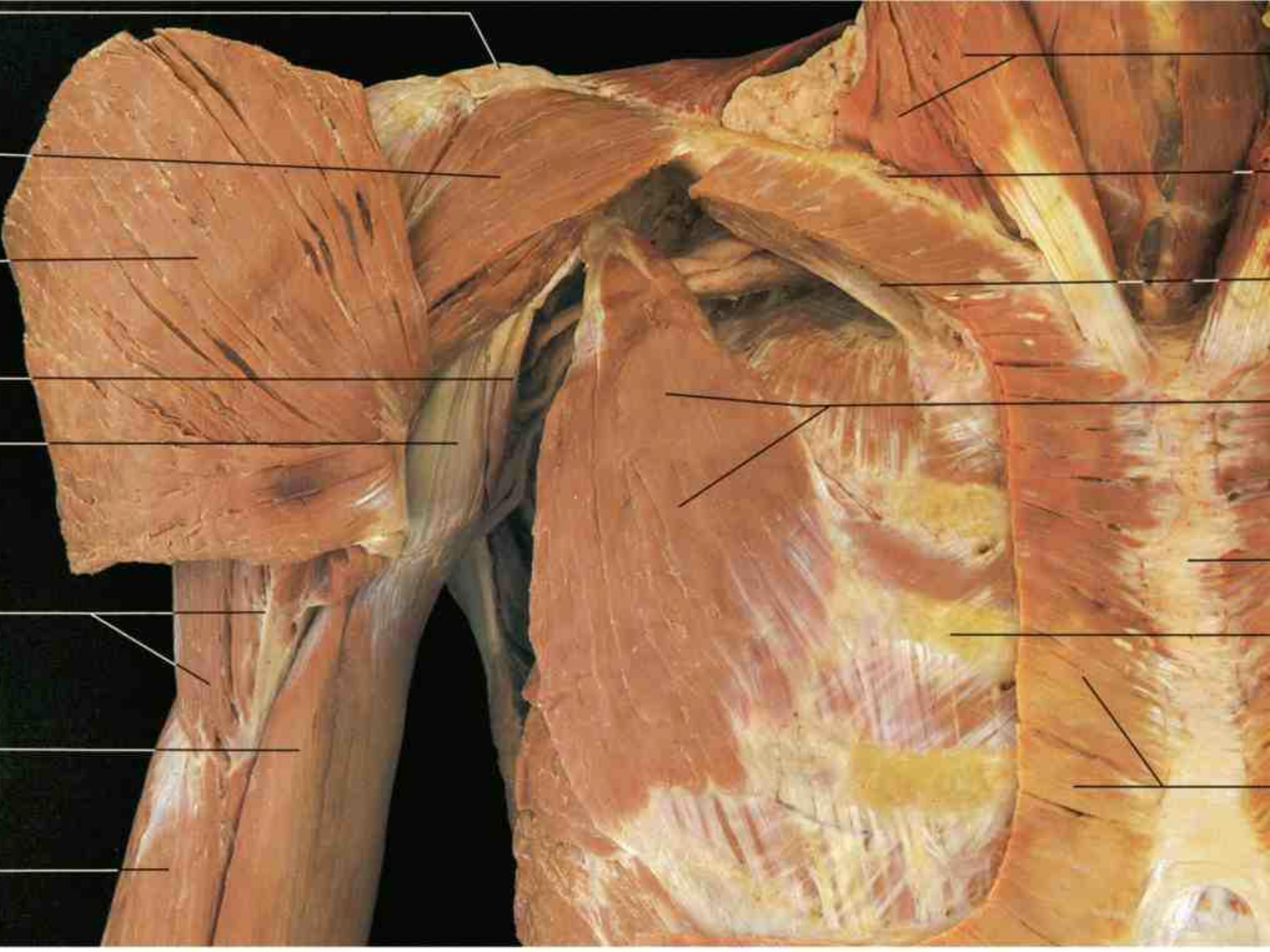
- Protraction and depression of scapula and a guide to the axilla

## ***Nerve Supply:***

- Medial Pectoral Nerve & Lateral Pectoral nerve.







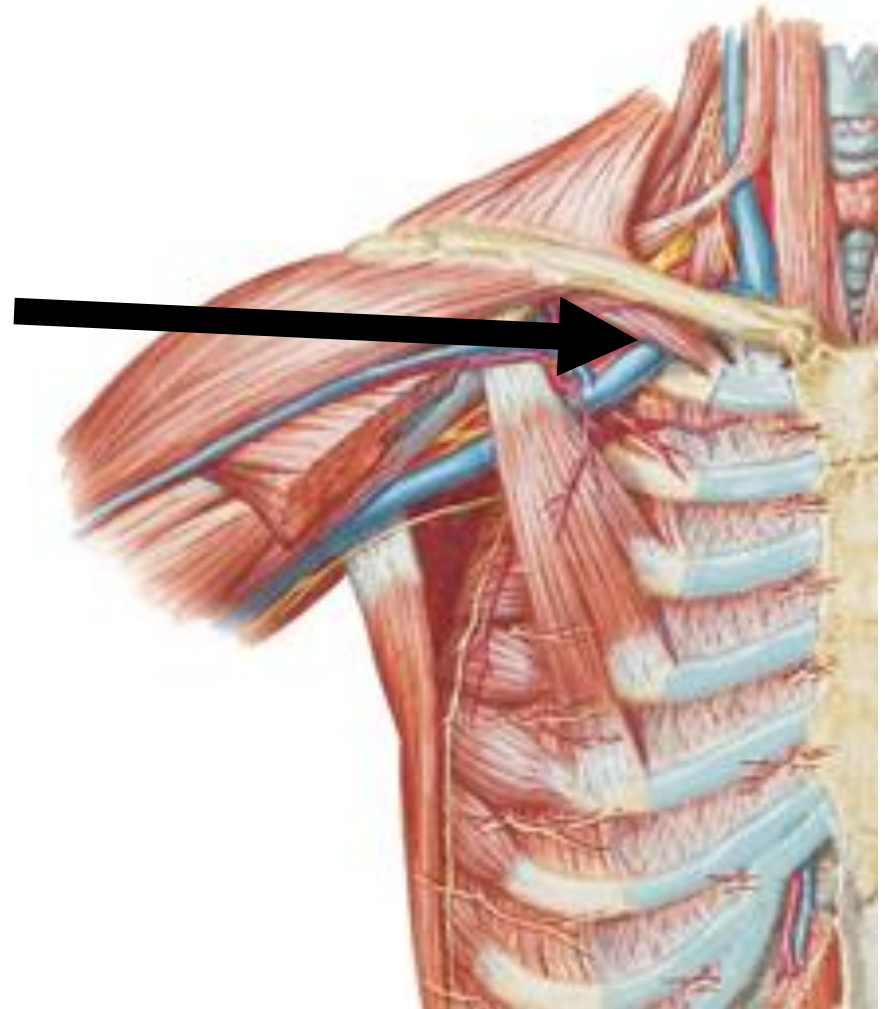
# *Subclavius Muscle*

## Origin :

- From 1<sup>st</sup> rib at its junction with the 1<sup>st</sup> costal cartilage.

## Insertion:

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



# ***Subclavius Muscle***

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## **Nerve supply:**

- Nerve to subclavius from upper trunk of brachial plexus.

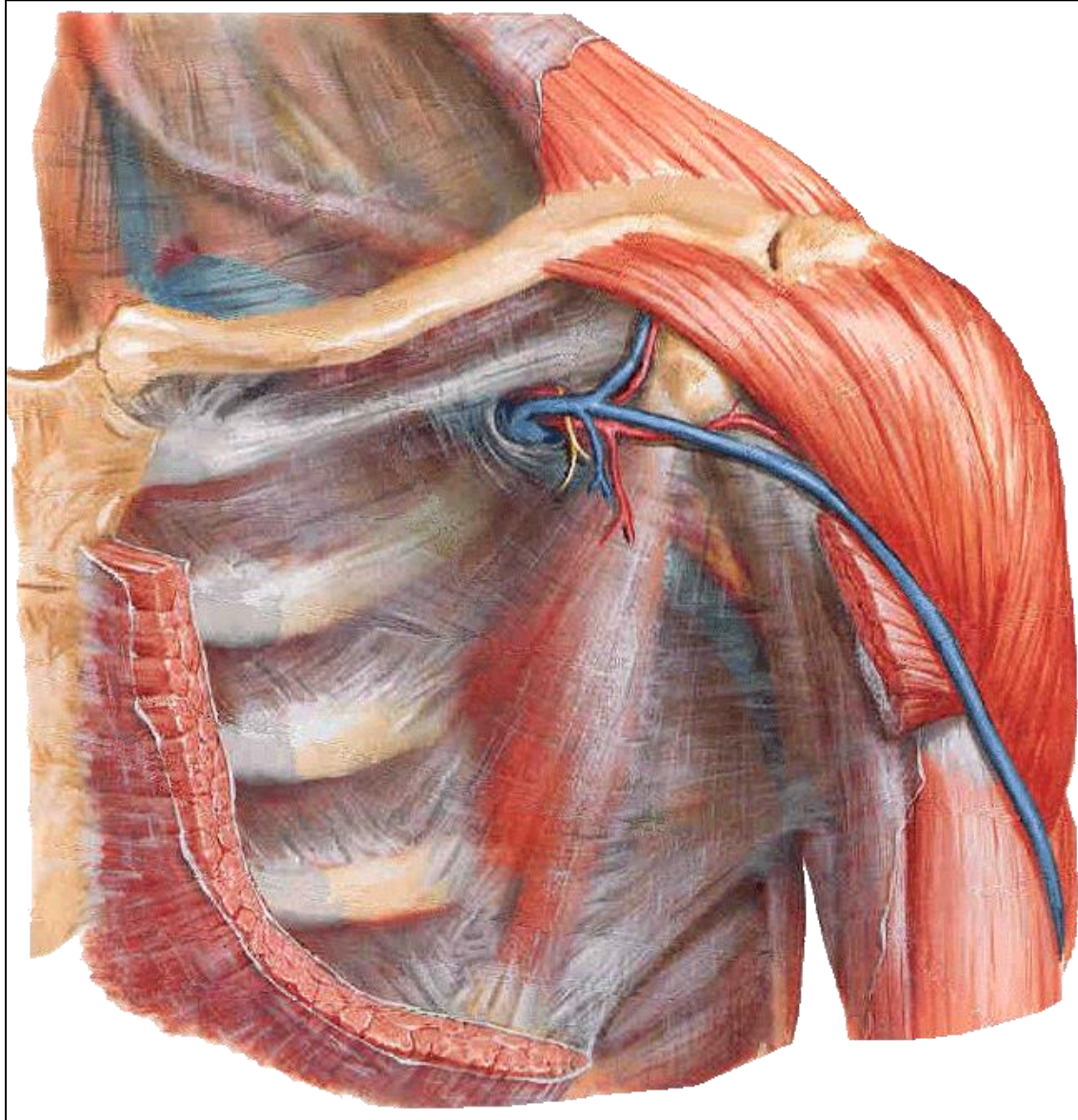
## **Action:**

- Fixes the clavicle during movement of shoulder joint.





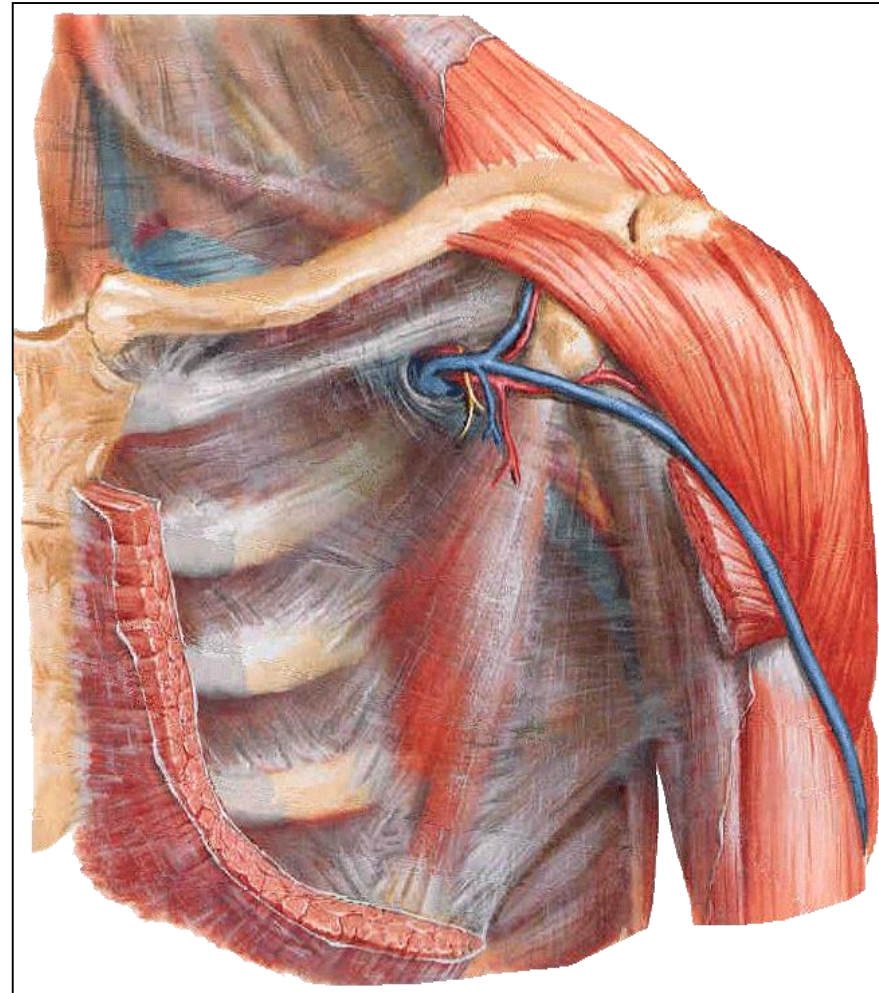
# ***Clavipectoral Fascia***



# *Clavipectoral Fascia*

## *Attachments:*

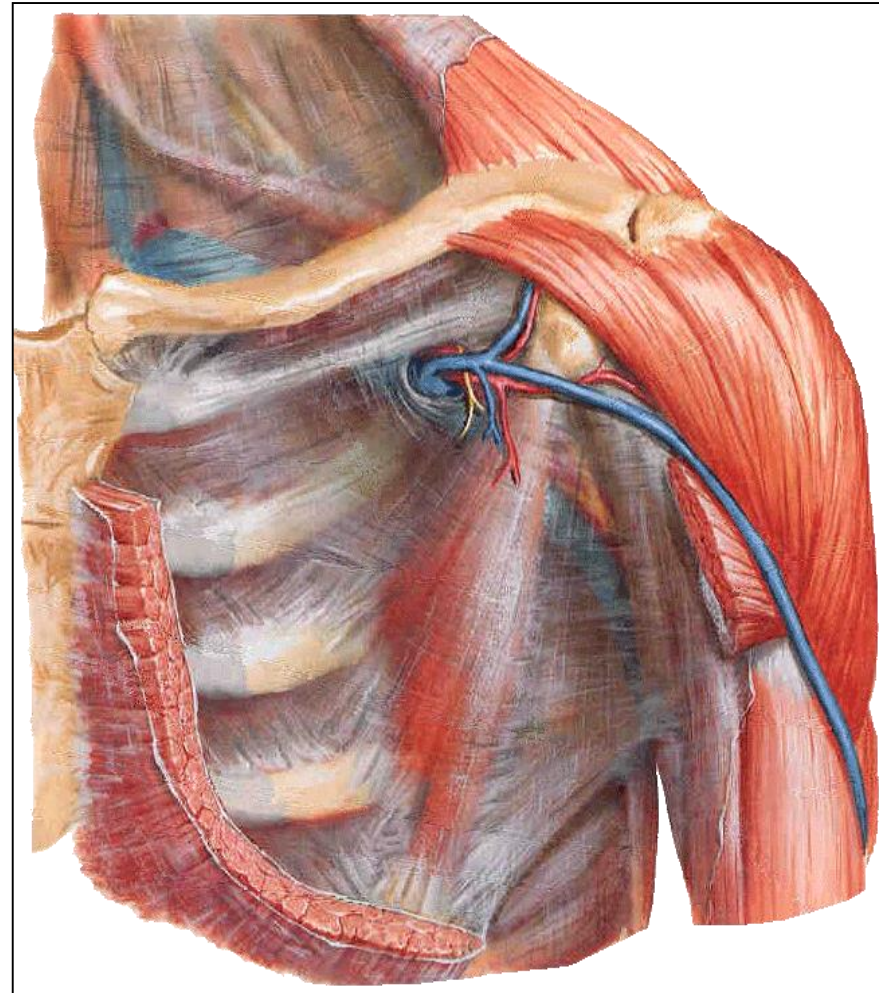
- ***Superiorly:*** It splits to enclose the subclavius groove.
- ***Inferiorly:*** It splits to enclose the pectoralis minor muscle. Then continue as the suspensory ligament of the.



# *Clavipectoral Fascia*

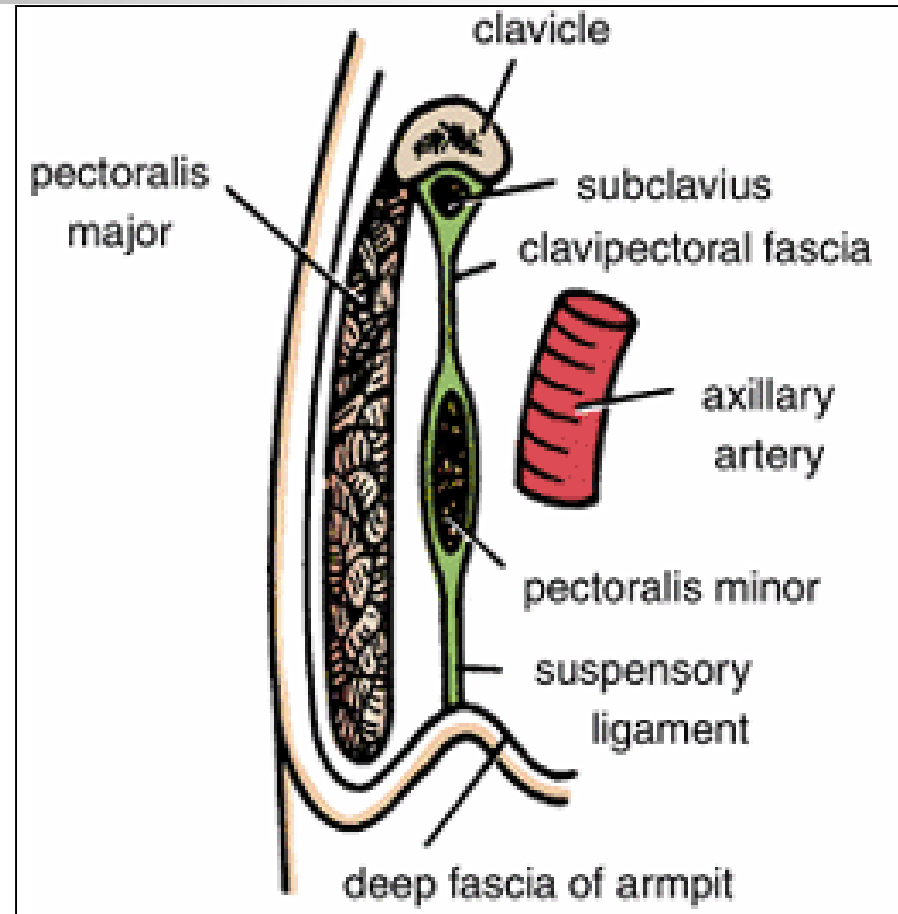
## *Attachments:*

- ***Medially:*** It blends with fascia over the first two intercostal spaces and is attached to the 1st rib
- ***Laterally:*** it is thick and dense and is attached to the coracoid process.



