

# Clavicle

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# Competency of Upper Limb

**8.1:** Identify the given bone, its side, important features & keep it in anatomical position

**8.2:** Identify & describe joints formed by the given bone

**8.3:** Enumerate peculiarities of clavicle

**8.4:** Demonstrate important muscle attachment on the given bone

**Synonym-** Collar bone / Beaty bone

**Type of bone-** Modified long bone (it has no medullary cavity & develops from membrane).

**Functions-**

1. It place the scapula laterally, so that the limb can swing from the side of trunk.
2. It transmits the weight from upper limb through coraco-clavicular ligament & medial 2/3 of bone to sternum.
3. It helps in various scapular movement.
4. Provide surface for attachment of muscle & ligament.
5. Concave posterior surface protects neurovascular structures.

# Peculiarities-

1. No medullary cavity.

2. It is the only long bone which ossify in membrane except for its medial end.

(Long bone ossify in cartilage)

3. Sometime pierced by (Intermediate supraclavicular nerve (C3 C4))

4. It is the **first bone to start ossification** in the 5<sup>th</sup> or 6<sup>th</sup> week of intrauterine life & **last bone to complete ossification** usually after 21 years.

5. It is the only long bone which ossify by **2 primary centre**.

6. It is **subcutaneous**.

7. It is the only long bone which **lies horizontally**.

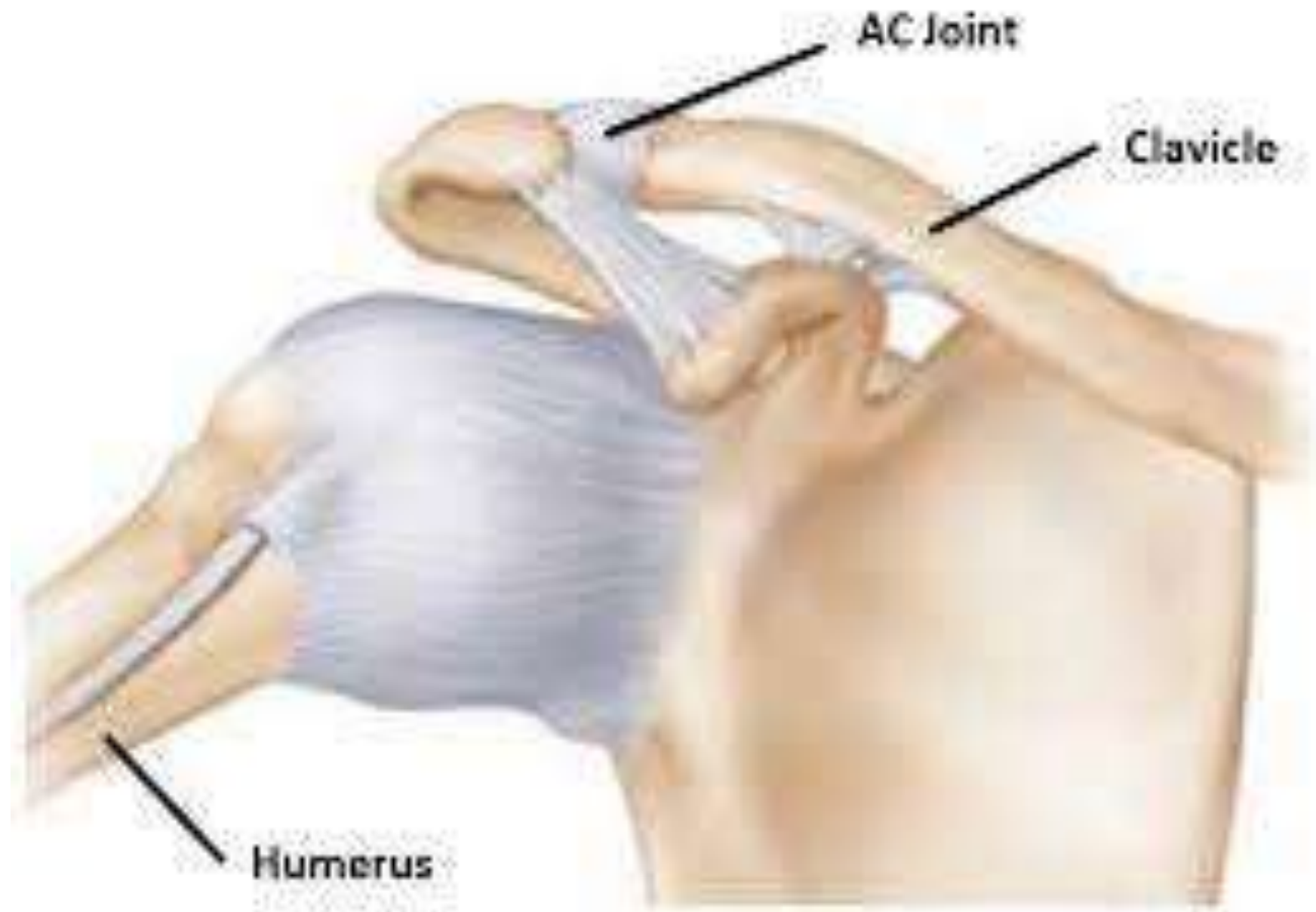
**Presenting parts-**

**Two ends-**

### **1.Lateral / Acromial-**

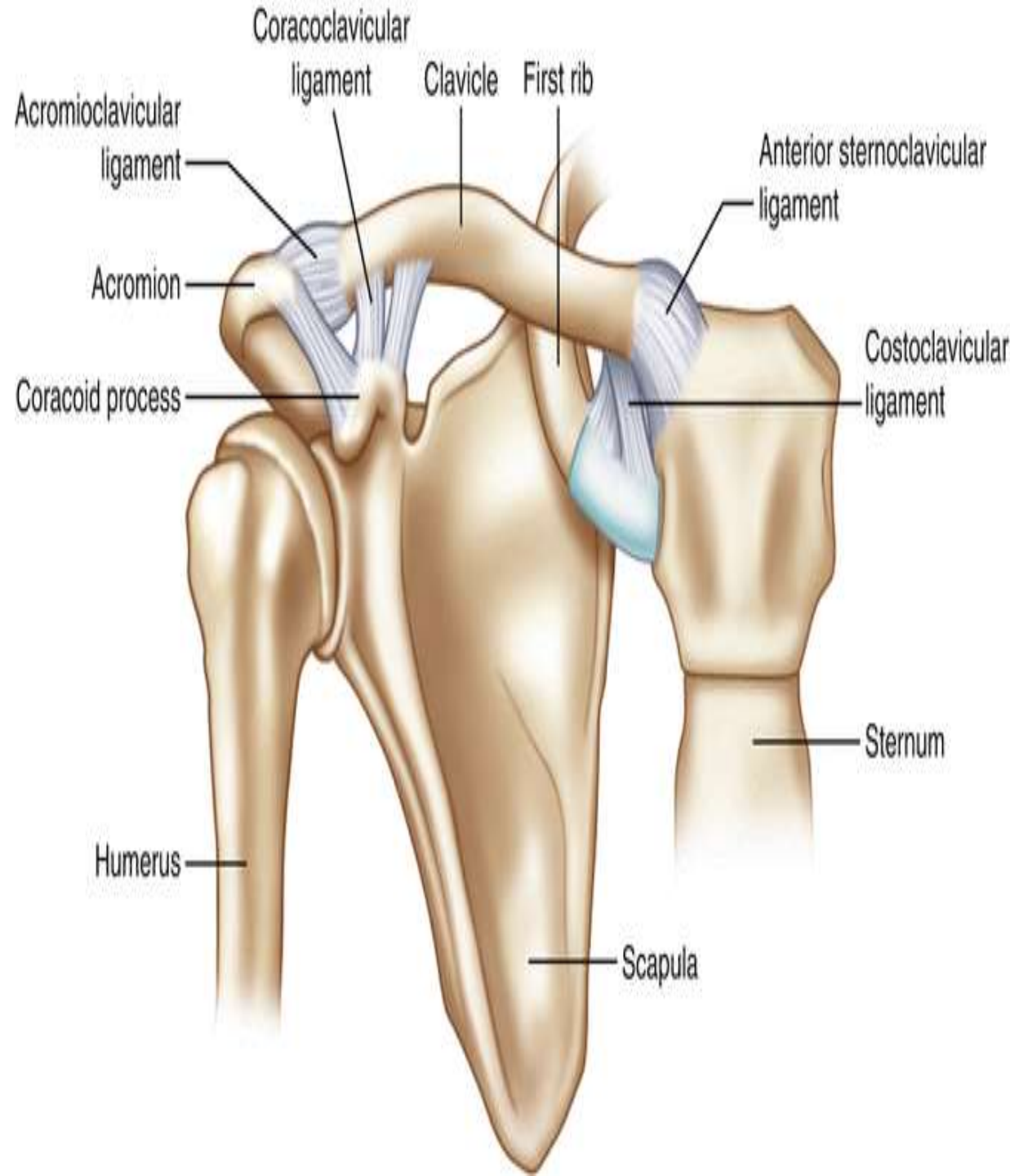
- Flat and bears an oval facet, directed laterally and downward.
- **Articulates:** similar facet on the anterior part of medial border of acromial process of scapula to form acromio-clavicular joint (Plain synovial joint).

# Acromioclavicular Joint



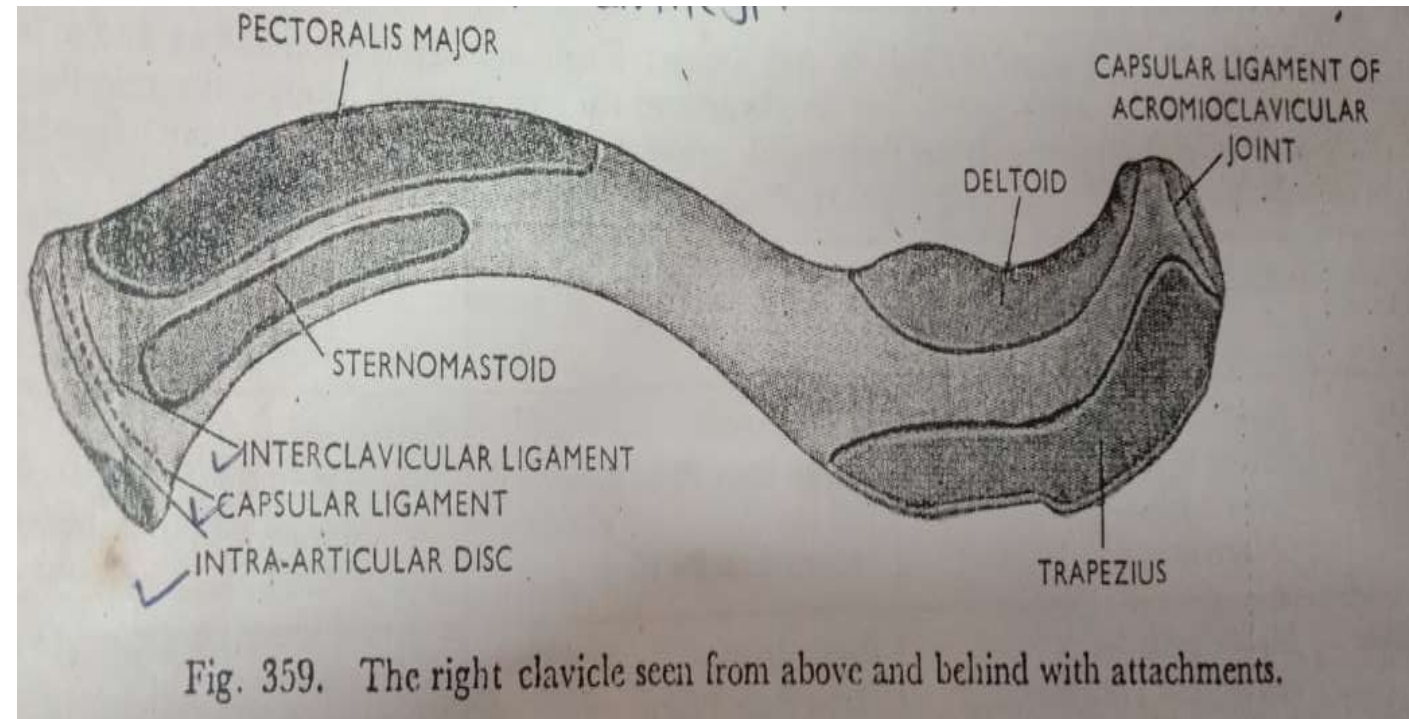
## 2. Medial / Sternal end-

- Enlarged
- Directed medially with a slight forward and downward tilt.
- Articulates : clavicular notch of manubrium sterni and 1st costal cartilage to form the sterno-clavicular joint.