# *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.



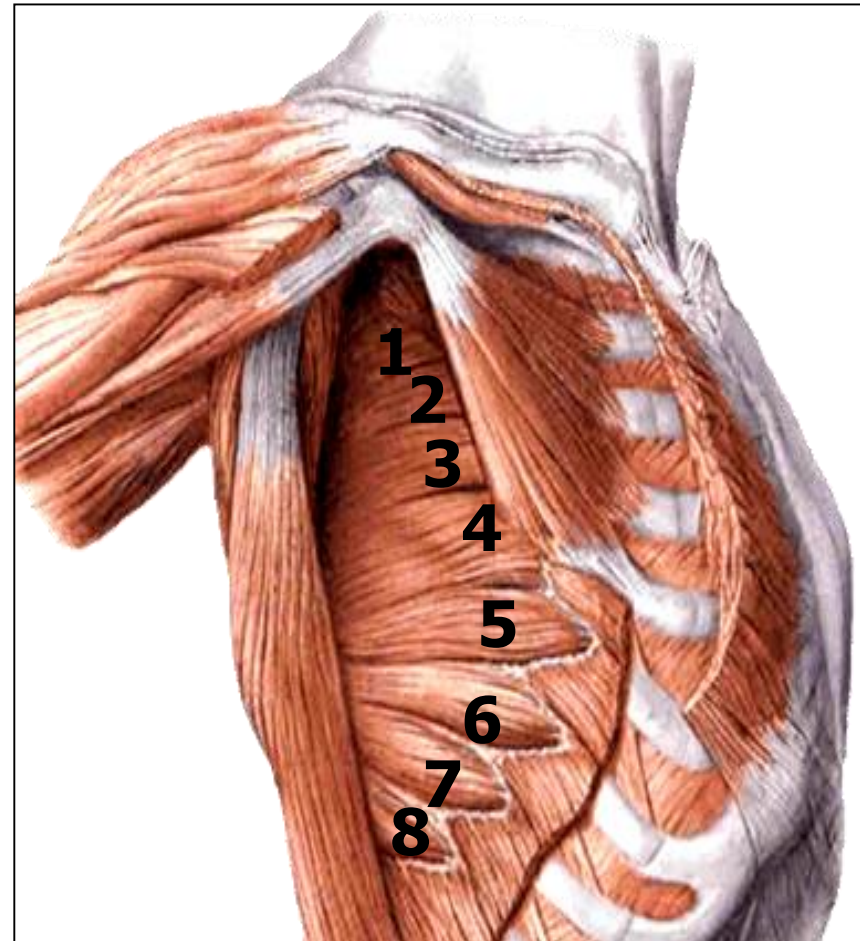
# *Serratus Anterior Muscle*

## Origin:

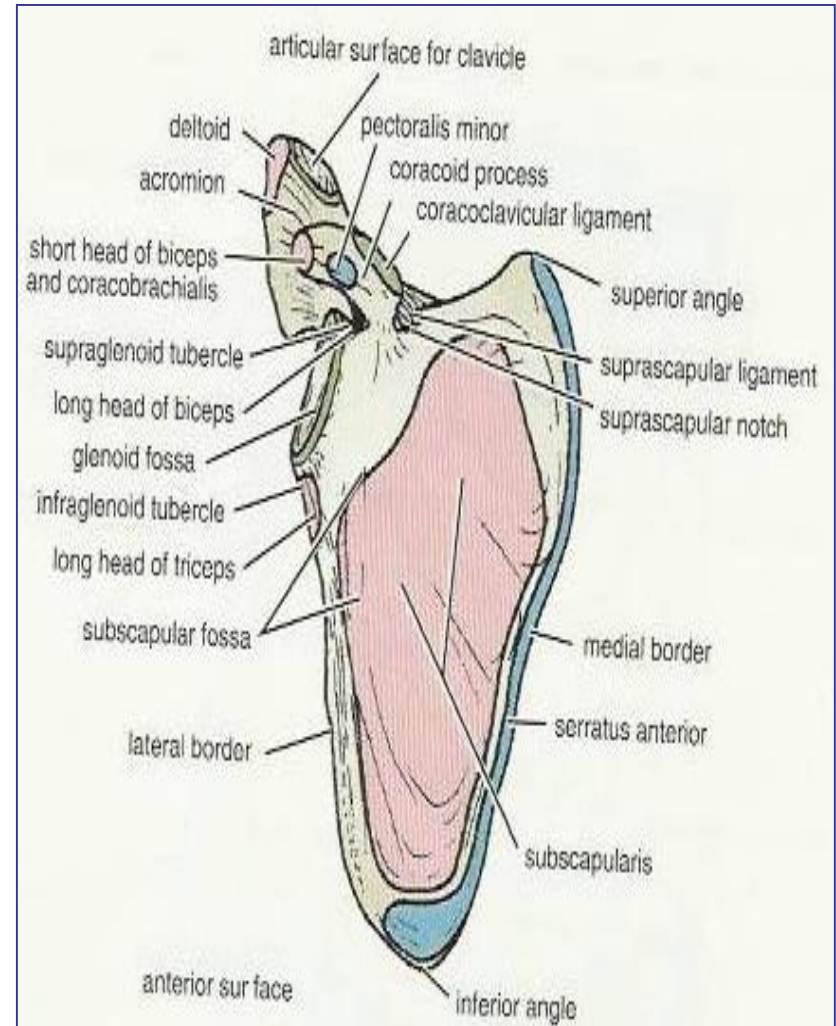
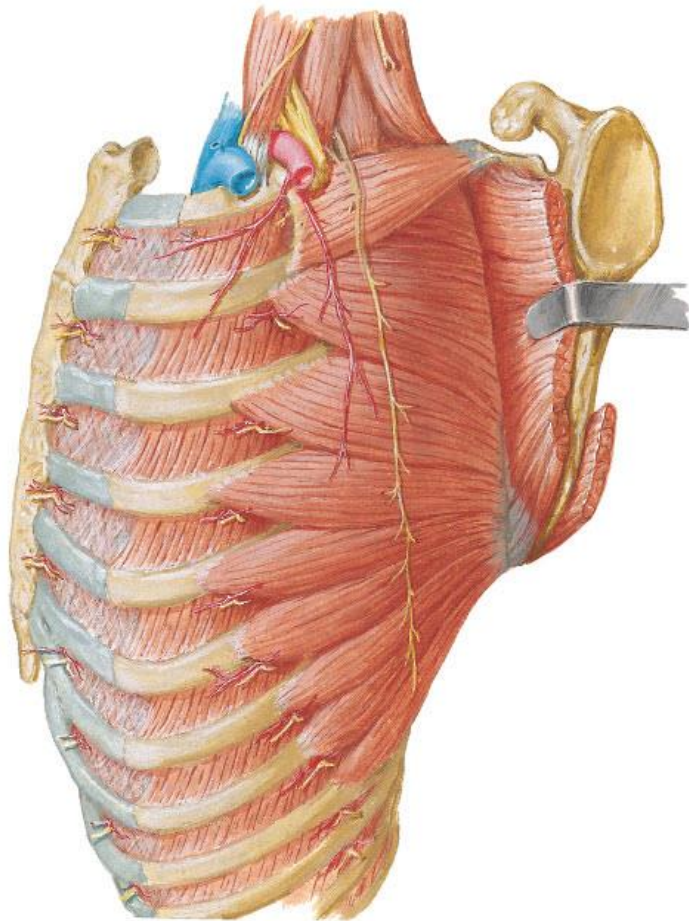
- Upper eight ribs.

## Insertion:

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



# ***Serratus Anterior Muscle***



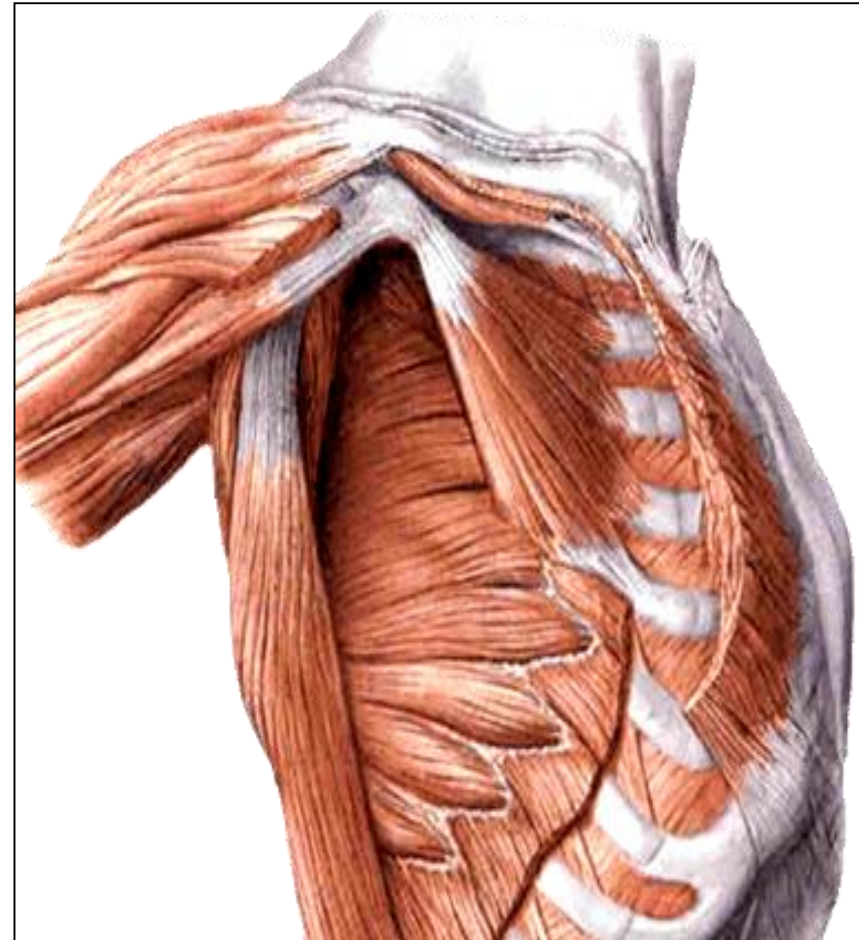
# *Serratus Anterior Muscle*

## Nerve supply:

- Long thoracic nerve.

## Action:

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









# *Winging of Scapulla*

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- A **winged scapula** is a skeletal medical condition in which the shoulder blade, or shoulder bone, protrudes from a person's back in an abnormal position.
- This is typically due to damage (i.e. lesions) of the long thoracic nerve. This nerve supplies the serratus anterior, which is located on the side of the thorax and acts to pull the scapula forward

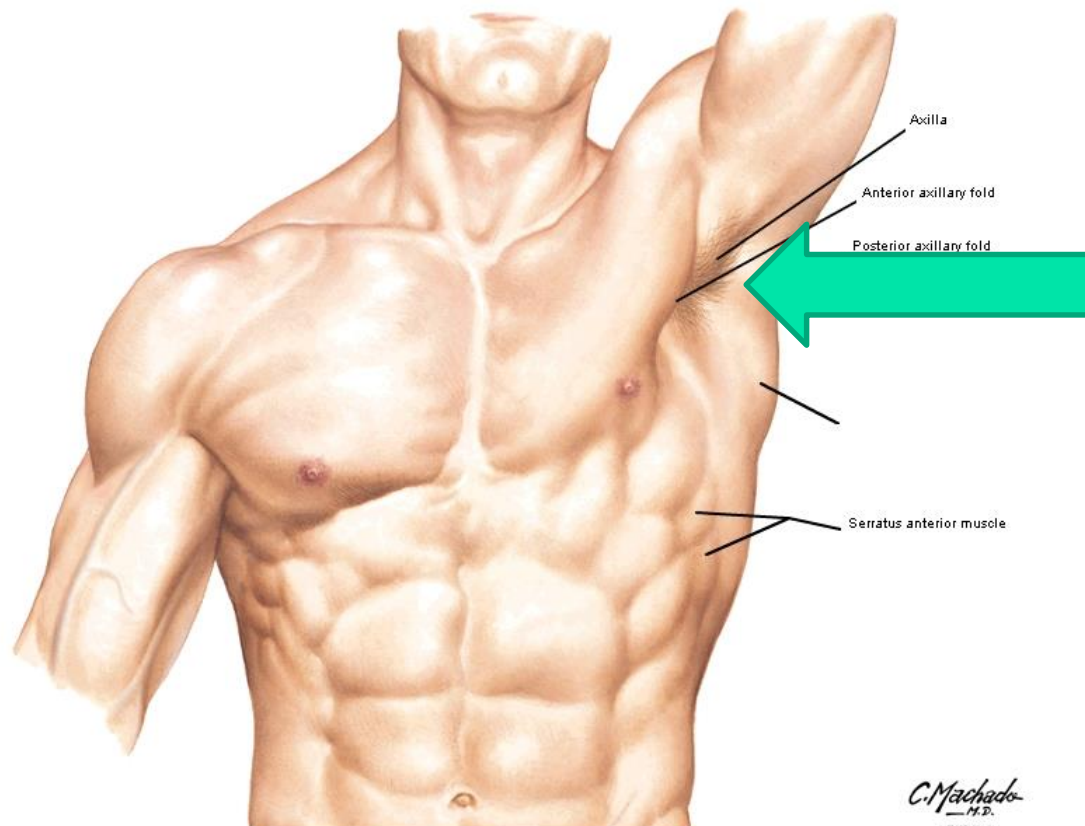






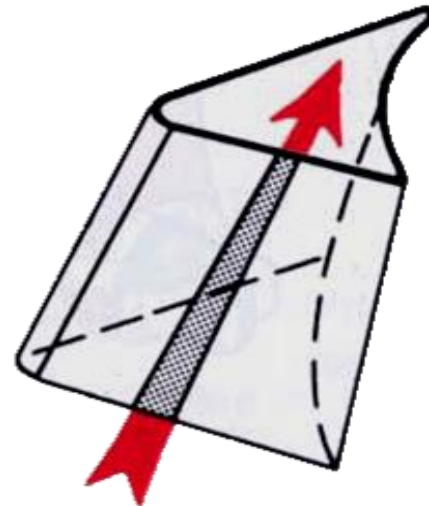
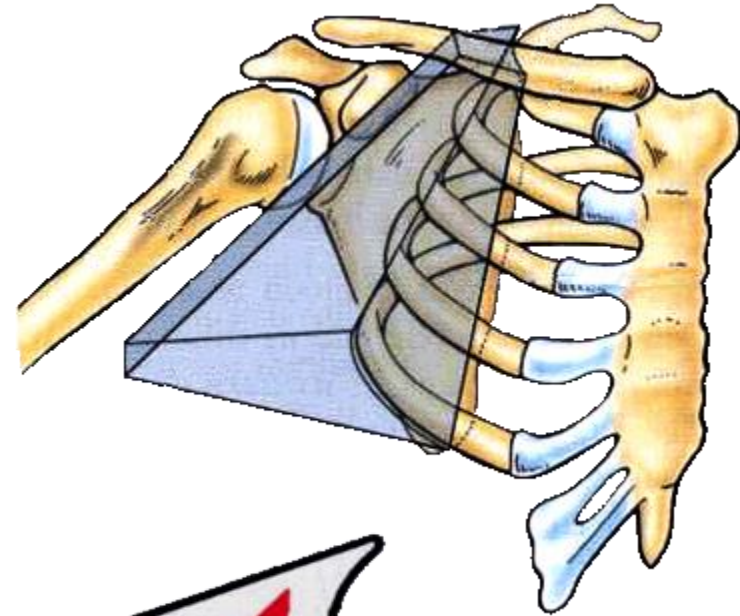
# ***Axilla (Armpit)***

Thorax



# *Axilla*

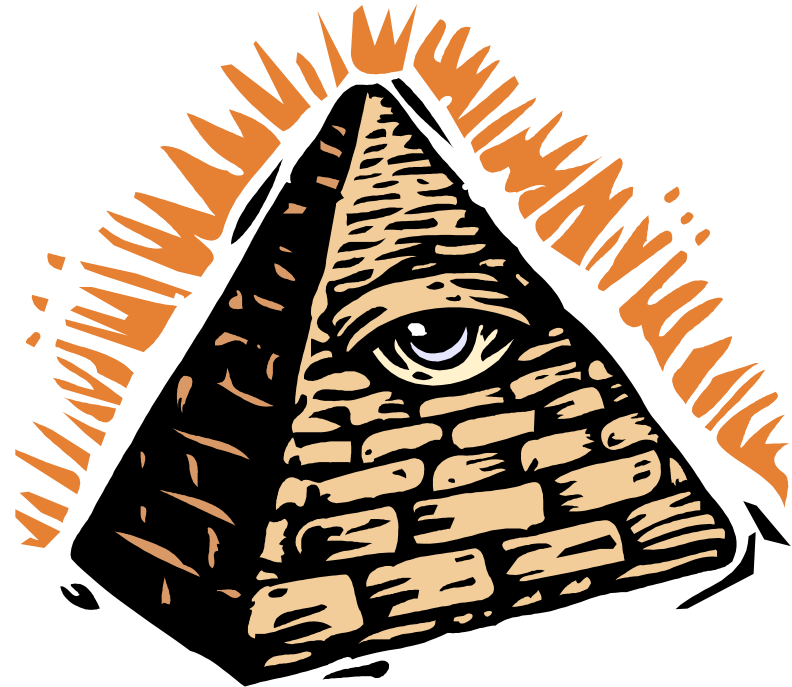
- A pyramid-shaped space between the upper part of the arm and the side of the chest through which major **neurovascular** structures pass between neck & thorax and upper limbs.
- Axilla has an **apex**, a **base** and **four walls**.

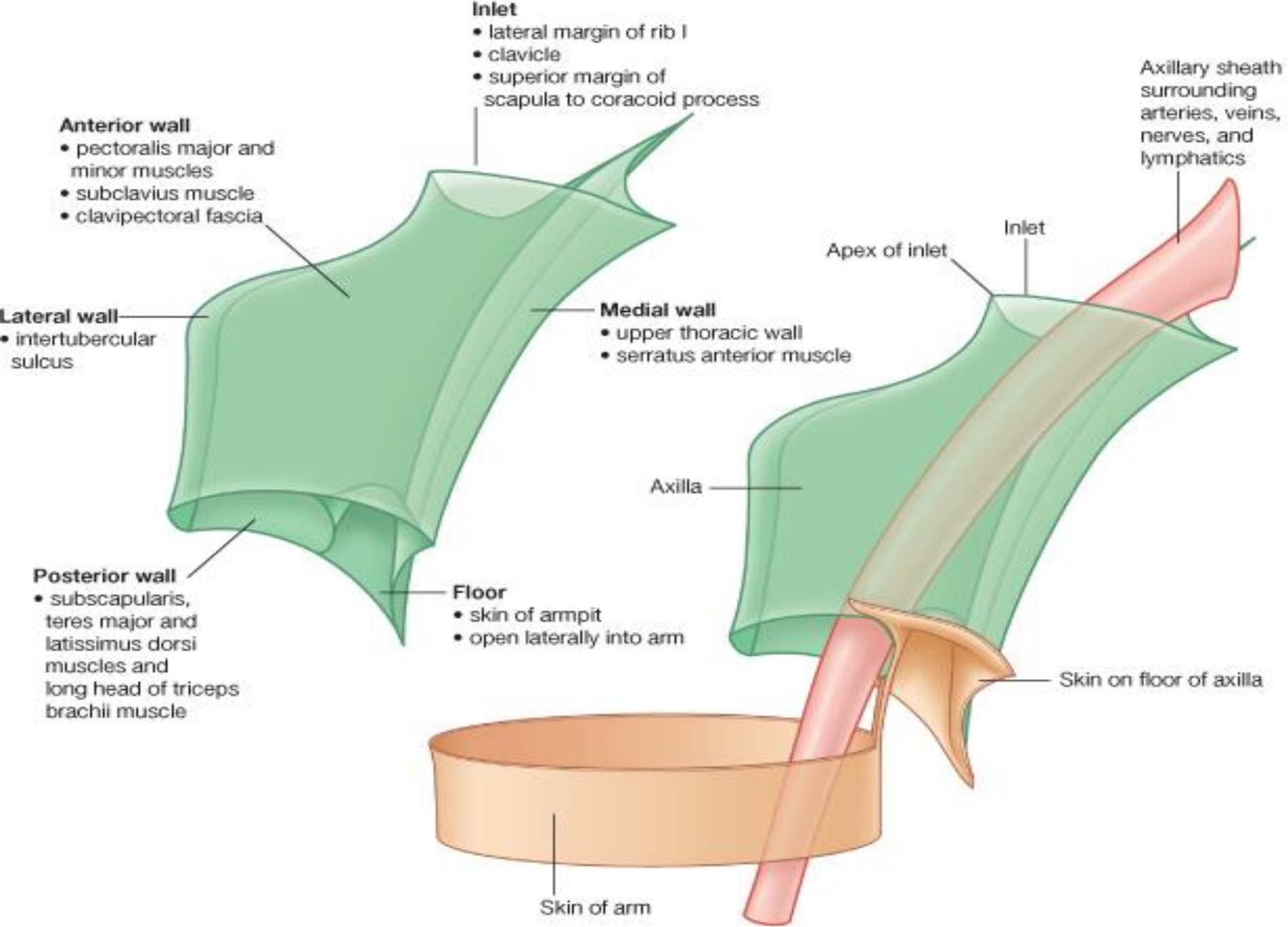


# *Axilla*

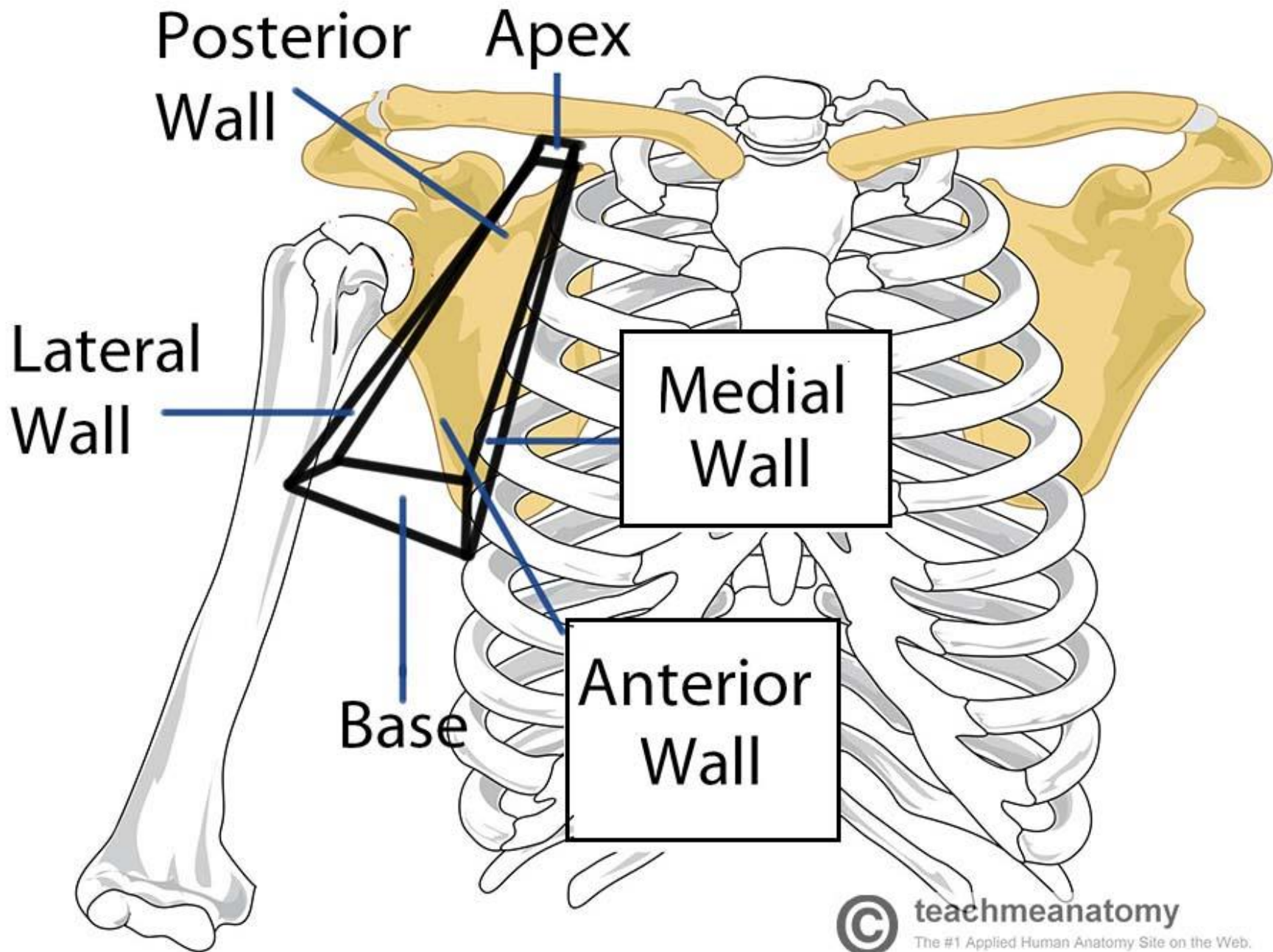
## *4 Sided pyramid*

- **Apex** connected to the neck=Inlet
  - **Base** Arm pit= Outlet
1. Anterior wall
  2. Posterior wall
  3. Medial wall
  4. Lateral wall











# ***Boundaries of the Axilla***

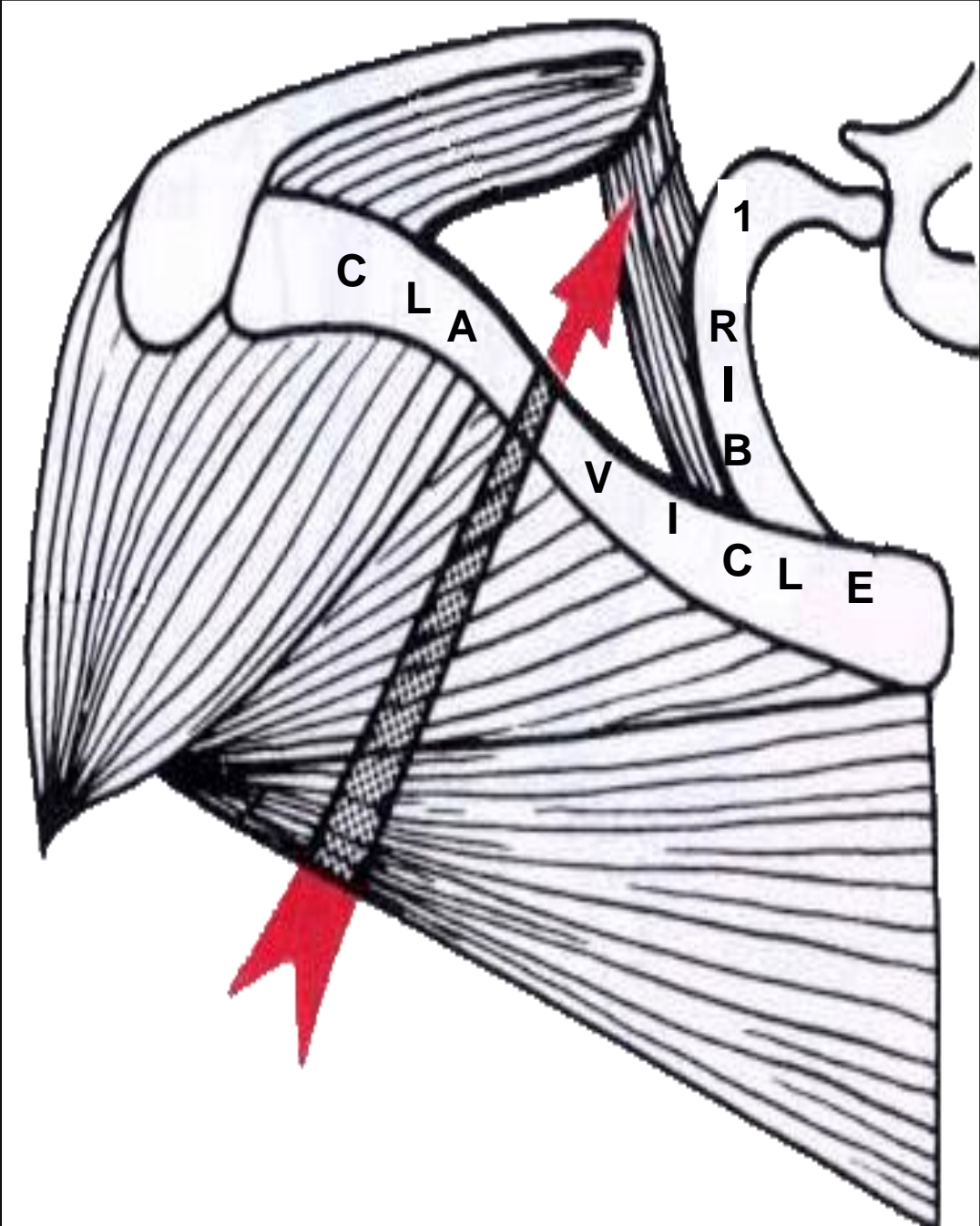
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- **Apex:**

- Is directed upwards & medially to the root of the neck.
- It is called
  - **Cervico-axillary canal.**

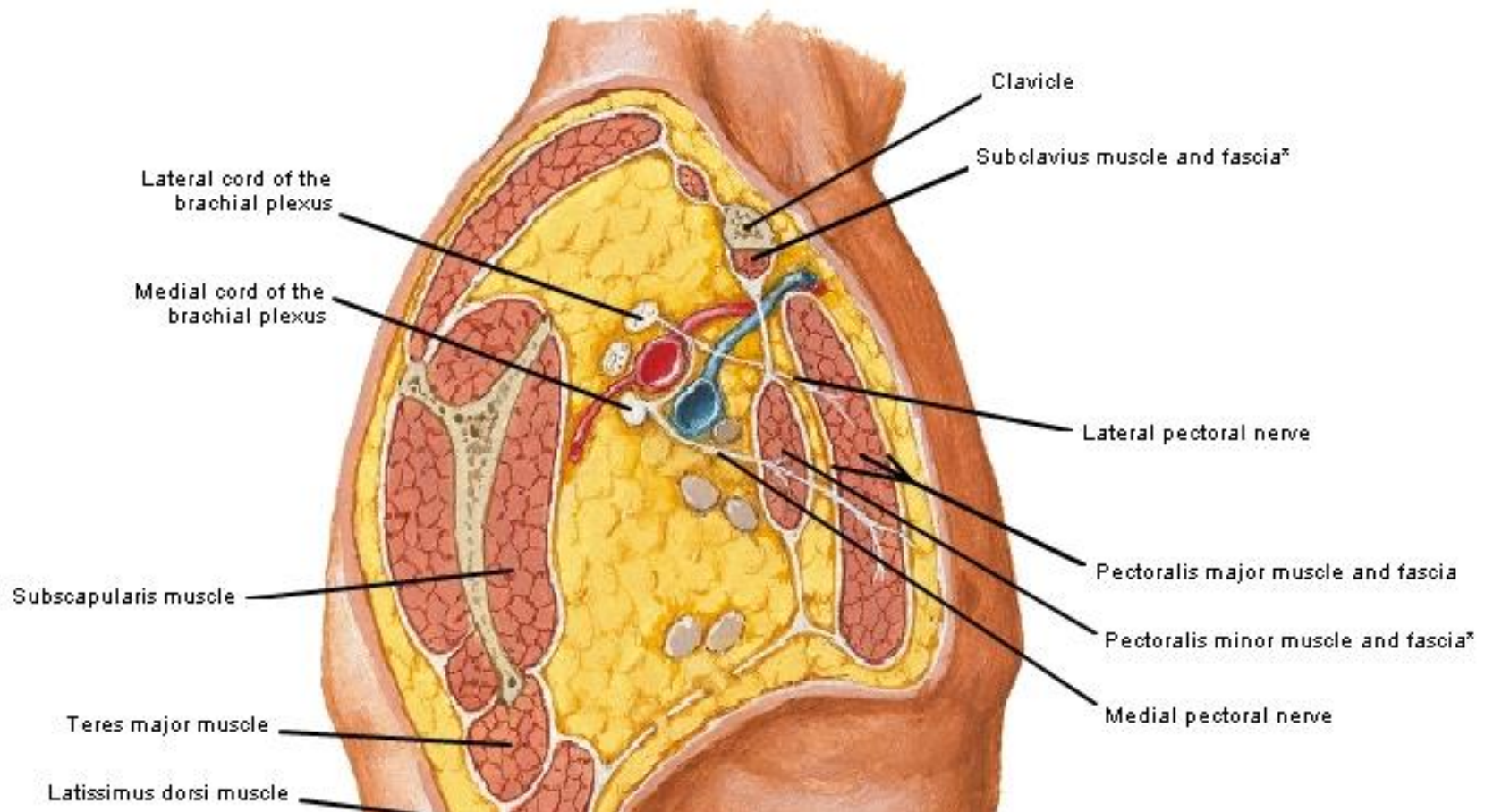
- ***It is bounded, by 3 bones:***

- Clavicle **anteriorly.**
- Upper border of the scapula **posteriorly.**
- Outer border of the first rib **medially.**



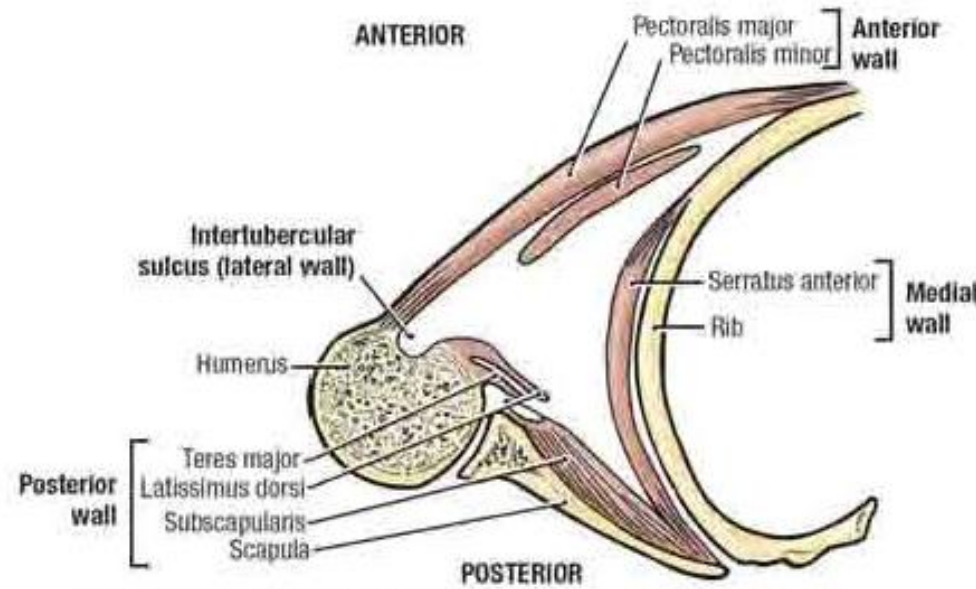
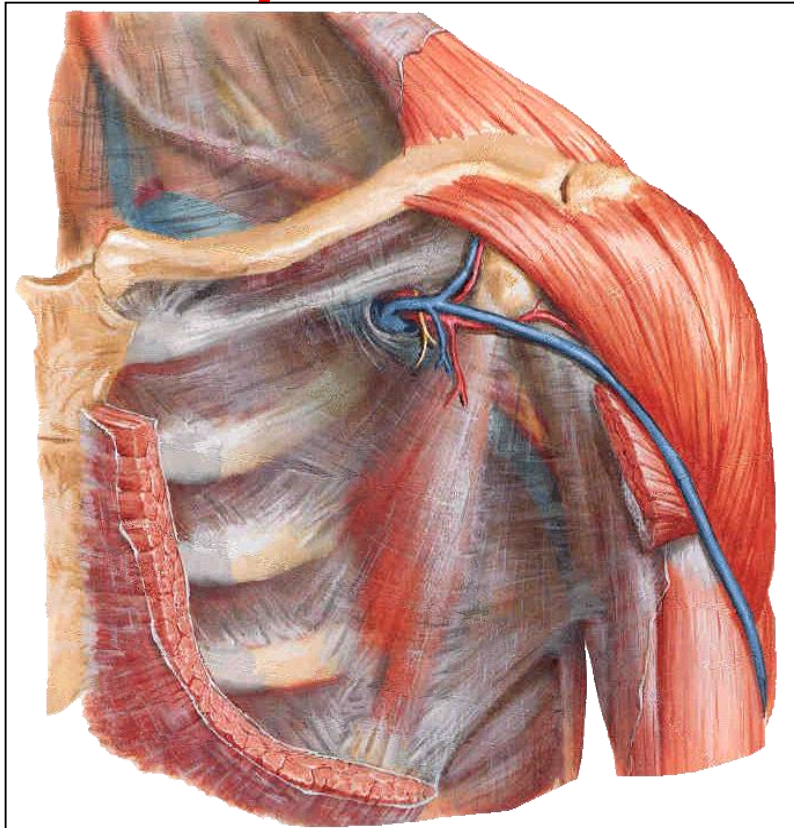
# Base