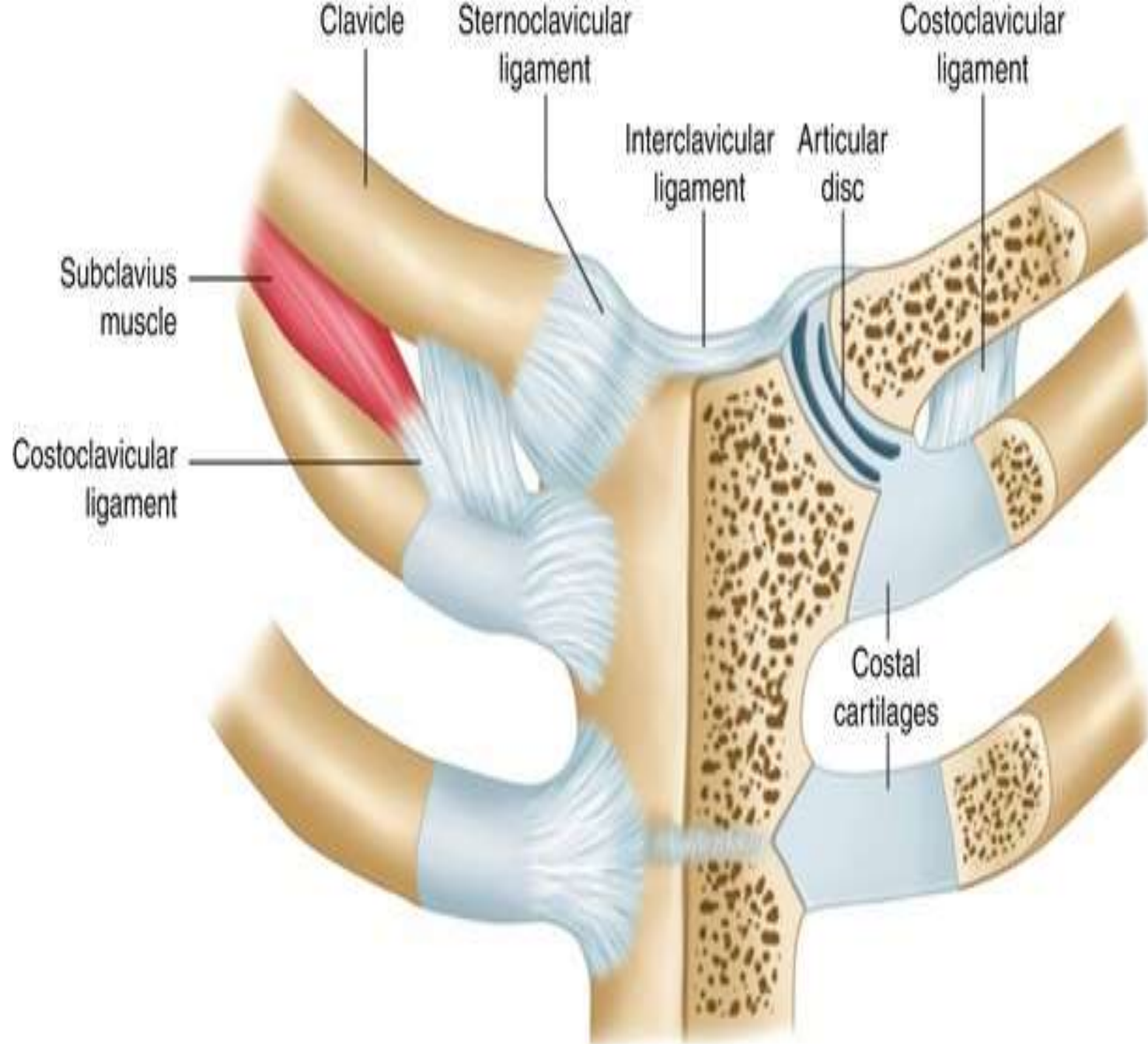




- Articular surface : **convex** **vertically** and slightly **concave** from **before** **backward**.
- Covered with **fibro-cartilage**
- At the periphery- **fibrous** capsule, **above** to the **interclavicular ligament**, and
- **above and behind** to the **articular disc**



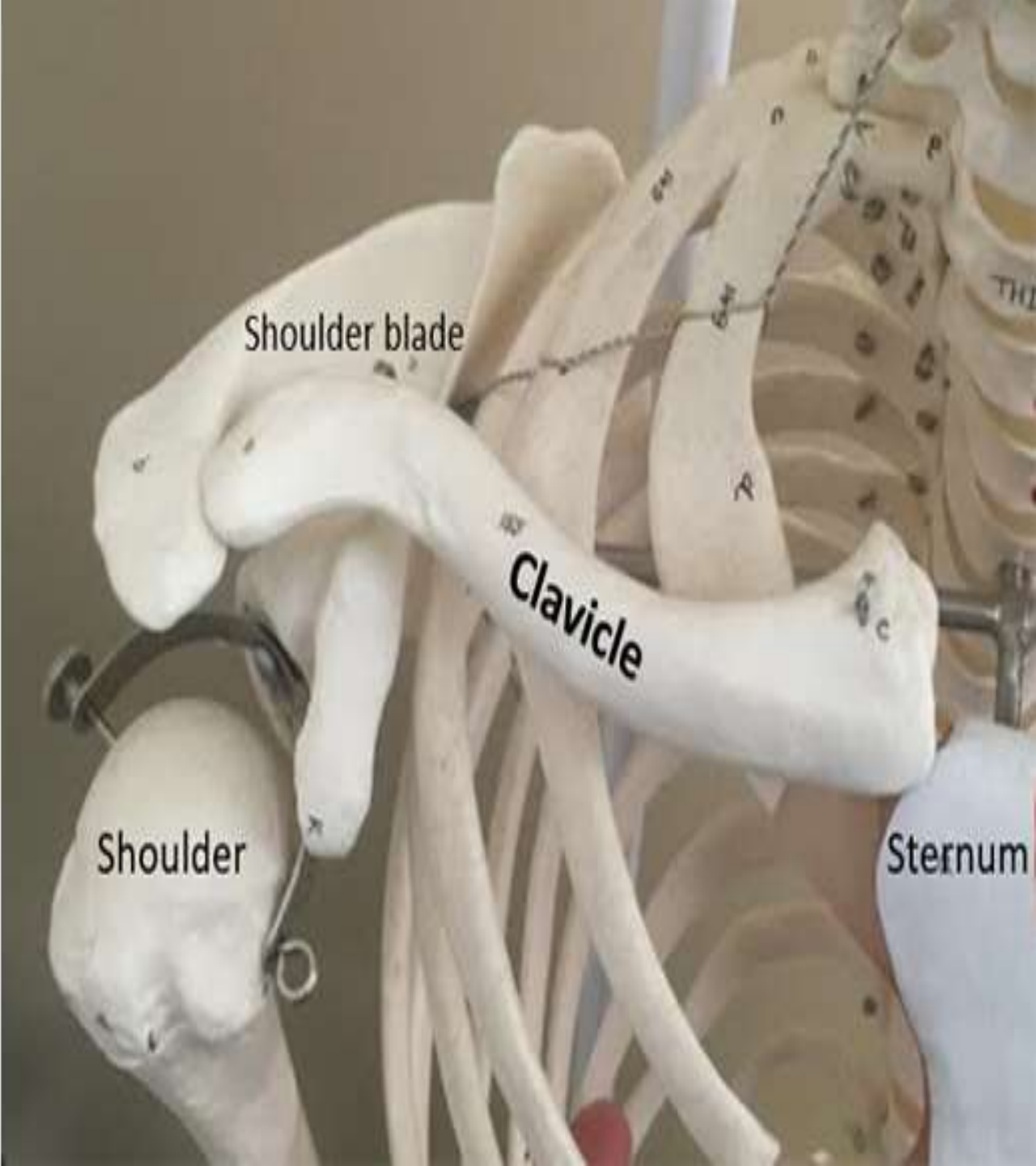
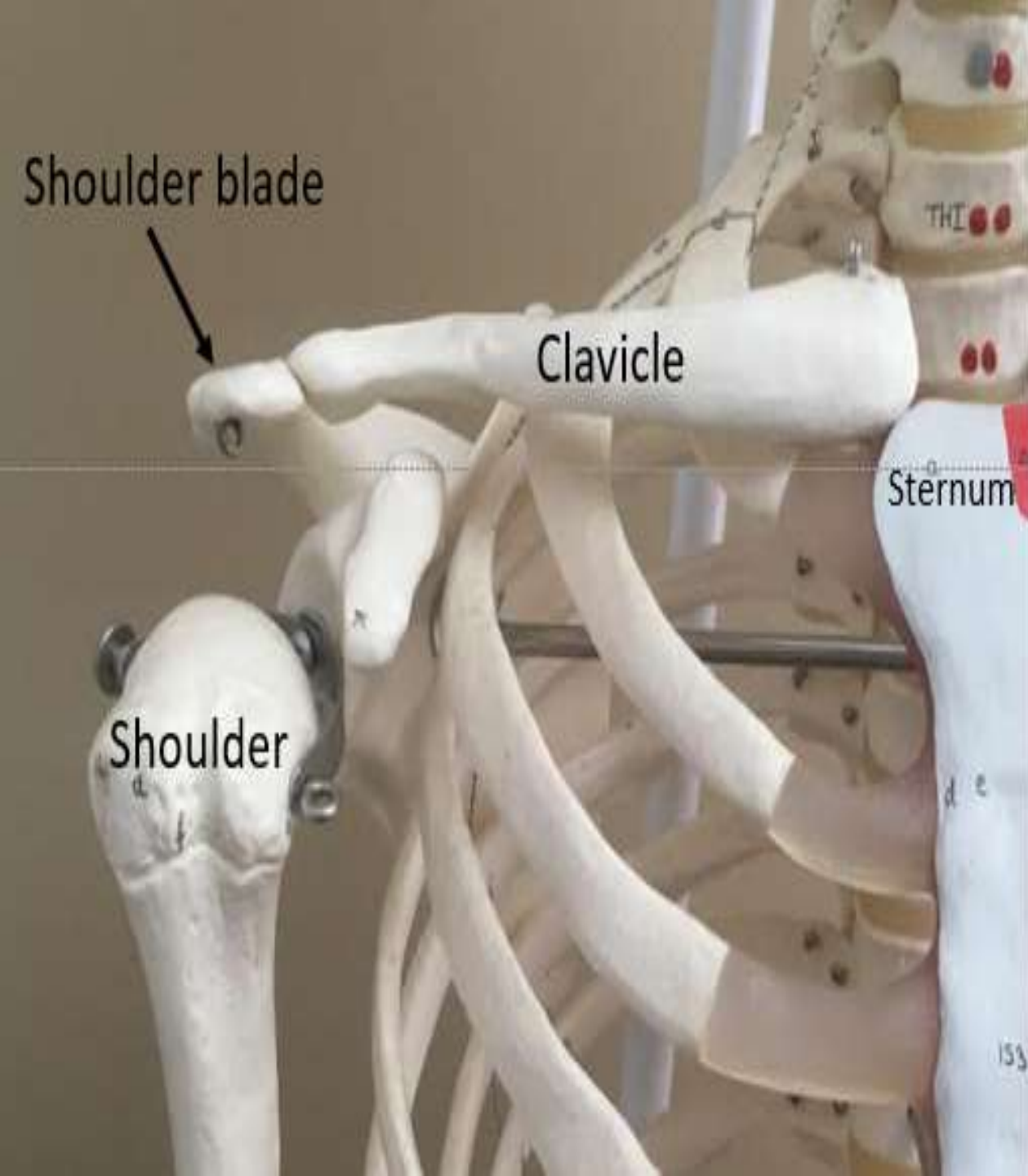
- Close to the sternal end undersurface of the shaft presents a **depression** : **costoclavicular ligament**



## Anatomical position-

Hold the bone horizontally in such a way that –

1. convex anterior surface of the medial  $\frac{2}{3}$  & concave anterior border of the lateral  $\frac{1}{3}$  looks forward.
2. Grooved inferior surface looks downwards.
3. Conoid tubercle lies postero-inferior.
4. flattened acromial end will determine the side to which the bone belongs.





## Lateral 1/3 of the clavicle-

- It is flat.
- **Surfaces** : superior & inferior.
- **Borders**: anterior & posterior.