## ■ *Axillary fascia and Skin of the arm pit*

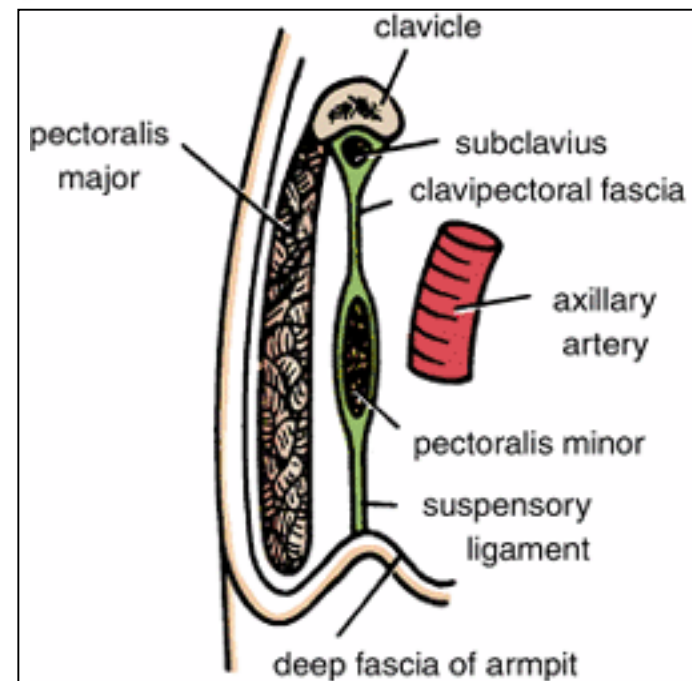


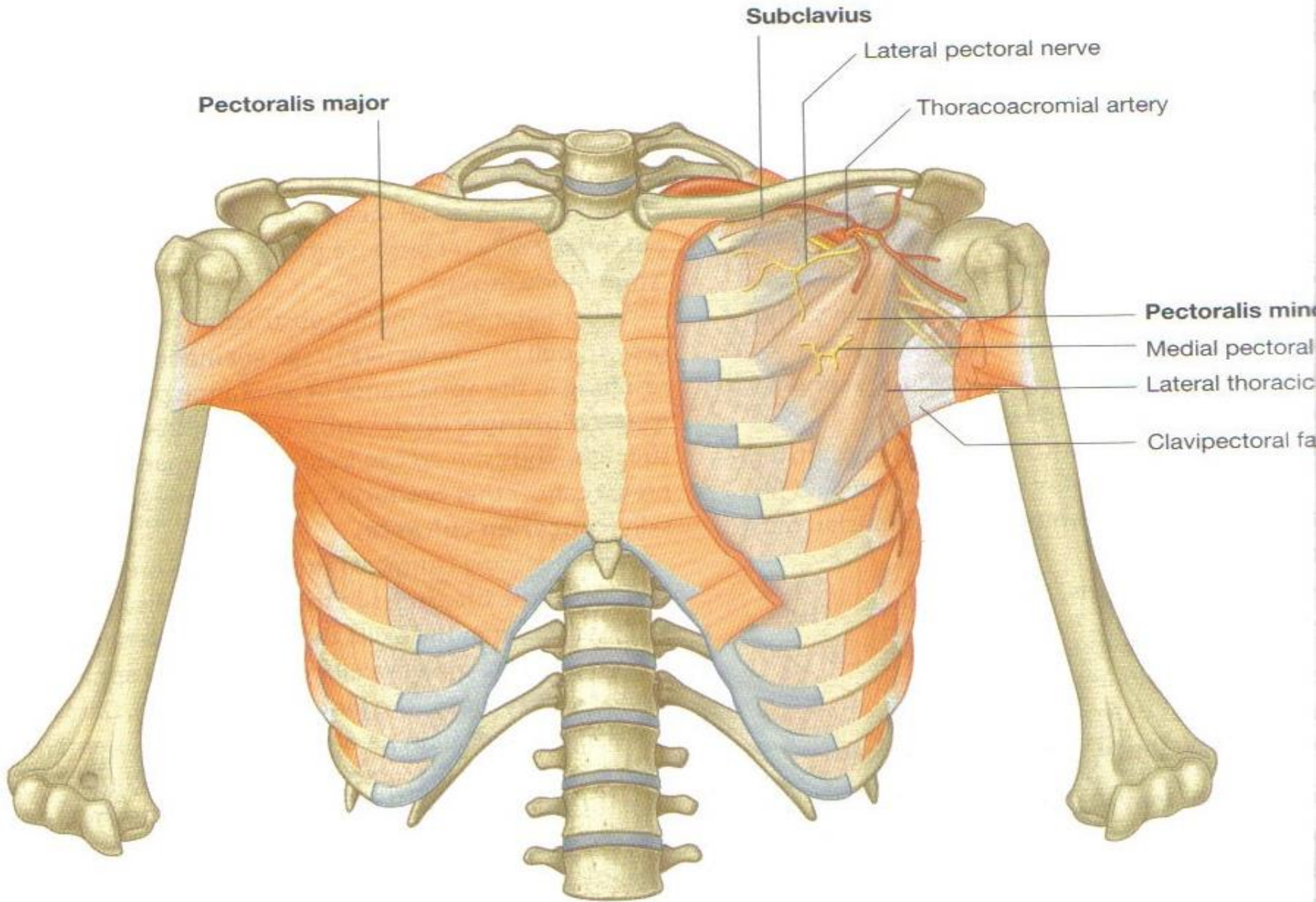
# Anterior Wall

1. ***Pectoralis major***
2. ***Pectoralis minor***
3. ***Subclavius muscles***
4. ***Clavipectoral fascia***



B. Transverse Section, Inferior View





Cephalic v. &  
thoracoacromial a.

Suspensory  
lig. of axilla

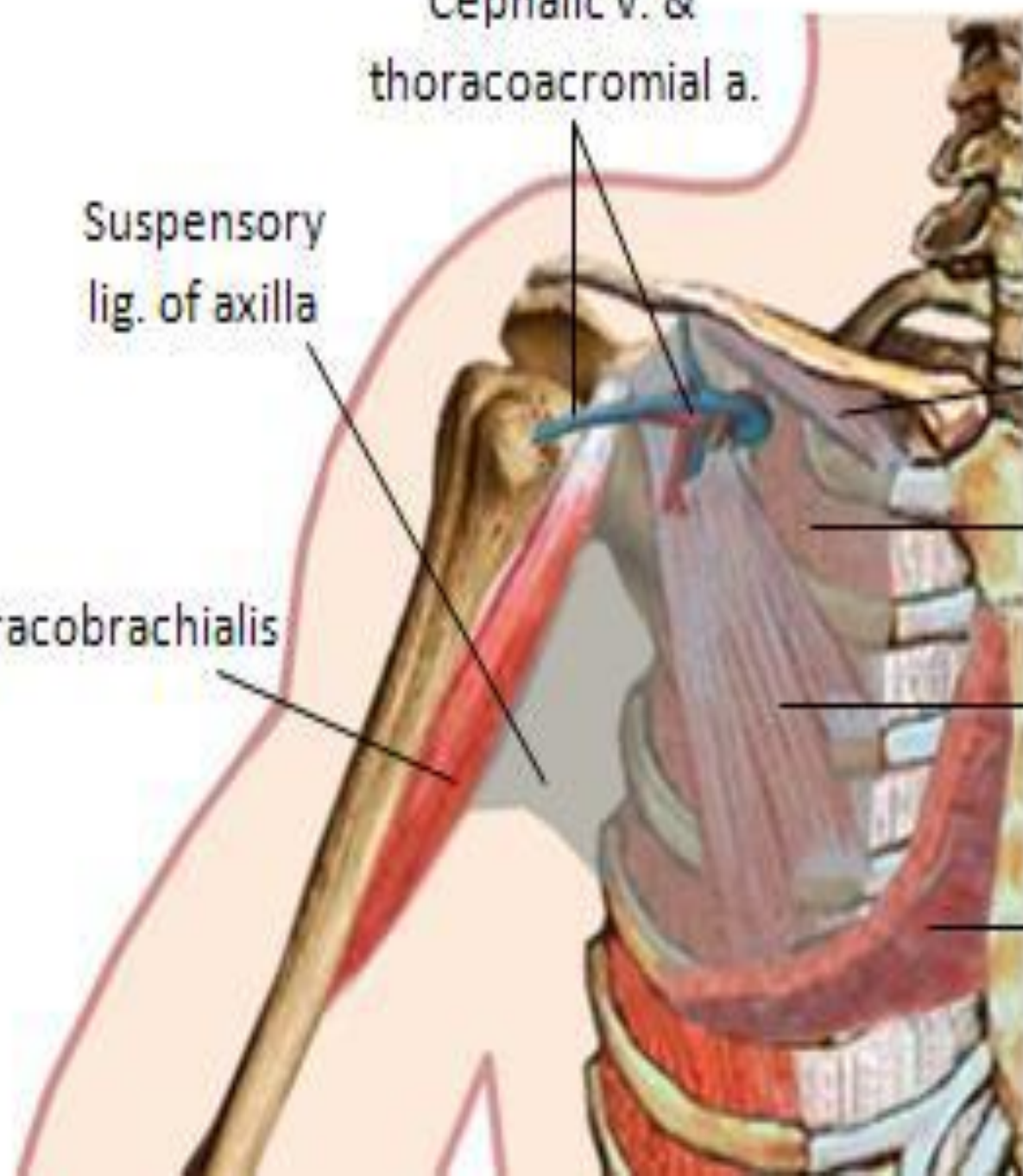
coracobrachialis

Subclavius fascia

Costocoracoid memb.