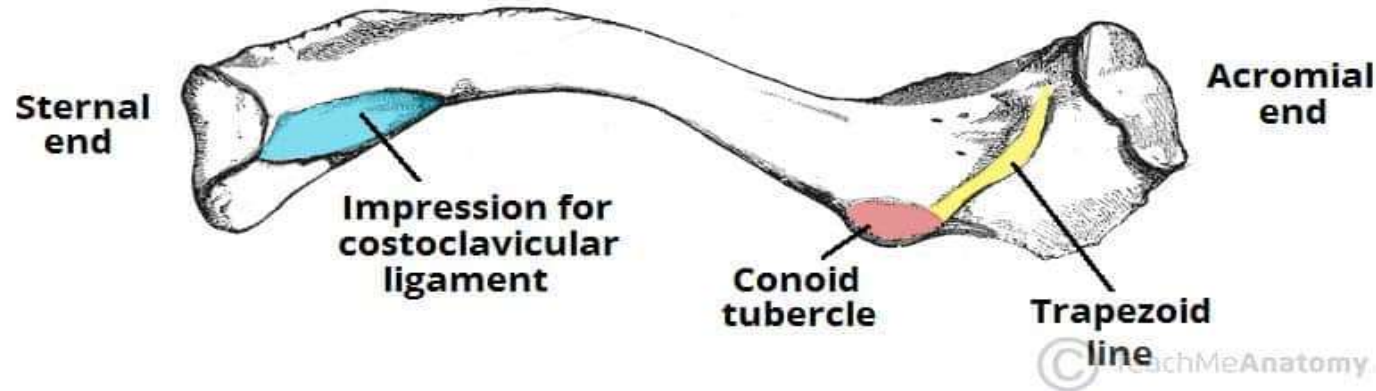
**The anterior border** : concave & may present a small tubercle known as the **deltoid tubercle**.

**The posterior border**: is thick & convex.

➤ **The superior surface:** rough both anteriorly & posteriorly, but it is smooth in the intervening area which is **subcutaneous**.

➤ **The inferior surface:**

- present the **conoid tube**



- From the conoid tubercle an oblique, rough ridge extend forwards & laterally to acromial end & is known **trapezoid ridge**.

## Attachment (Lateral 1/3)

1. Anterior border & adjoining upper surface - give origin to the anterior part of deltoid muscle (Axillary N.)
2. Posterior border & adjacent upper surface receive insertion of Upper fibre of trapezius muscle (Spinal part of accessory nerve & by ventral rami of C3, C4 Nerve).

### 3. Conoid tubercle & trapezoid ridge of inferior surface

- attachment to the conoid and trapezoid parts of **coraco-clavicular ligament**.





## **Medial 2/3 of the clavicle-**

4 surfaces-

Anterior,

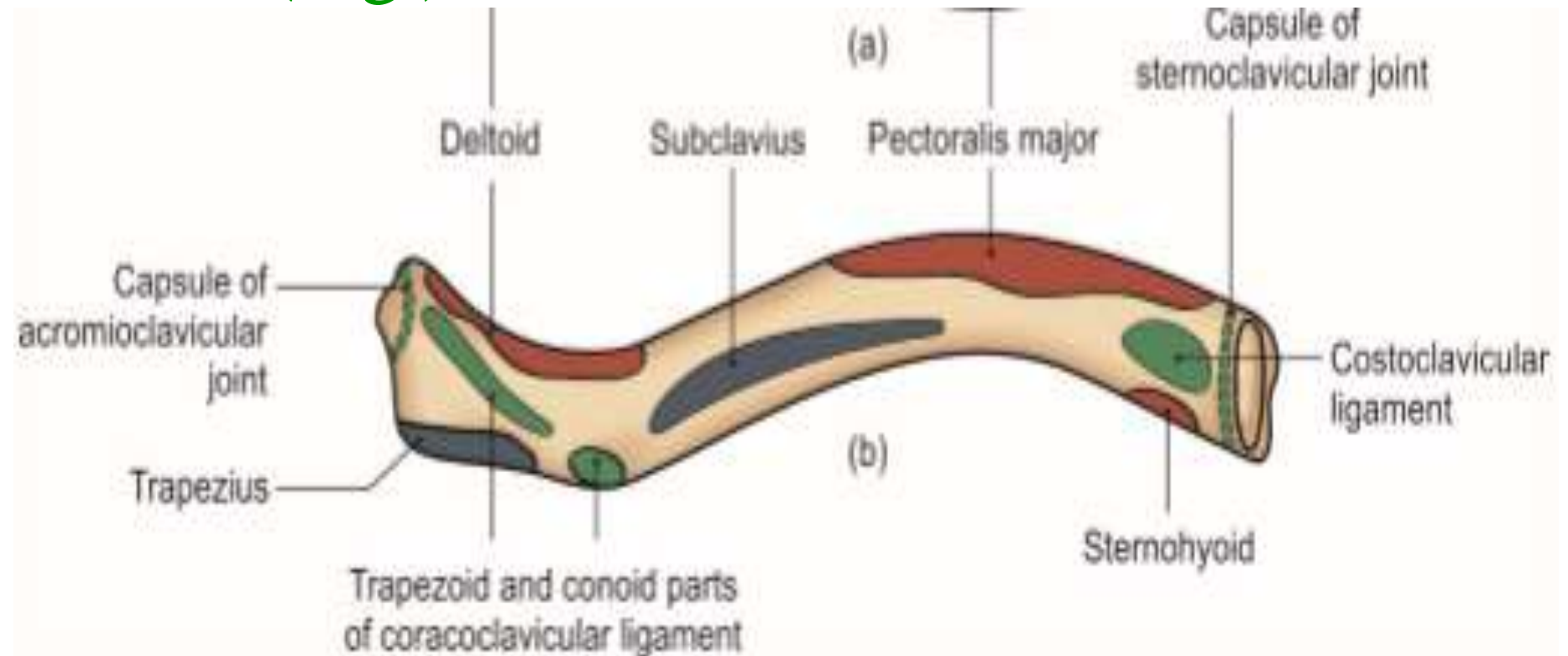
Posterior,

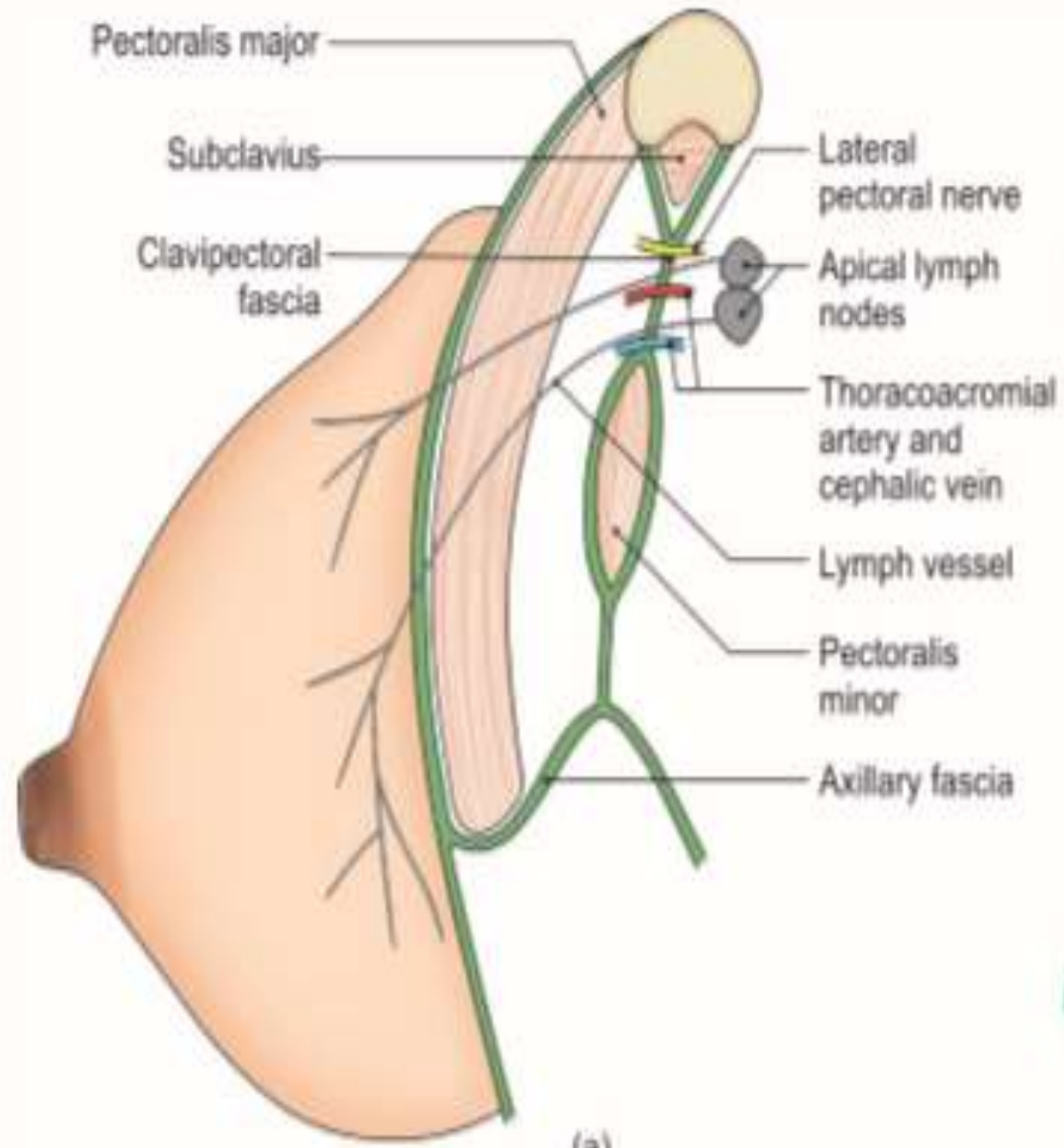
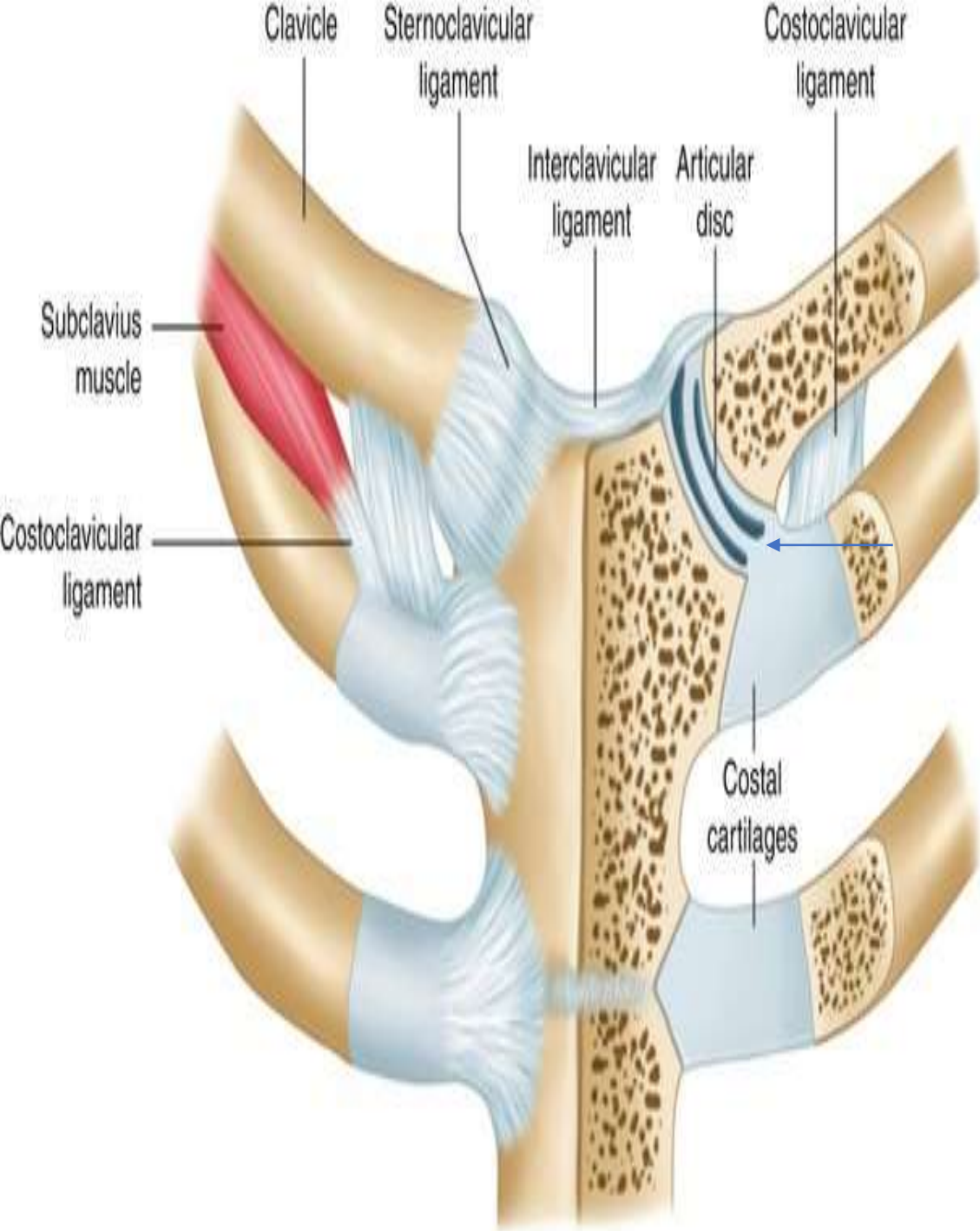
Superior,