Pectoralis  
minor fascia

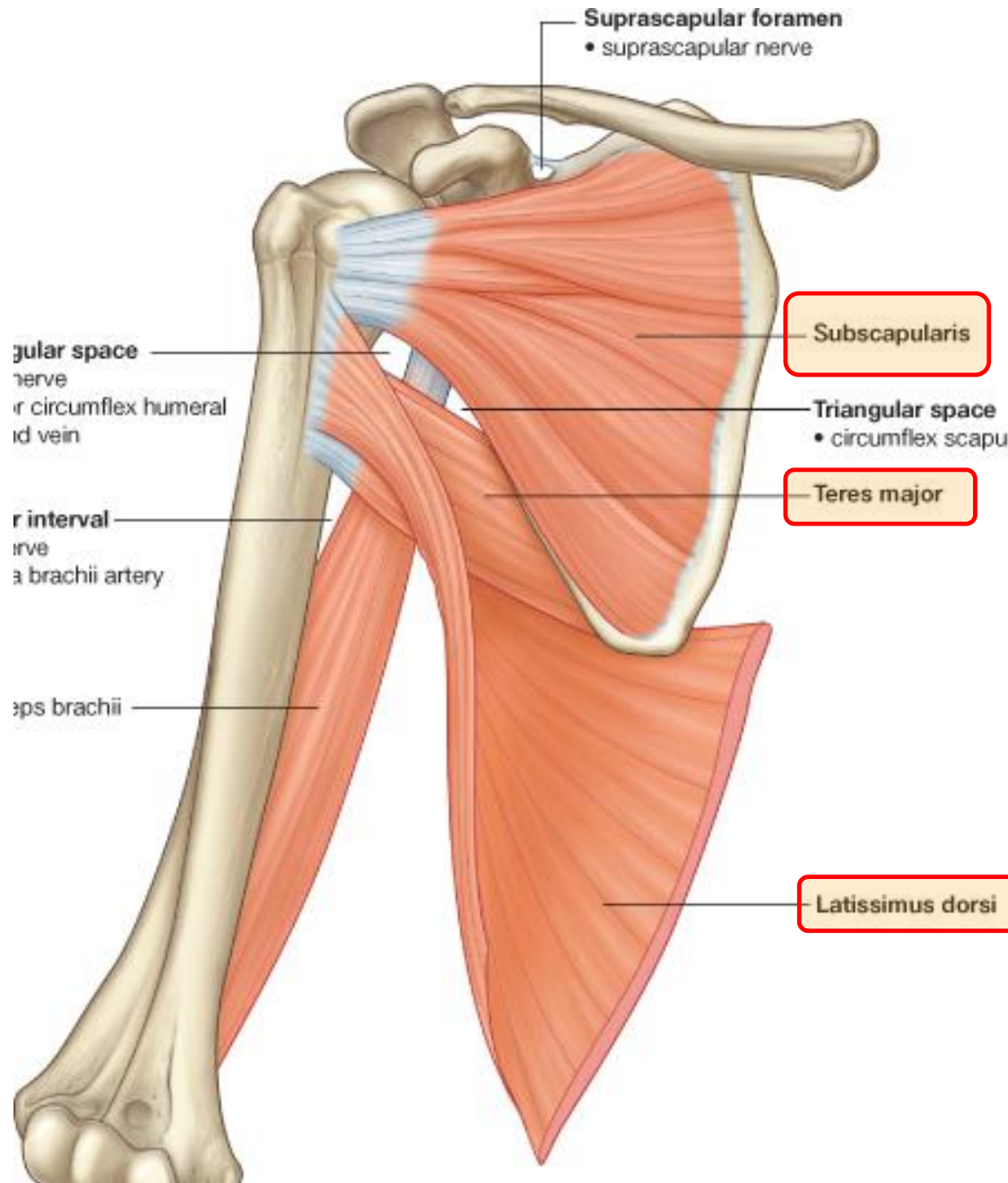
Pectoralis major  
& its fascia



# Posterior Wall

■ **Is formed by:**

1. Subscapularis.
2. Latissimus dorsi.
3. Teres major muscles.

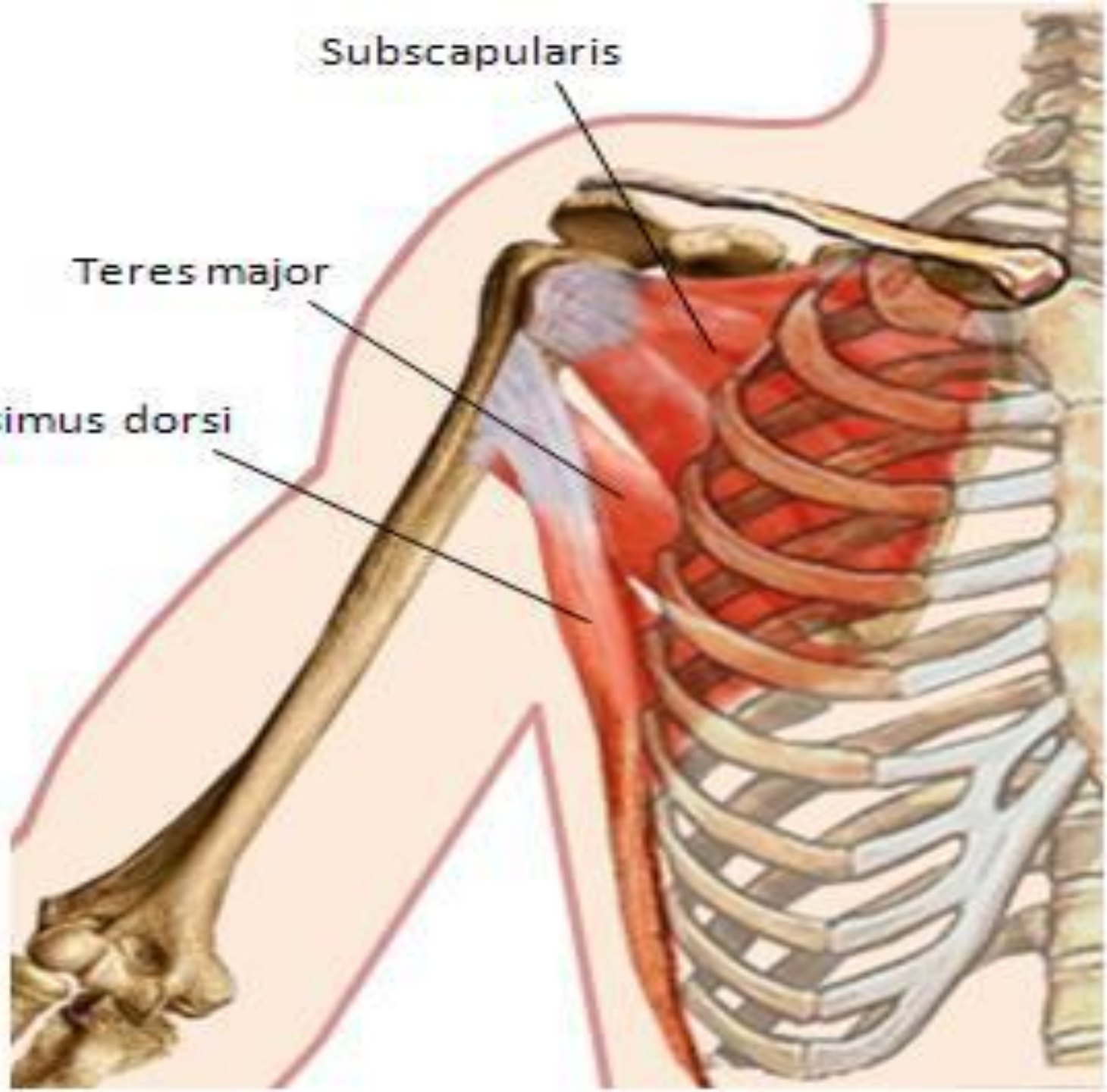




Subscapularis

Teres major

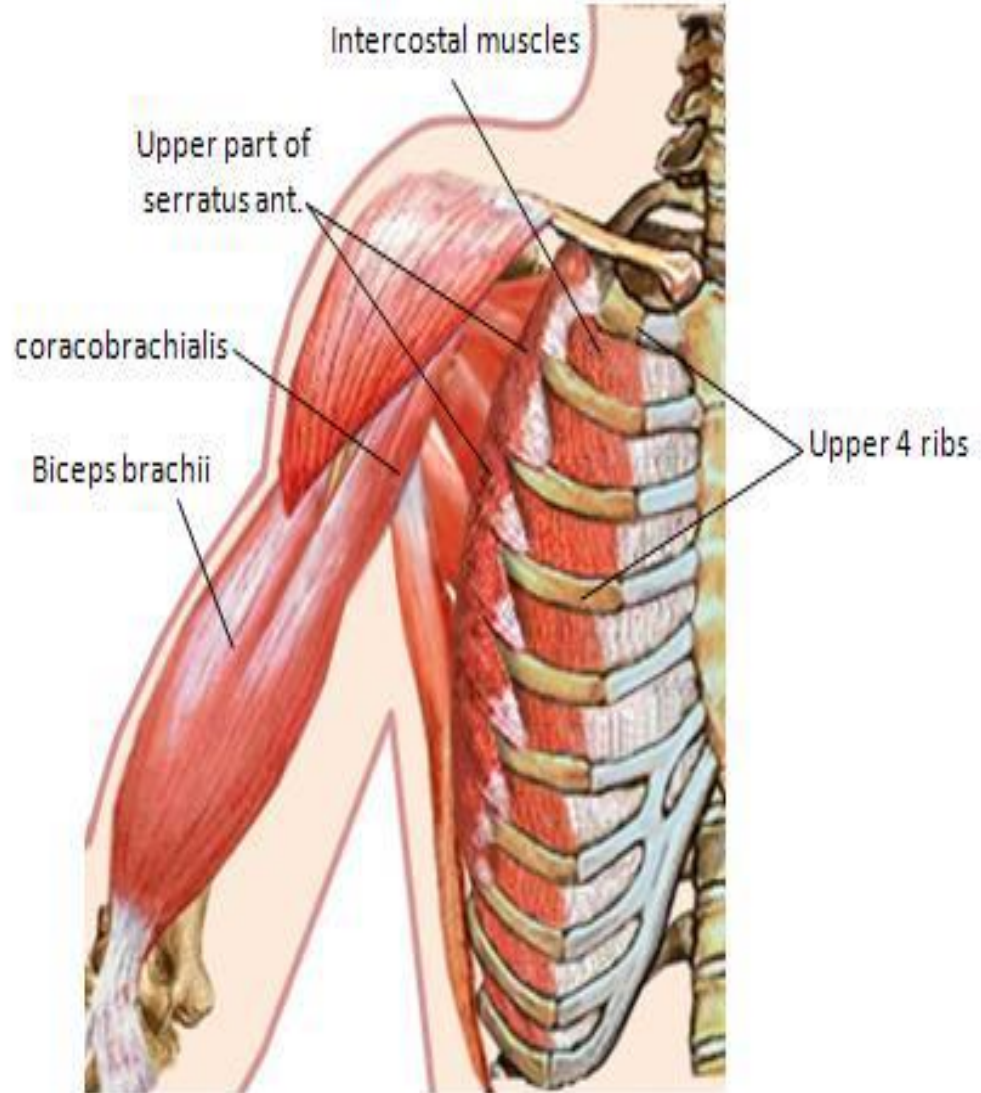
Latissimus dorsi



# *Medial Wall*

***It is wide and formed by:*** ■

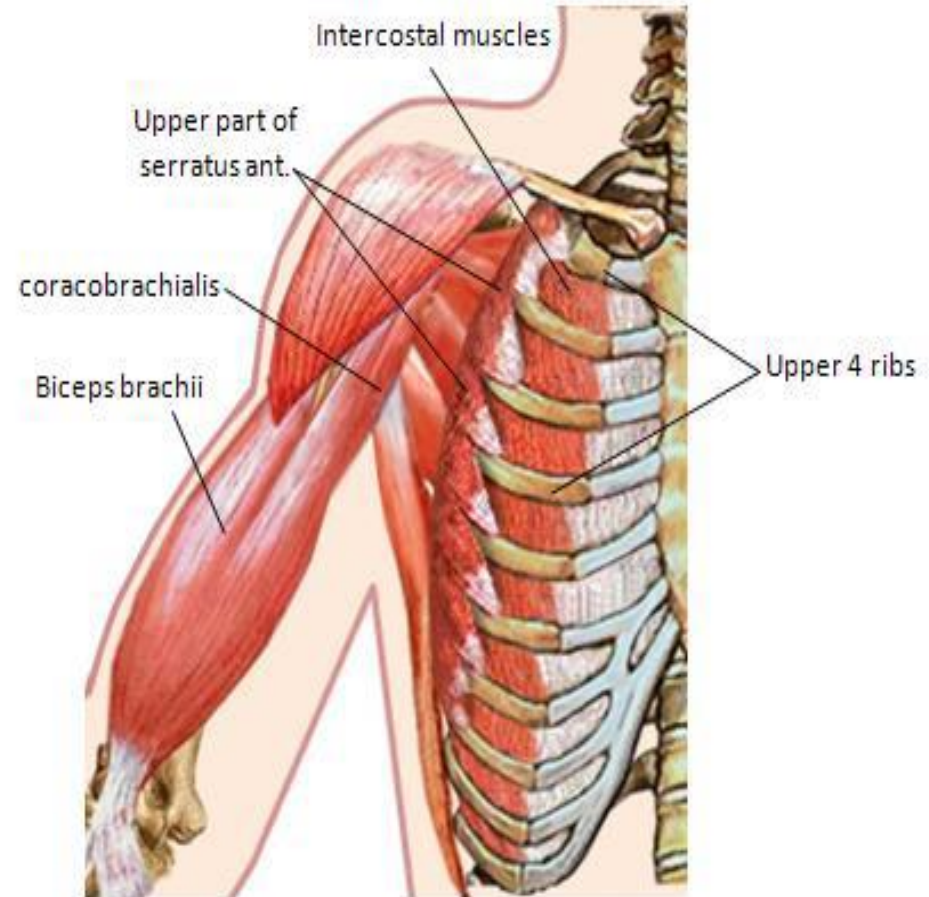
1. Serratus anterior.
2. Upper 4-5 ribs & Intercostal muscles .



## *Lateral Wall*

***It is narrow and formed by:*** ■

1. Coracobrachialis.
2. Biceps brachii.
3. Bicipital groove of the humerus.



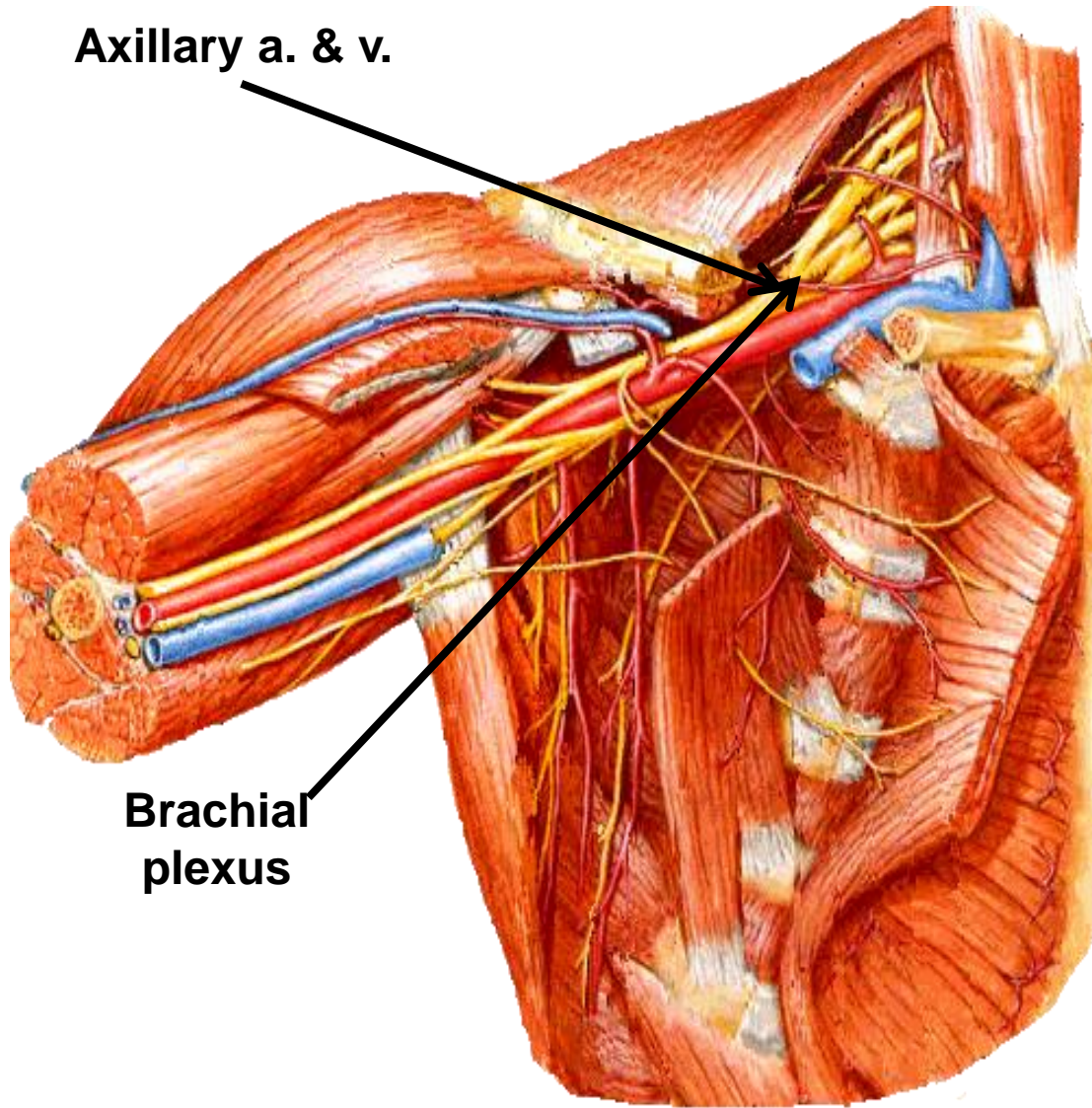


# *Contents of The Axilla*

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1. Cords and branches of the brachial plexus
2. Axillary artery and its branches.
3. Axillary vein and its tributaries.
4. Axillary lymph nodes.
5. Axillary lymphatic vessels
6. Axillary fat.
7. Loose connective tissue.

**Axillary a. & v.**



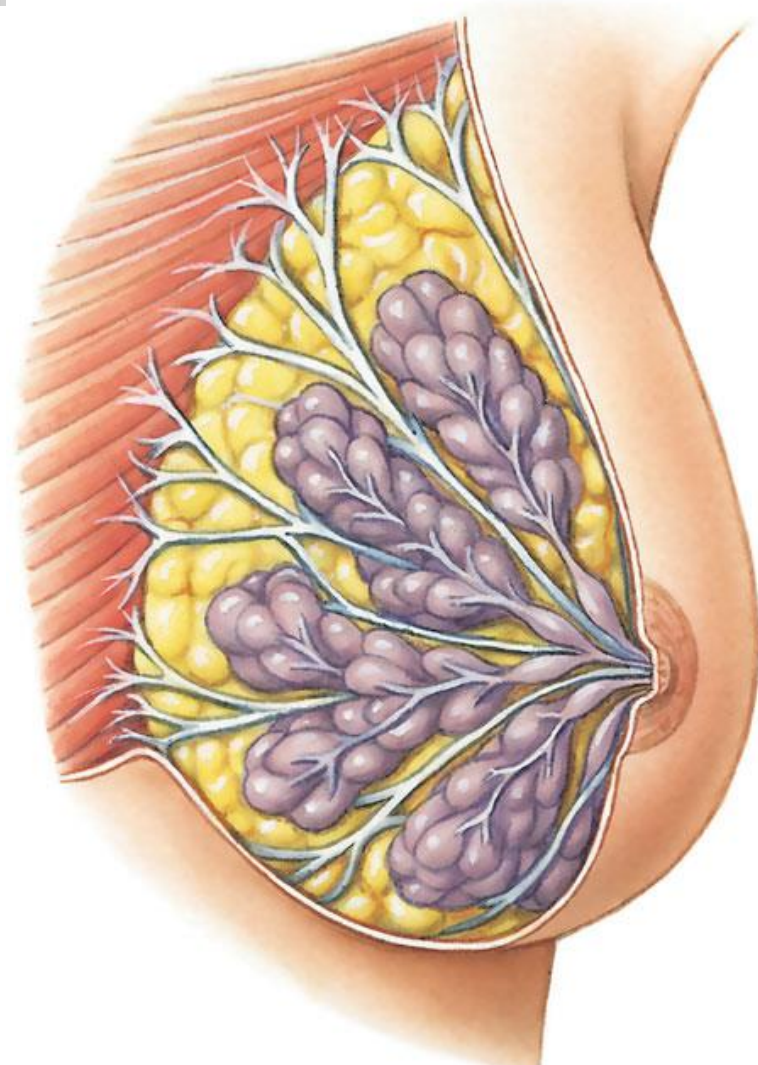
**Brachial  
plexus**

# ***The Female Breast***



# *The Female Breast*

- A modified skin gland in the superficial fascia of the pectoral region, formed of the mammary gland together with its stroma, surrounding fat and covering skin.
- The breast is a ***Superficial Structure*** that has no capsule (***Clinical relevance*** ***!!!!***)



# *Breast - Surface Anatomy*

## *Extent:*

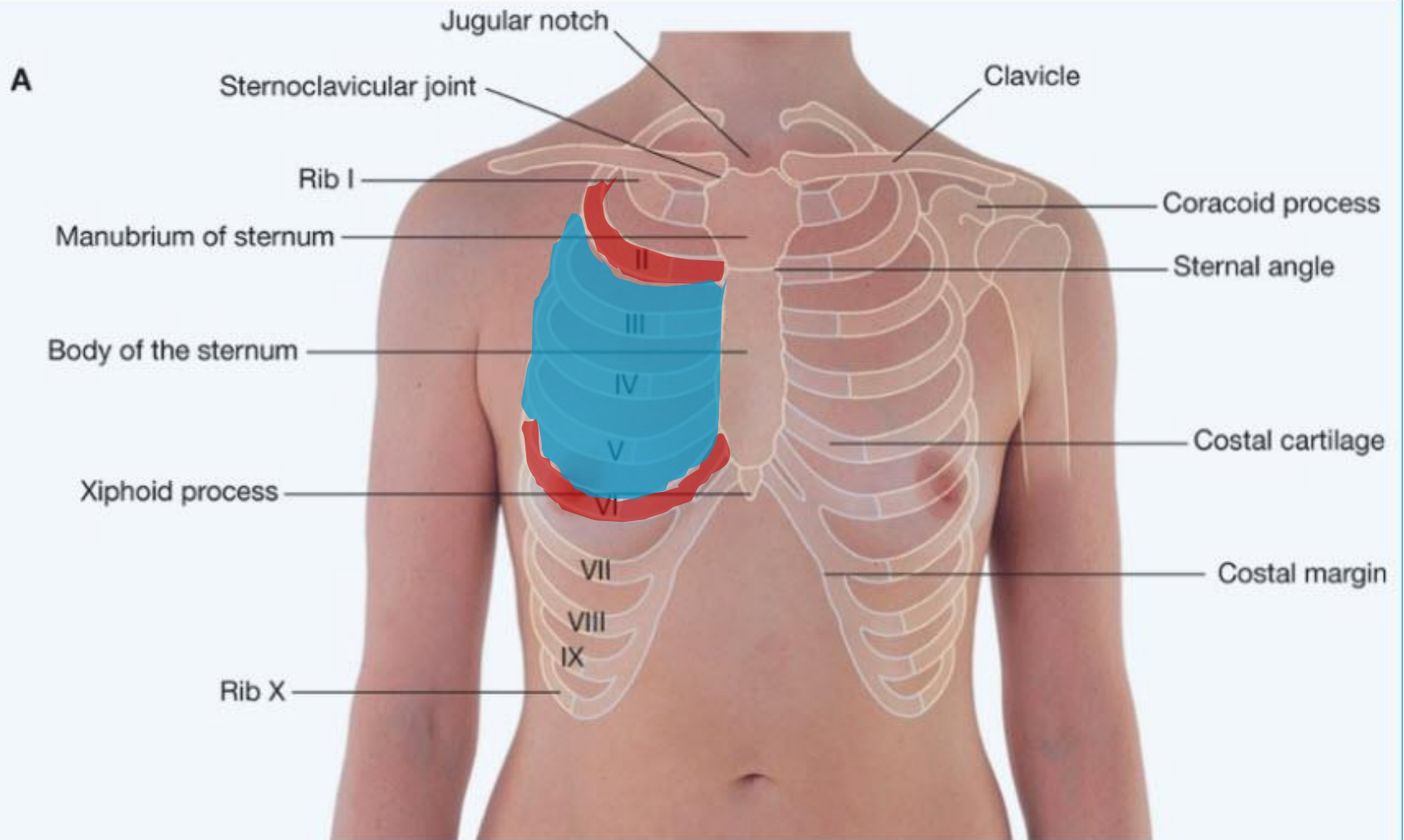
- From **2nd rib** (superiorly) to **6th rib** (inferiorly) and from lateral margin of **sternum** (medially) to **mid-axillary line** (laterally)