Inferior.

# 1. Inferior surface of Medial 2/3 of the clavicle-

- Longitudinal groove in the **middle 1/3** for the attachment of **subclavius muscle**
- Two lips of the groove give attachment to 2 layers of **clavipectoral fascia.**(Fig.)

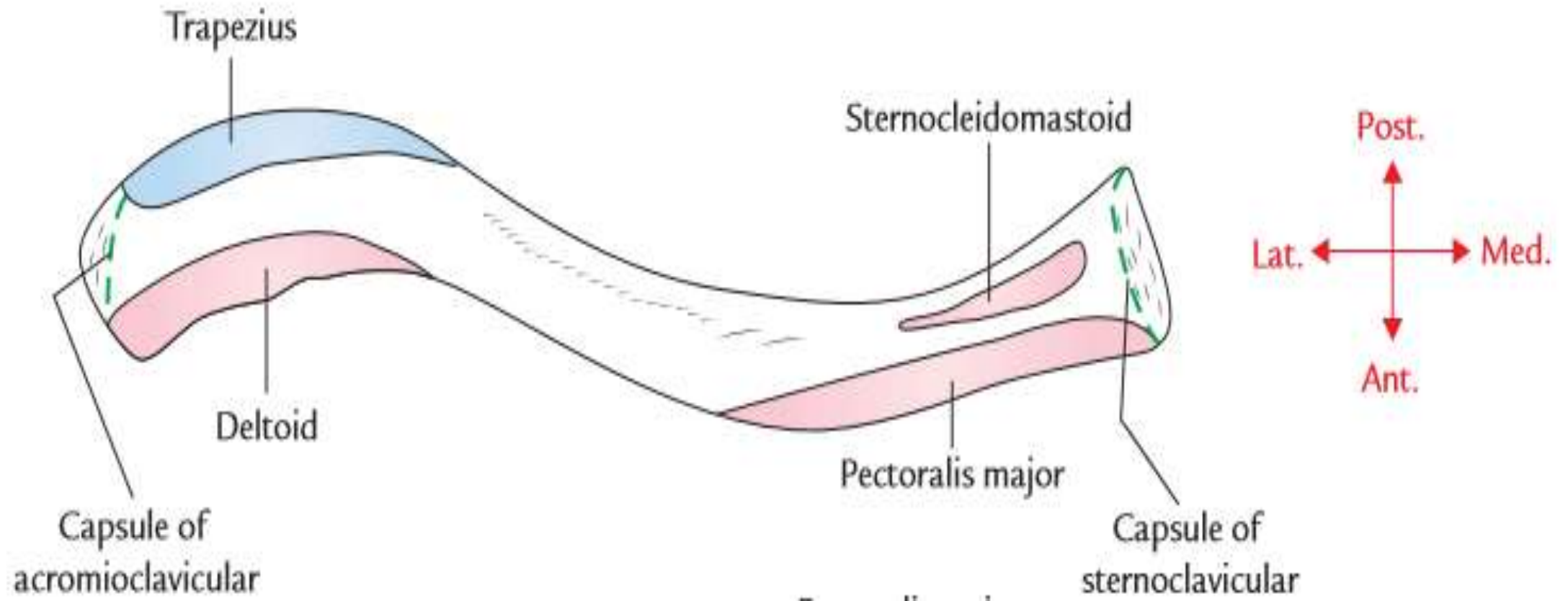




➤ **Nutrient foramen:** on the lateral part of the subclavian groove transmits the nutrient vessels (branch of suprascapular artery of thyrocervical trunk of 1<sup>st</sup> part of subclavian artery)