# Breast - Surface Anatomy

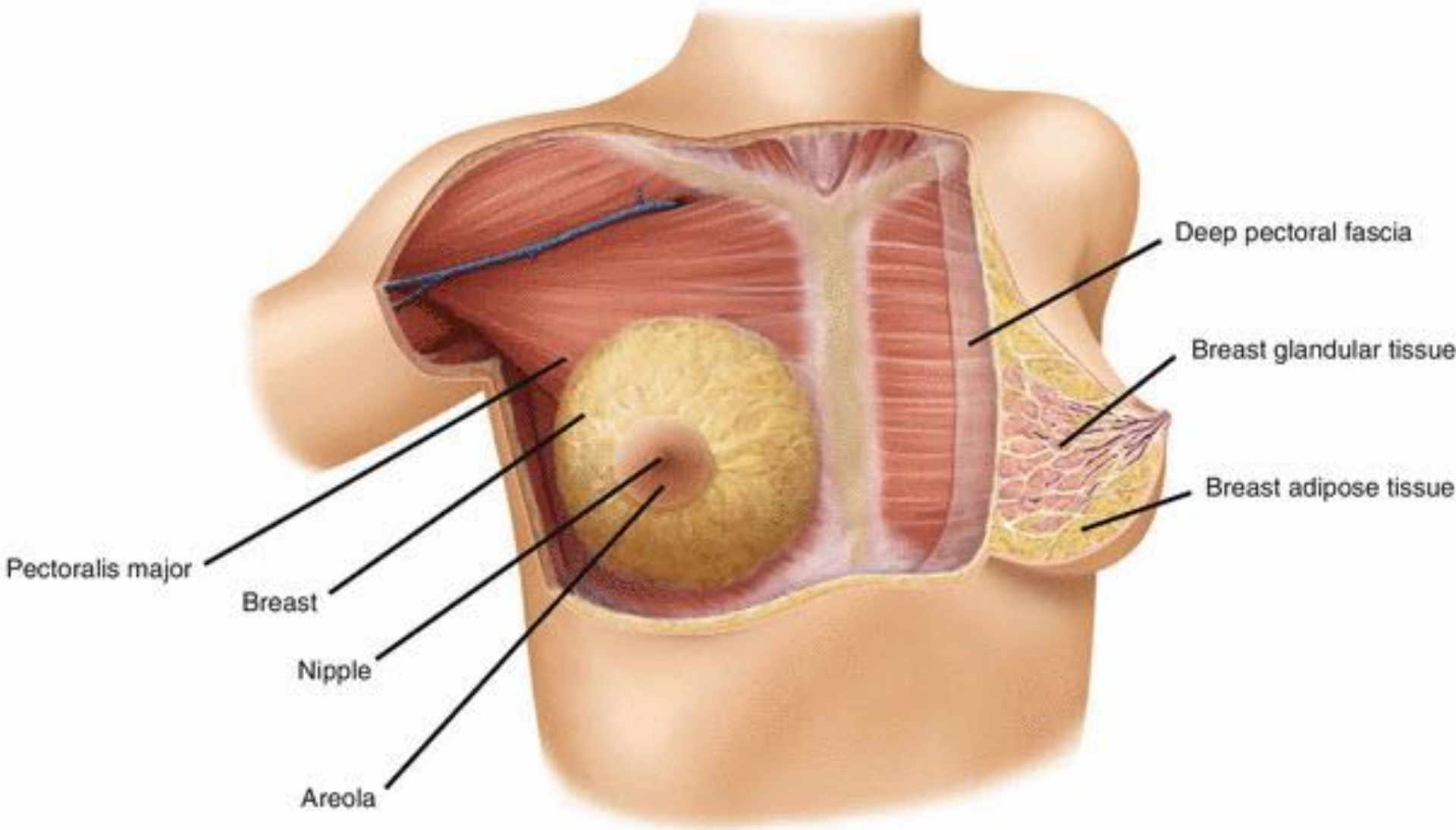




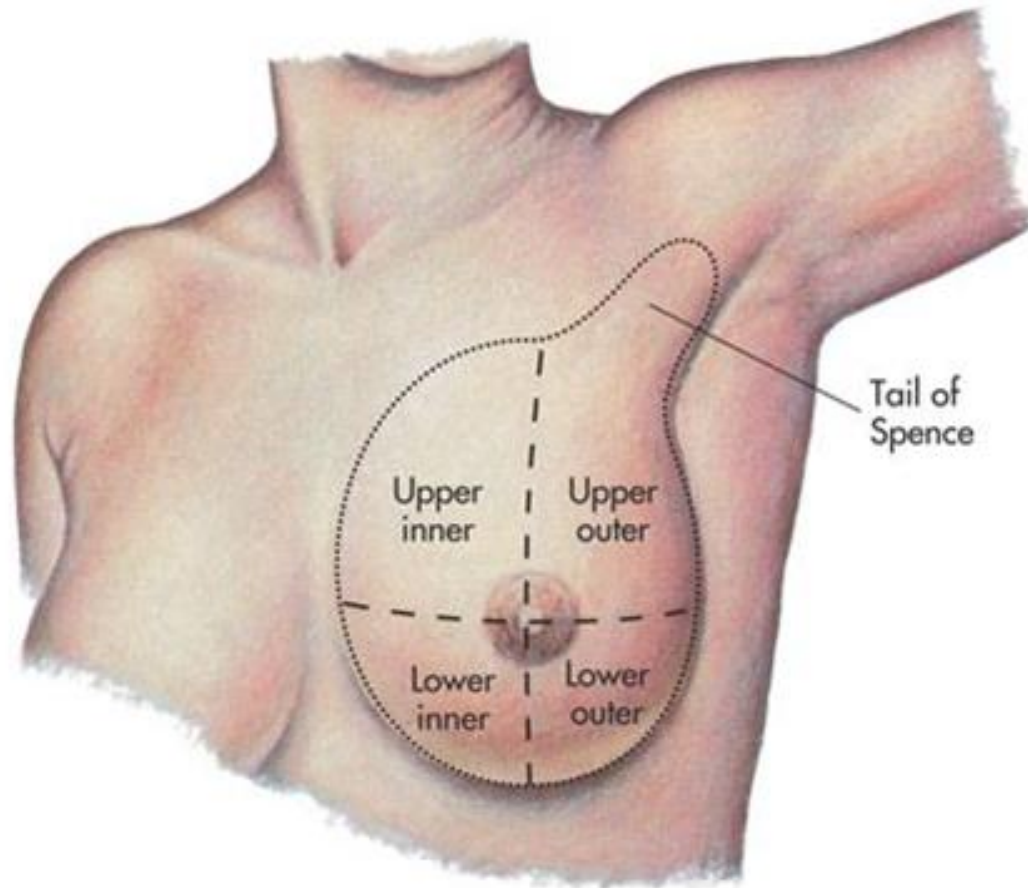
# ***Breast - General Appearance***

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- Smooth ***conical*** or ***hemispherical***, due to the great amount of fat.
- ***Site:*** It lies in the superficial fascia of pectoral region with small extension in axilla (***Axillary Tail***) which pierces the deep fascia.



# ***Axillary Tail of the Breast***

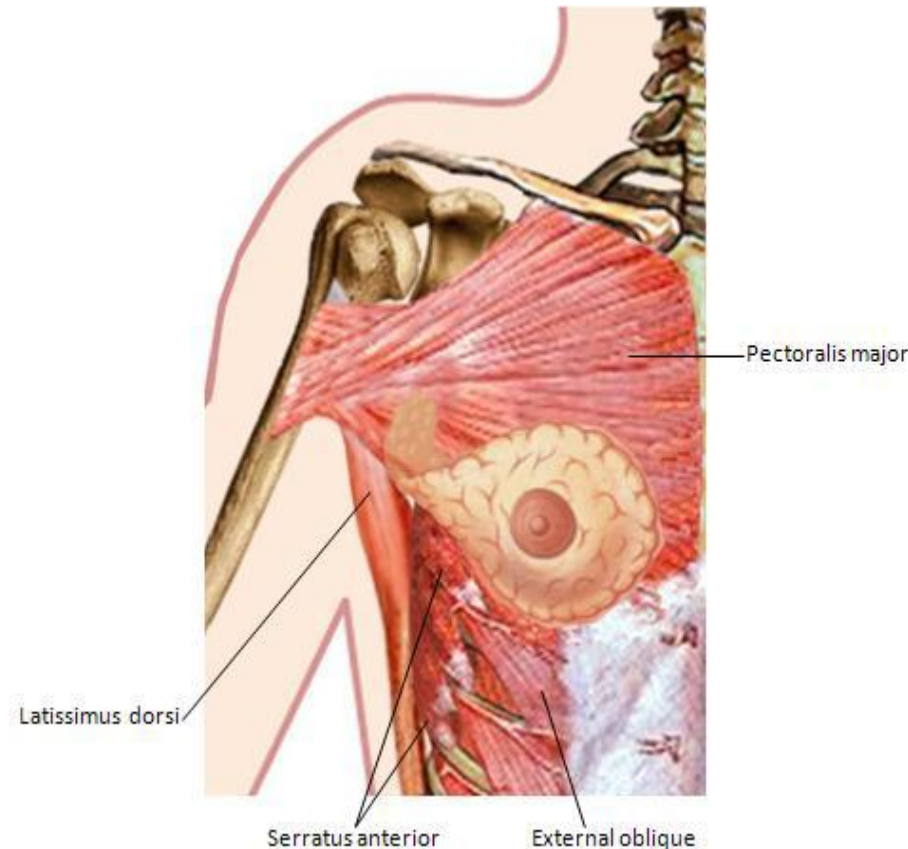


# Breast – Deep relations

## ***Pectoral fascia:***

- From which it is separated by a space filled with loose areolar tissue and called ***retro-mammary space***.

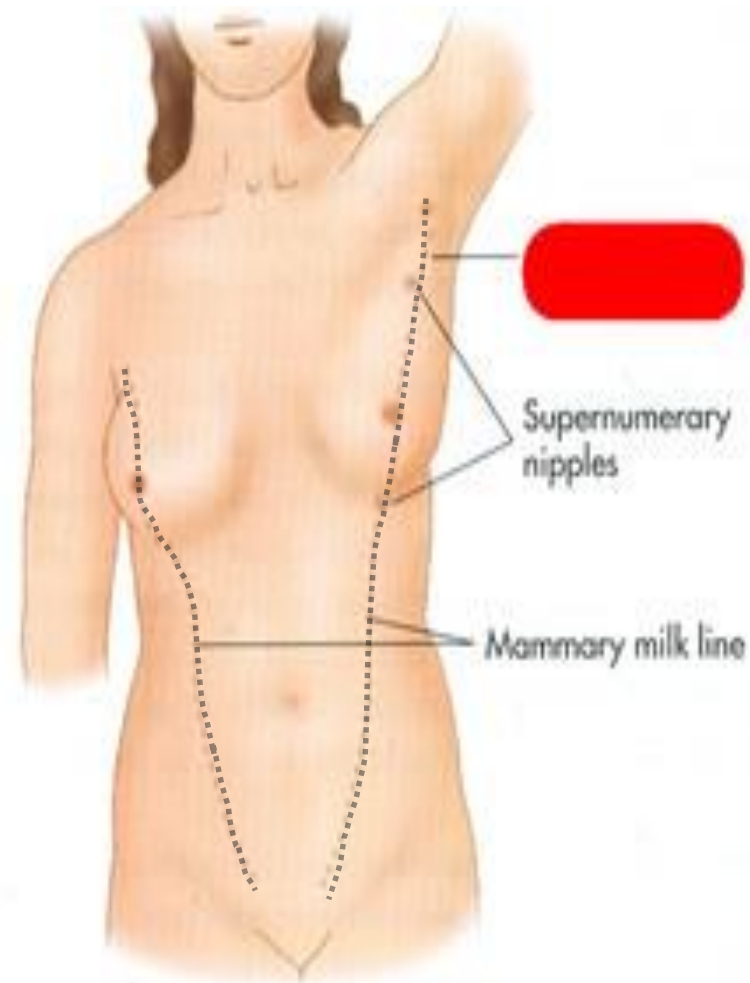
***Pectoralis major*** muscle in superomedial 2/3 of the breast + **serratus anterior** and **external oblique abdominal** muscle in inferolateral 1/3 of the breast.



# *Structure of the Breast*

## *The nipple:*

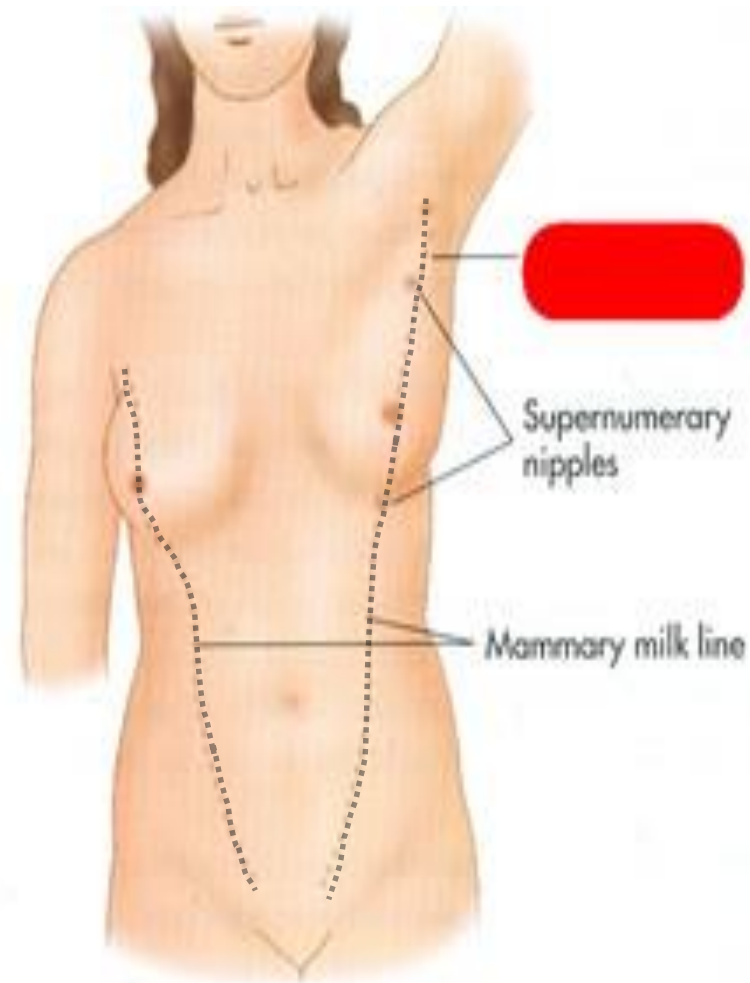
- This is a conical projection present just below the center of the breast at the *4th intercostal space*.
- It is pierced by 15-20 **lactiferous ducts**.



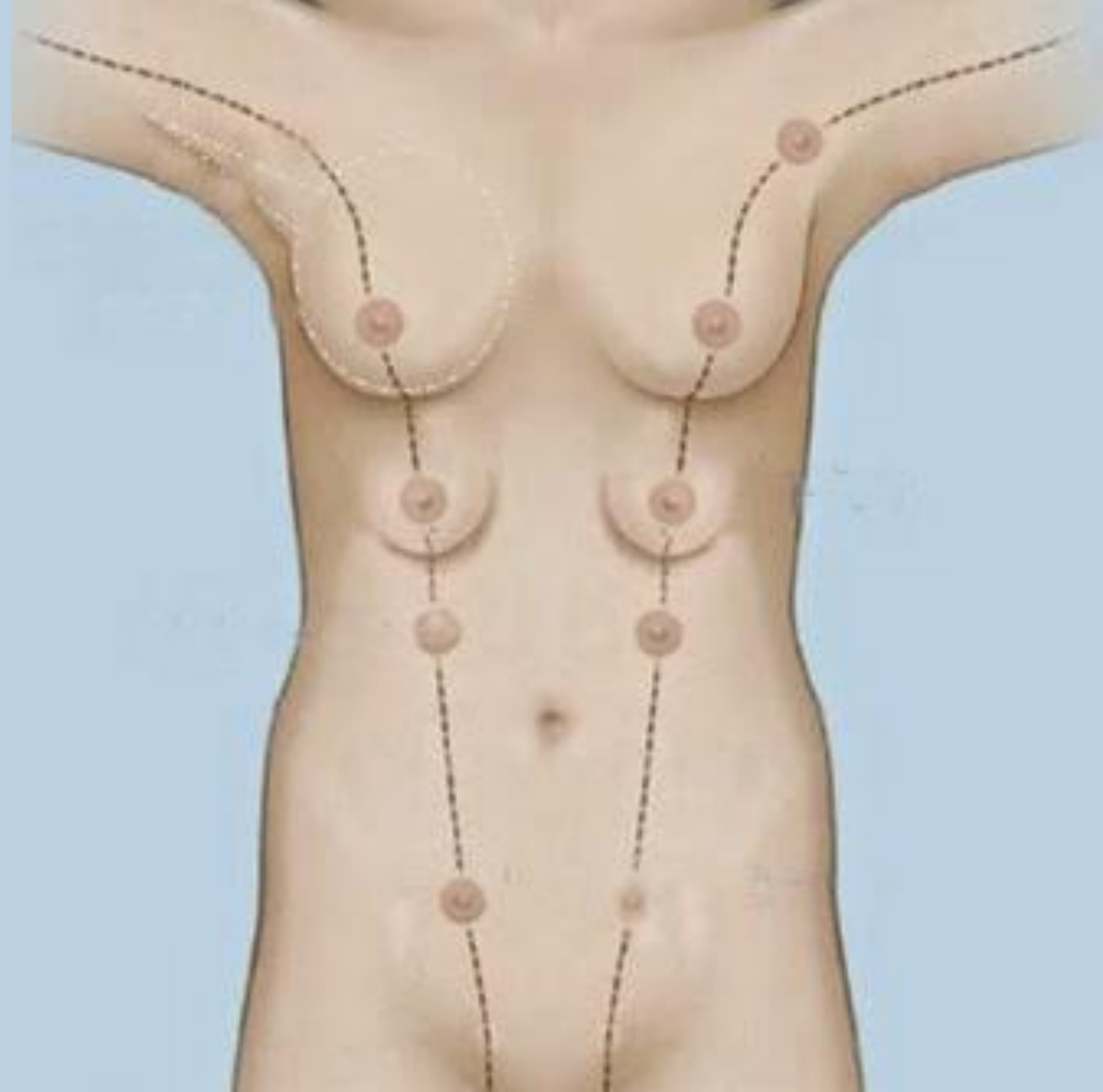
# *Structure of the Breast*

The nipples appear along the two vertical "milk lines", which start in the armpit on each side, run down through the typical nipples and end at the groin.

They are classified into eight levels of completeness from a simple patch of hair to a milk-bearing breast in miniature

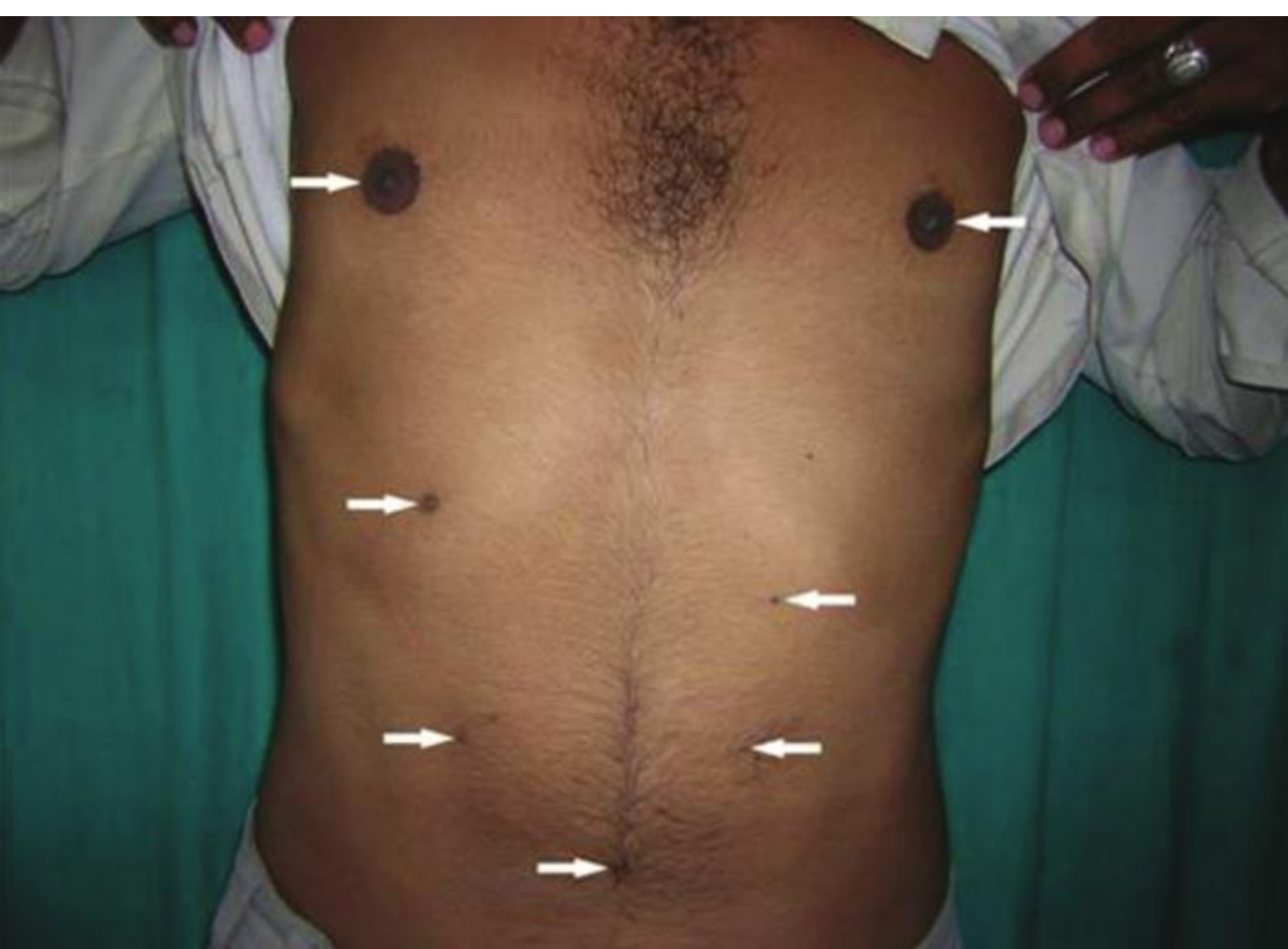












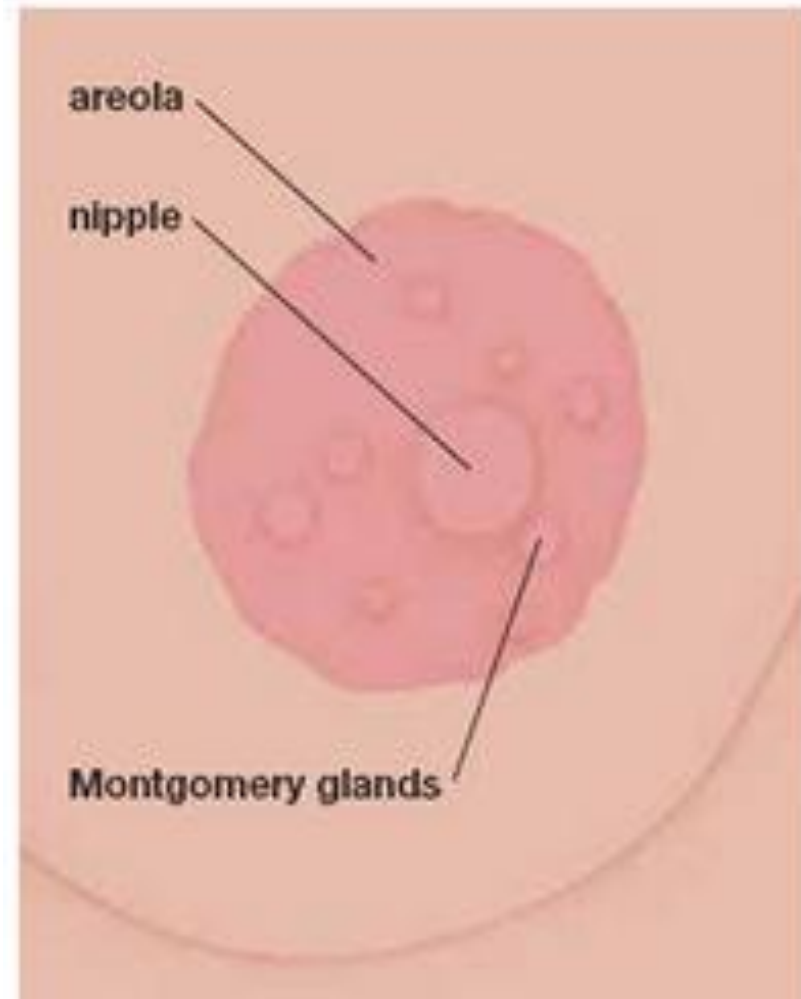
# ***Structure of the Breast***

## ***The areola:***

The circular pigmented area surrounding the nipple rich in modified sebaceous glands especially at its outer margin, **light brown** or **pink** in **color** that gets **dark brown** in **pregnancy**.

It becomes enlarged during pregnancy and lactation to form **tubercle of Montgomery (Lubrication)**.

**Both the nipple & areola are devoid of hairs and fat.**



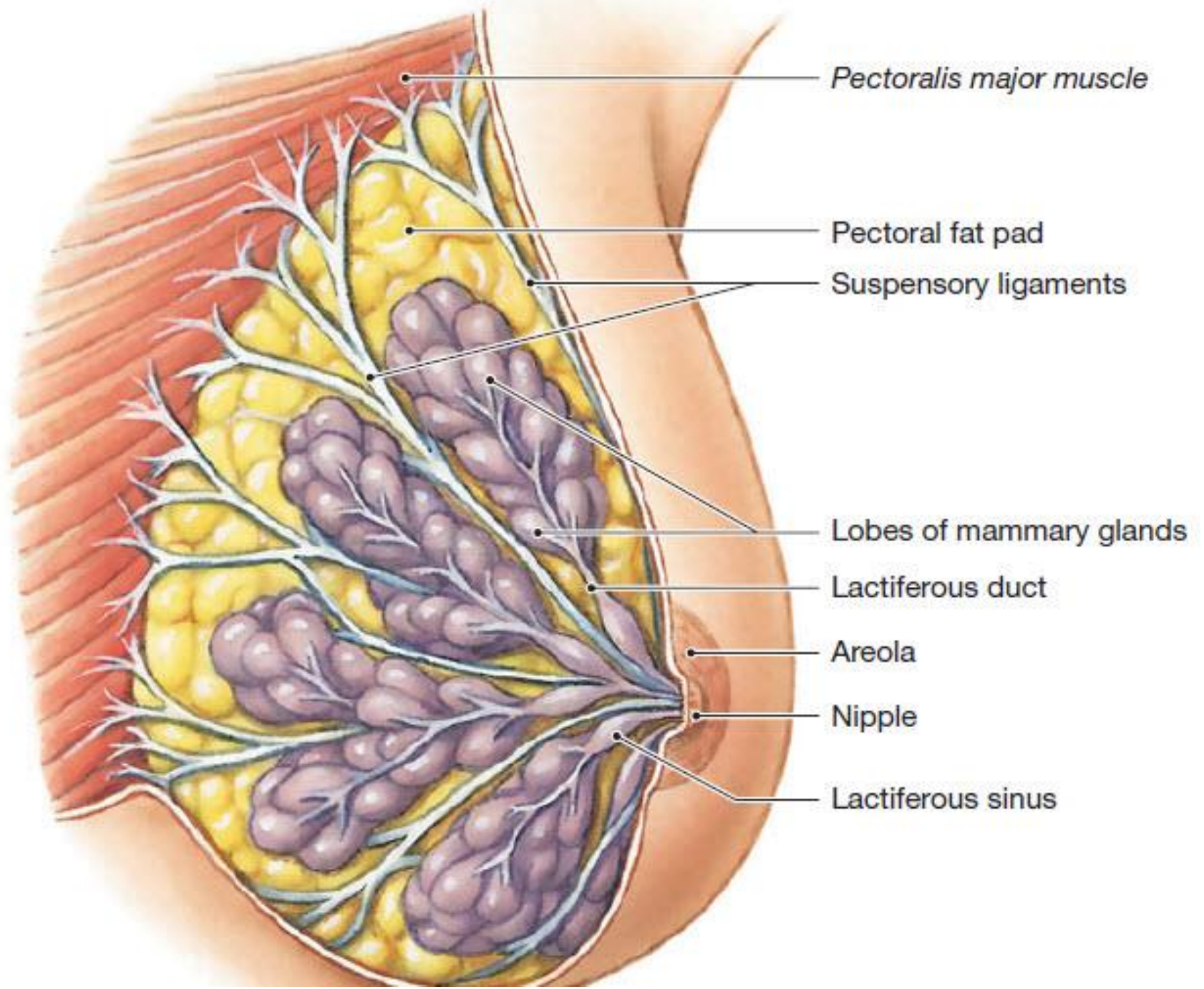


# *Structure of the Breast*

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***The parenchyma (the glandular tissue):*** It is formed of **15-20 lobes**.

- Each lobe is formed of group of alveoli that is drained by one lactiferous duct. Each duct passes to the nipple and opens by a **separate** opening.
- Before its termination it forms a dilatation (***lactiferous sinus***).





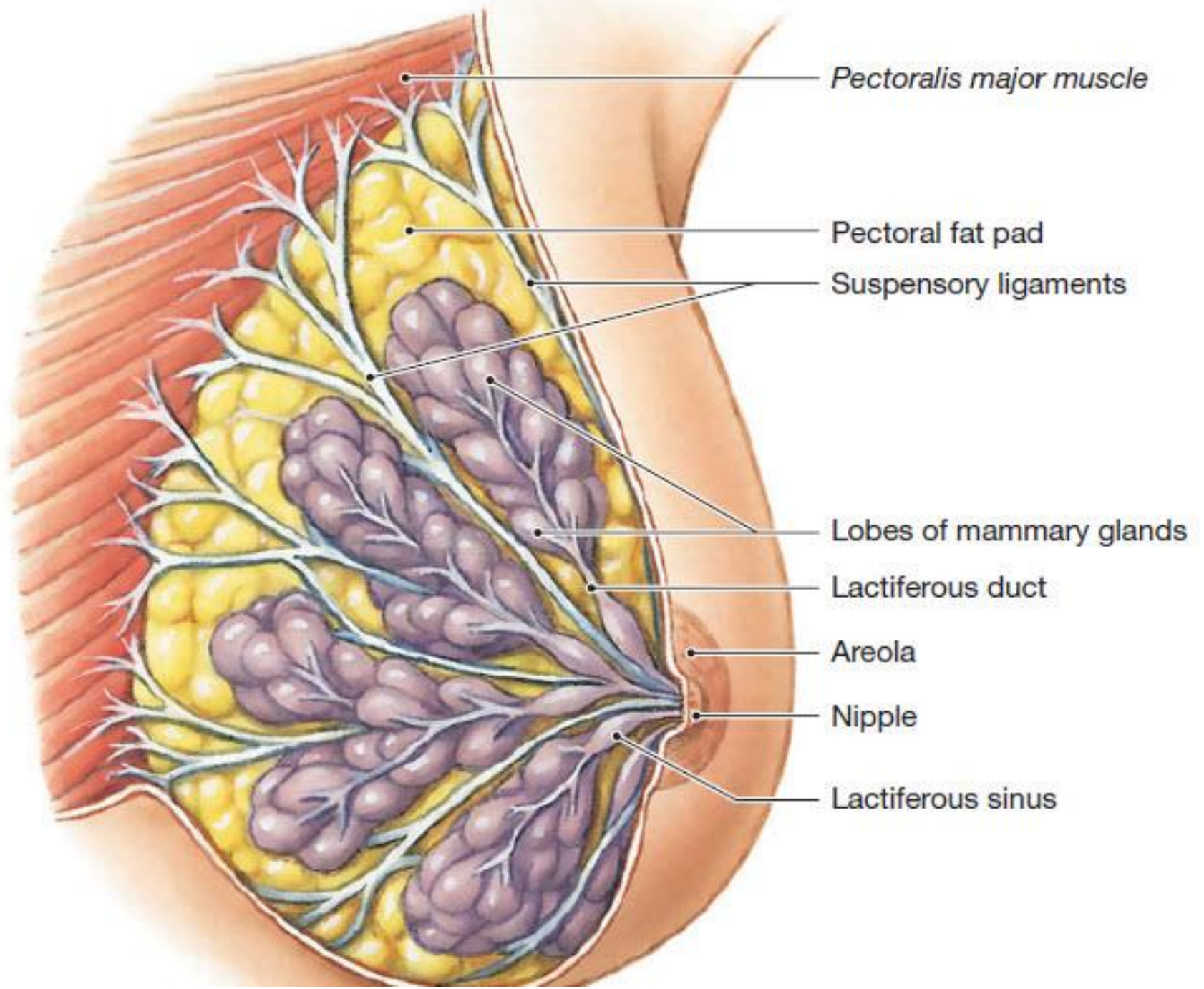
# *Structure of the Breast*

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## *The stroma (the supporting framework):*

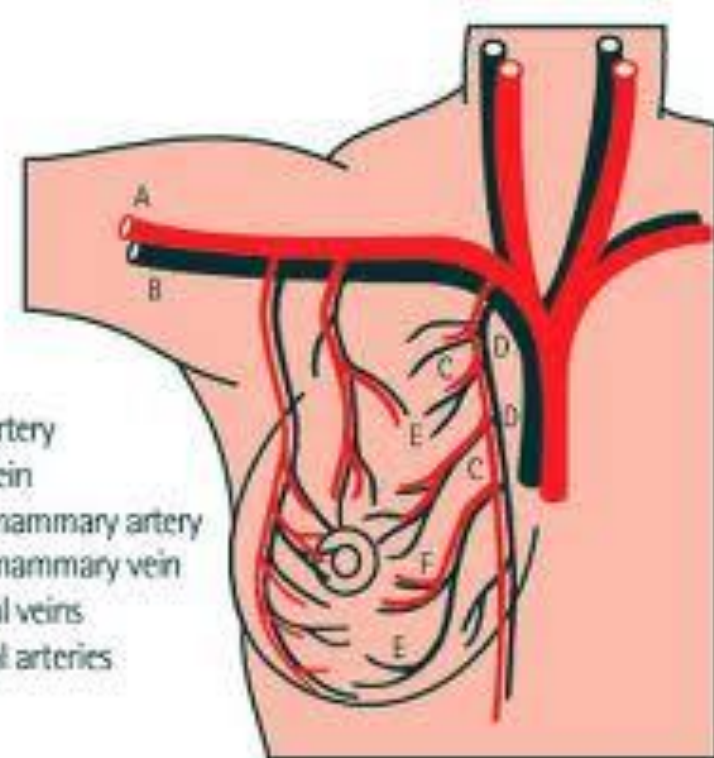
- Fibrous stroma: It forms septa called ***suspensory ligaments of Cooper***. These anchor the skin and the breast to the pectoral fascia.
- Fatty stroma: all over the breast except in the nipple & the subareolar areas.



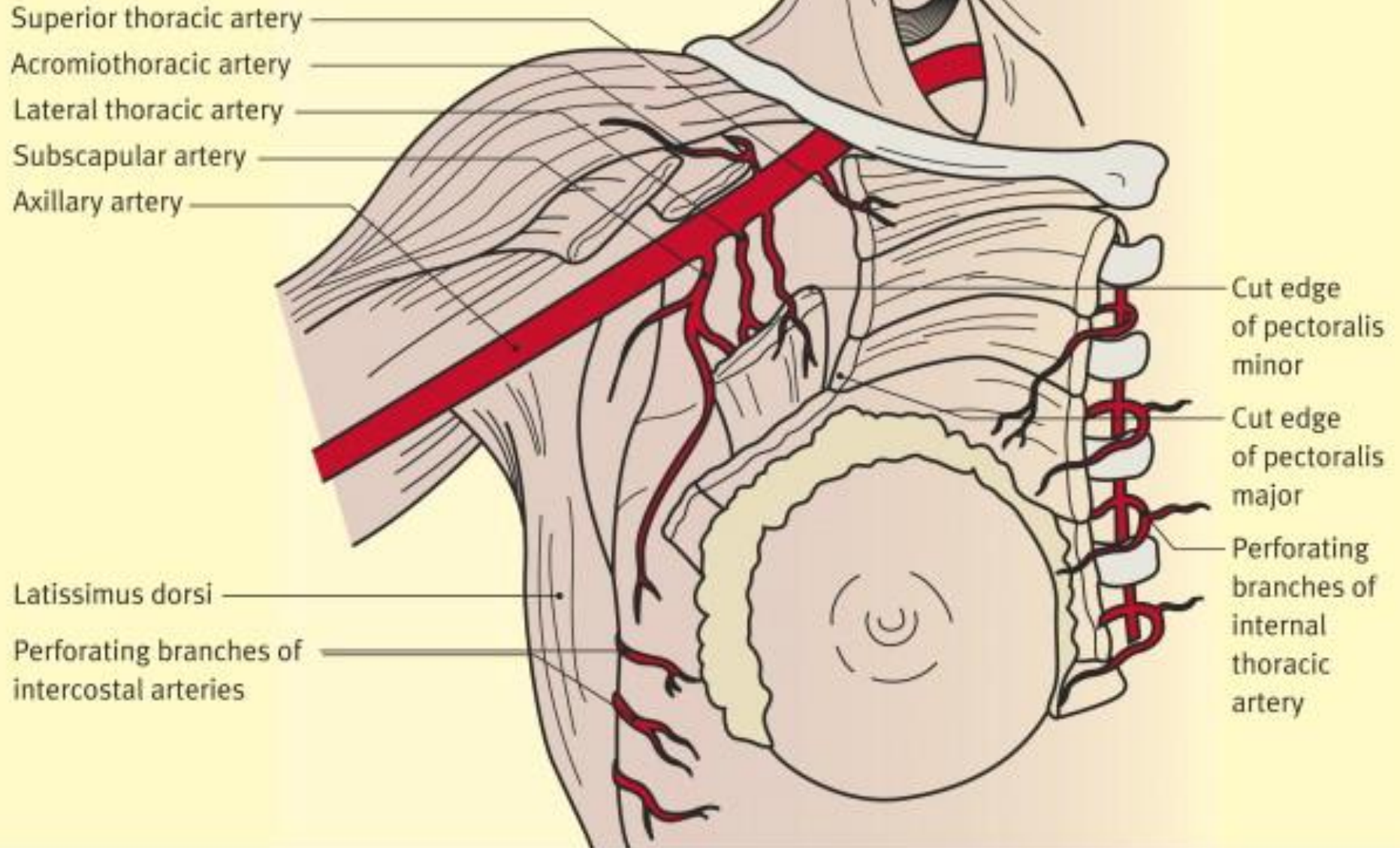


# Blood Supply of the Breast

- Mammary branches of the ***lateral thoracic artery***.
- ***Perforating*** branches of the ***internal thoracic artery*** (especially 2nd, 3rd & 4th branches).
- Lateral branches of ***posterior intercostal arteries***.
- Mammary branches of ***thoracoacromial artery***.



## Arterial supply of the breast

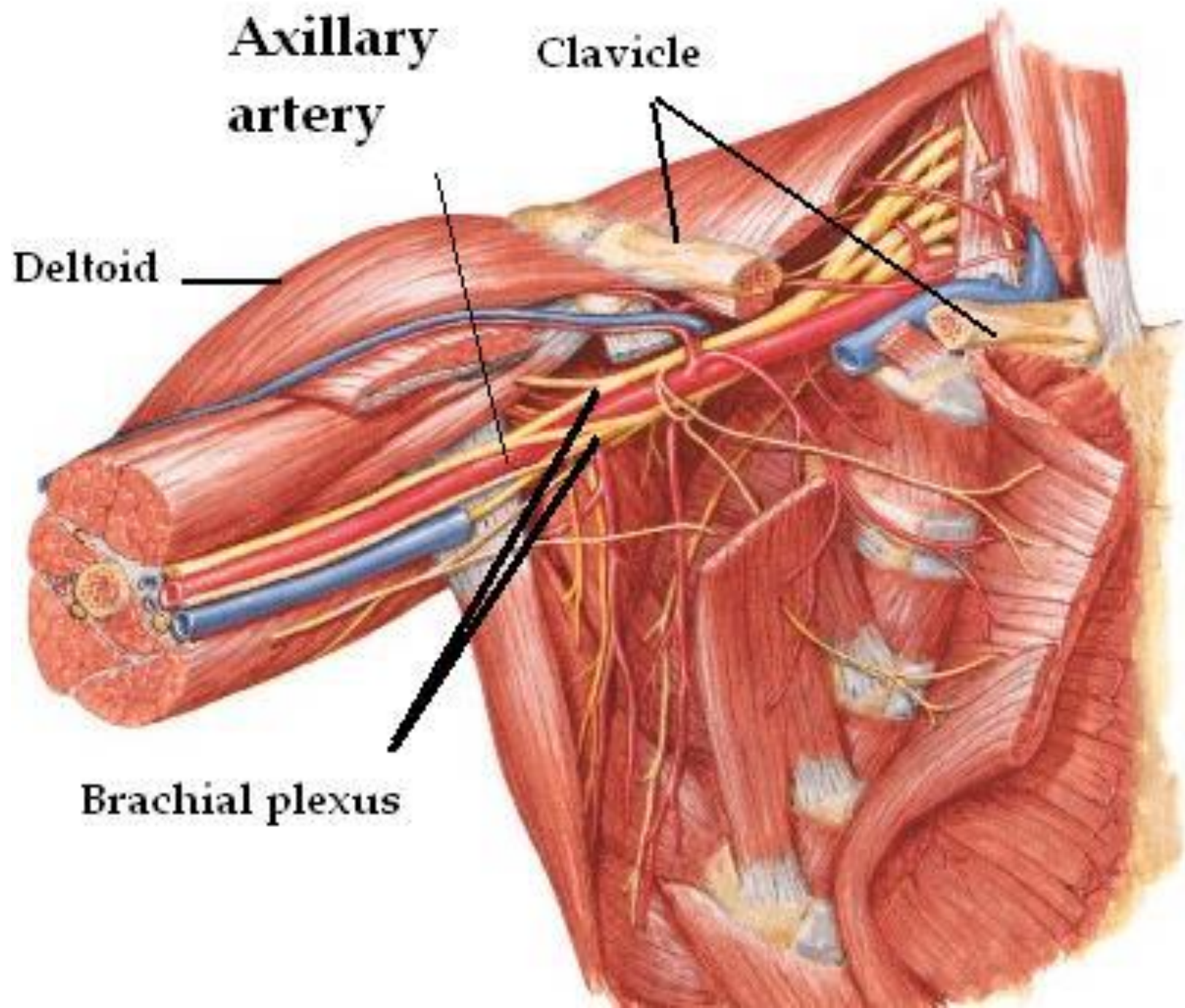




# *Axillary Artery*

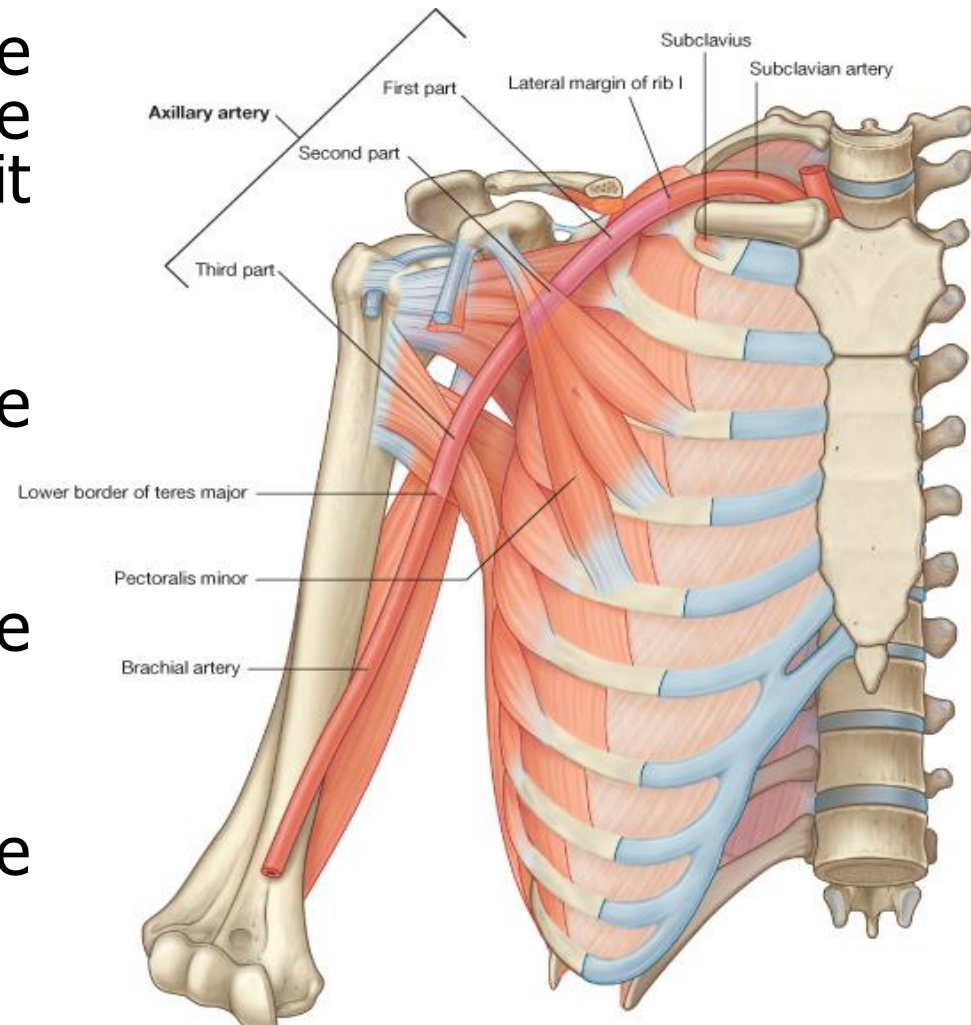
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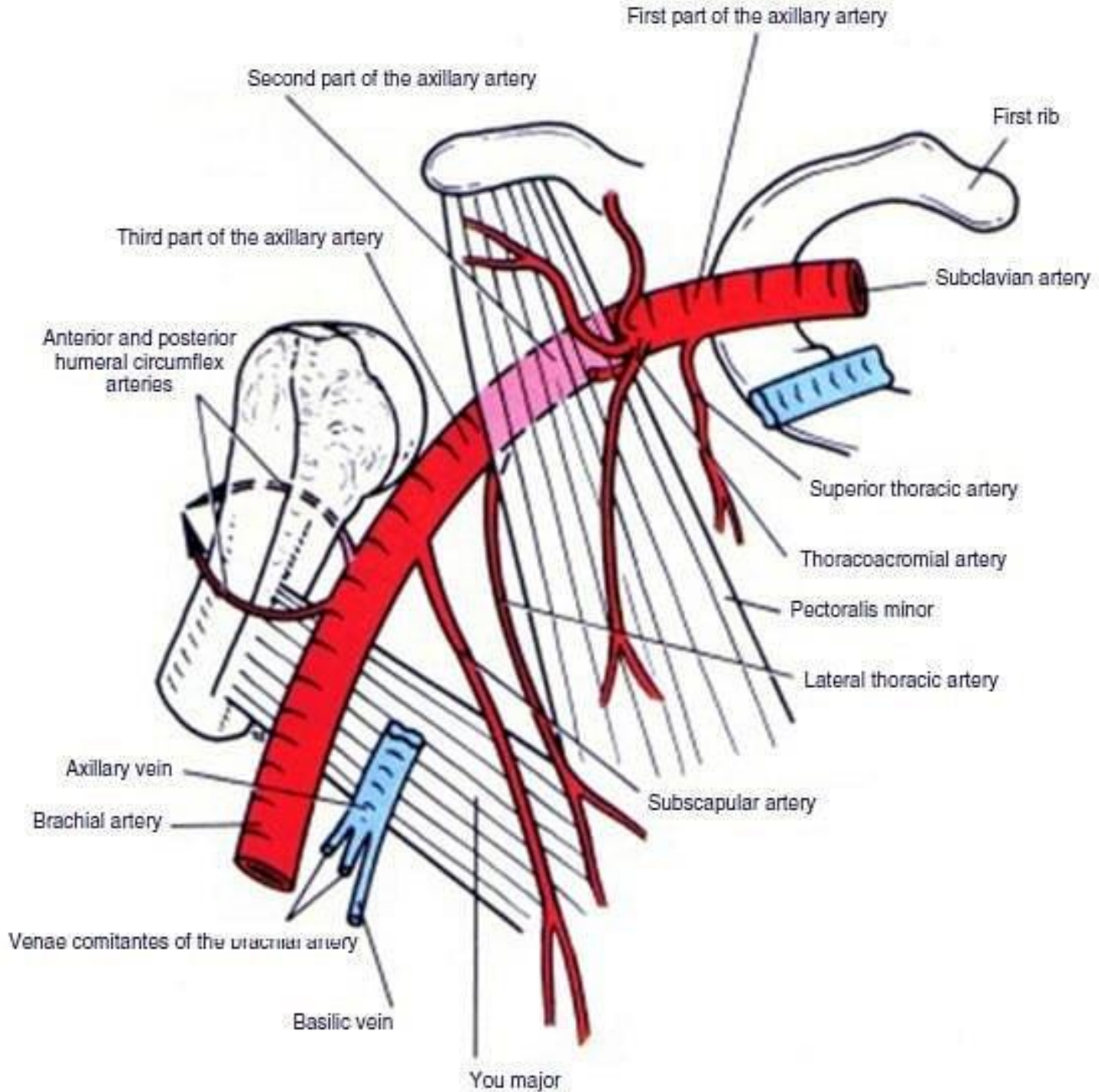
- ***Beginning:*** The axillary artery begins at the lateral border of the first rib as a continuation of the subclavian artery.
- ***Termination:*** at the lower border of the teres major muscle, where it continues as the brachial artery.
- The artery is closely related to the cords of the brachial plexus and their branches and is enclosed with them in a connective tissue sheath called **the axillary sheath**. If this sheath is traced upward into the root of the neck, it is seen to be continuous with the **prevertebral fascia**.



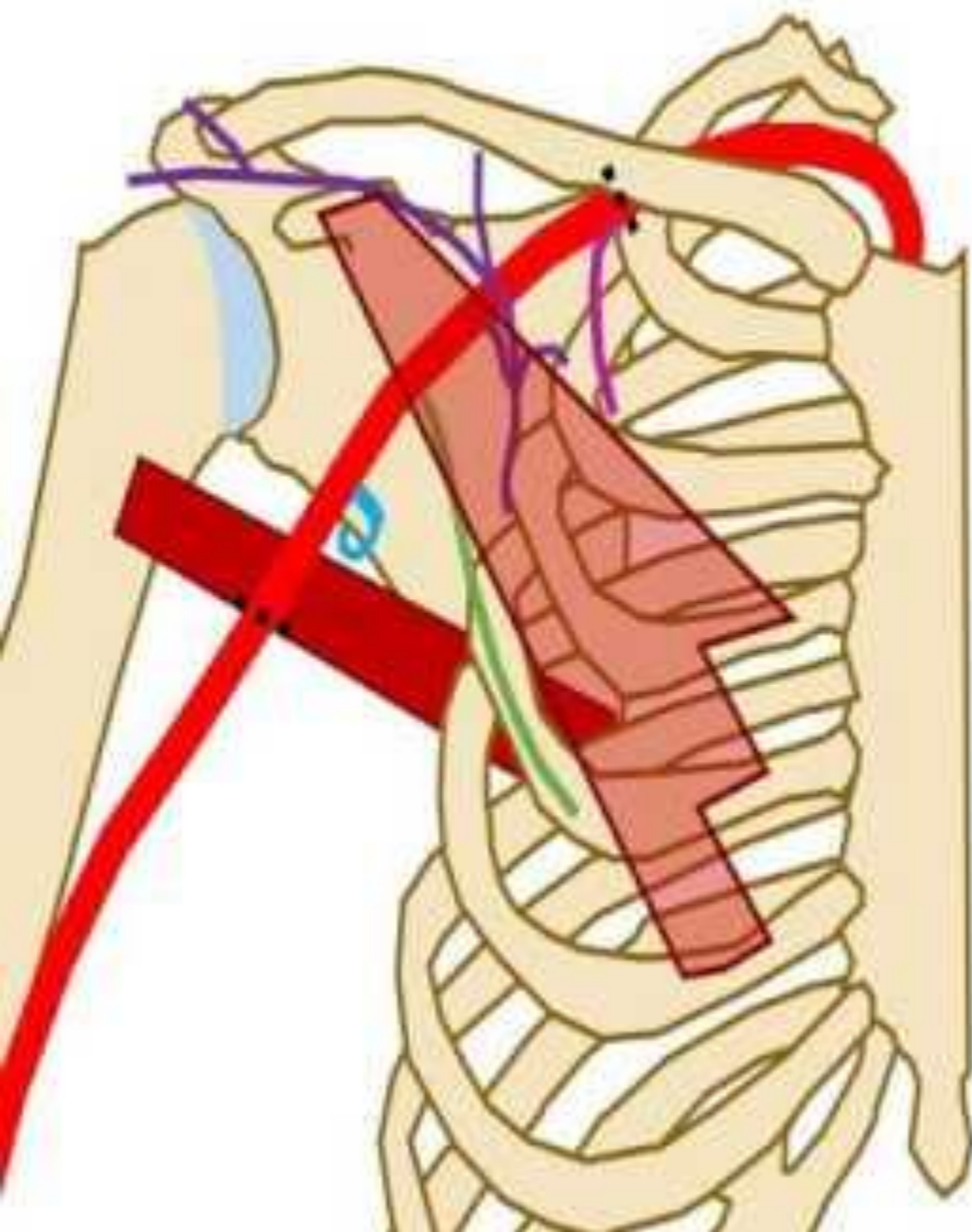
# *Parts of the axillary artery*

- The pectoralis minor muscle crosses in front of the axillary artery and divides it into three parts:
- **First part** above the pectoralis minor muscle.
- **Second part** behind the pectoralis minor muscle.
- **Third part** below the pectoralis minor muscle.





## Branches of the Axillary Artery



Superior thoracic

Thoracoacromial trunk

- Pectoral
- Deltoid
- Clavicular
- Acromial

Lateral thoracic

Subscapular

- Circumflex scapular

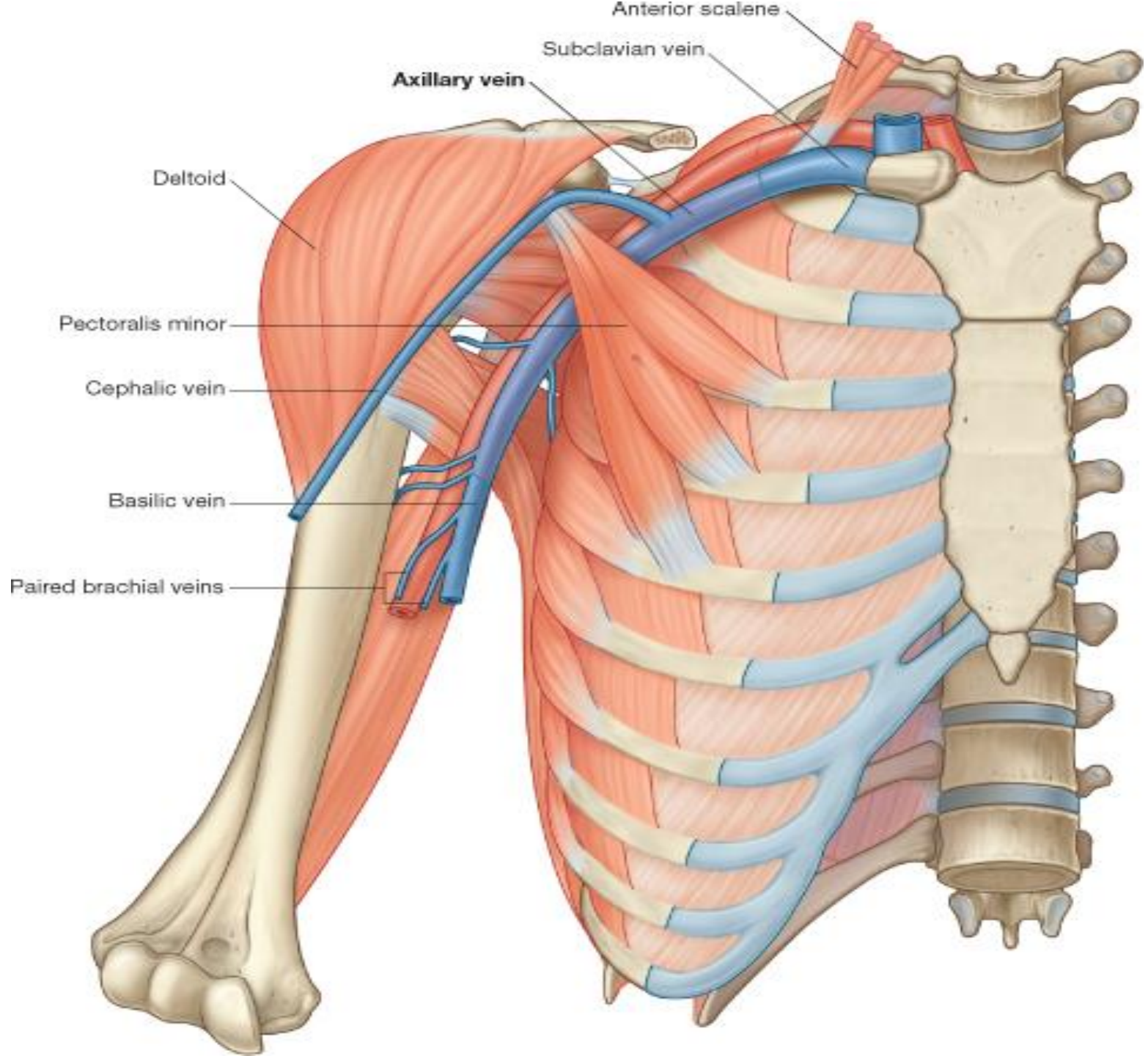


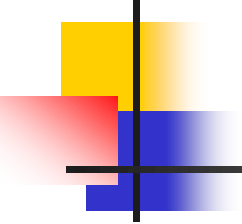


# *Axillary Vein*

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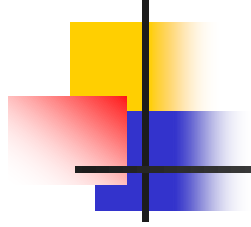
- The axillary vein is formed at the lower border of the teres major muscle by the union of the venae comitantes of the brachial vein and the basilic vein.
- It runs upward on the medial side of the axillary artery and ends at the lateral border of the first rib by becoming the subclavian vein.
- The vein receives tributaries, which correspond to the branches of the axillary artery, and the cephalic vein.



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- For further inquiries **PLZ** feel free to contact at any time through email

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*Thank You*