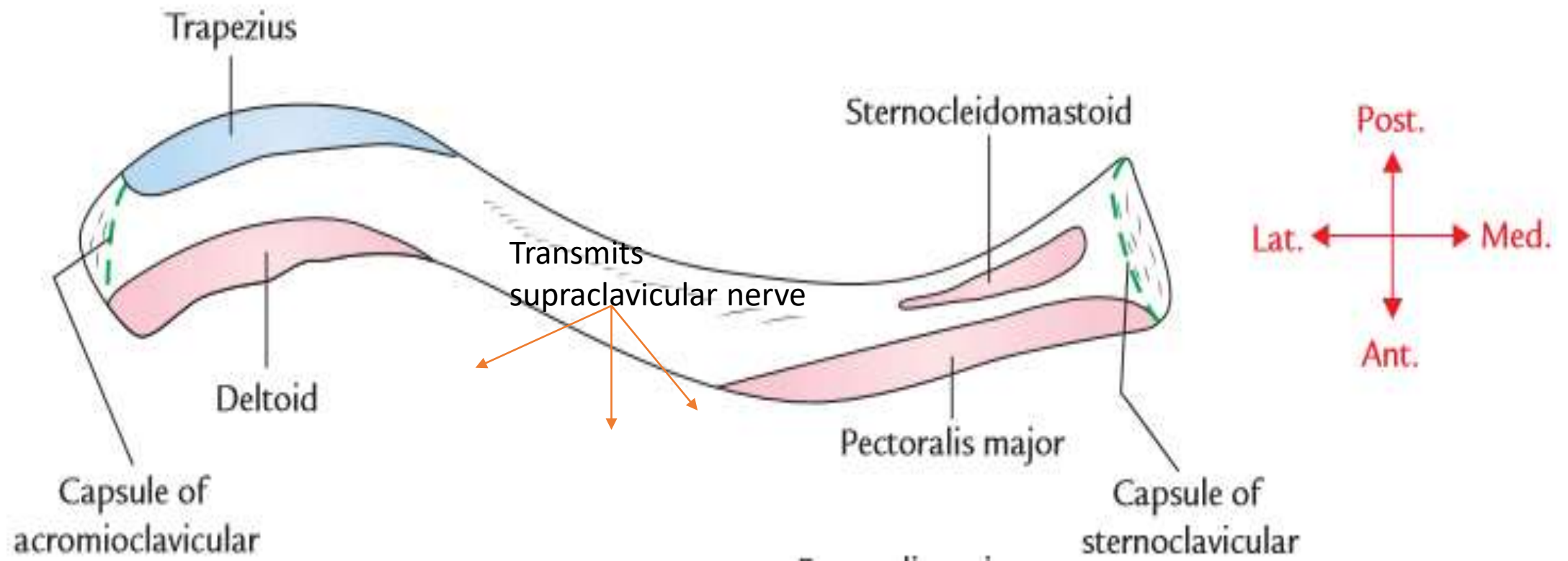
## 2. Anterior surface of medial 2/3

- origin to the clavicular head of **pectoralis major** in the medial half(nerve to medial & lateral pectoral nerve)
- Between the pectoralis major & deltoid, the clavicle forms the base of **deltopectoral triangle**.



### 3. Superior surface

- Medial 1/3 -origin to the clavicular head of **sternocleido mastoid** (Spinal part of accessory nerve)





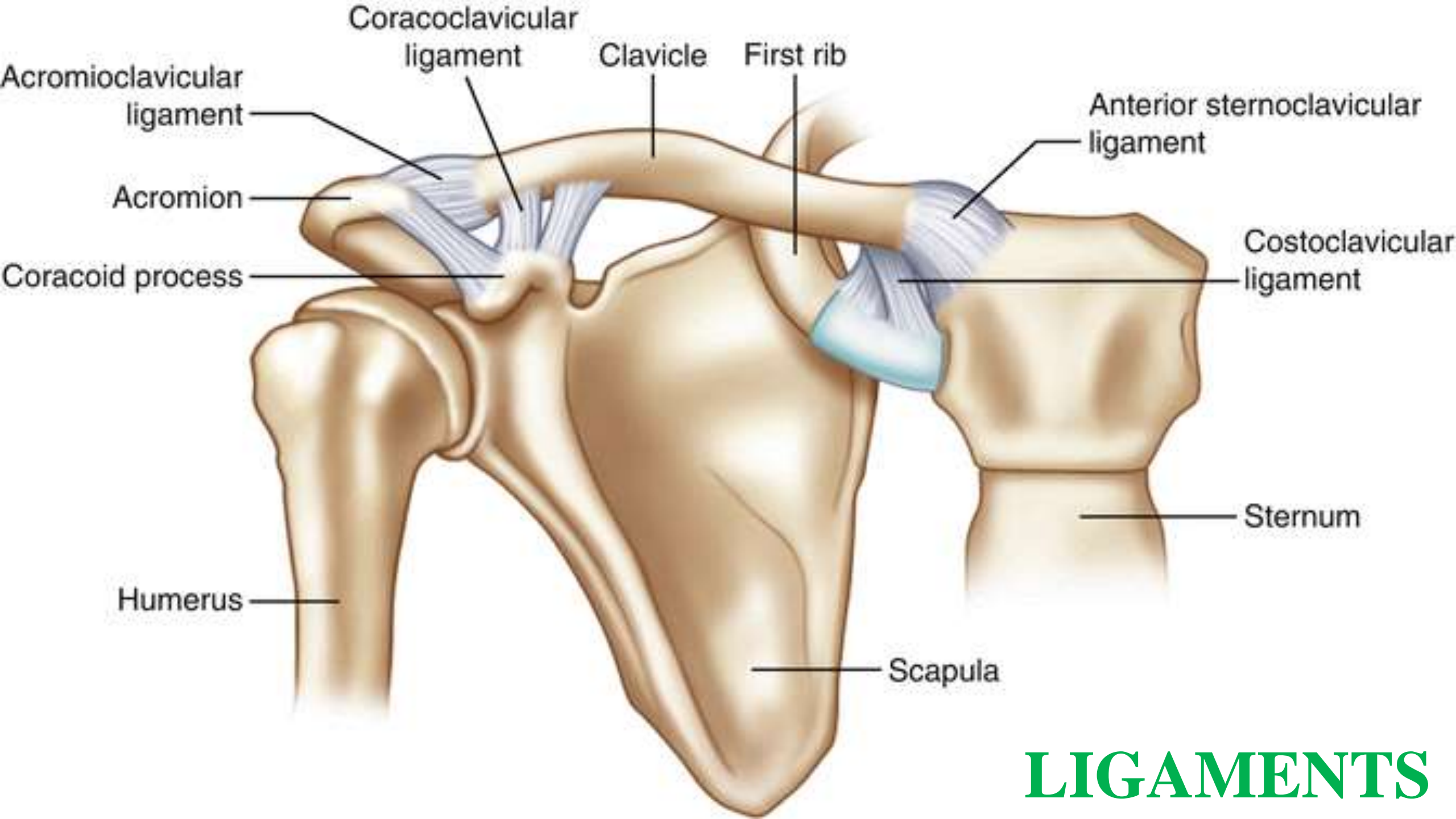
#### 4. Posterior surface (M-L)

1. Close to the sternal end - origin to some fibres of the **sternohyoid muscle**.

2. (M-L) **Internal jugular vein** which descends behind the sternohyoid muscle, internal jugular vein joins with the subclavian vein to form the **brachio-cephalic vein**,

3. Trunks of brachial plexus & subclavian artery.

4. **Suprascapular vessels** (br of thyrocervical artery of 1<sup>st</sup> part of subclavian) passes laterally along the upper part of posterior surface



**LIGAMENTS**



# Ossification:

- First bone in the body to ossify except its medial end it ossifies in membrane.
- Ossifies from 2 primary centres & one secondary centre.
- Secondary centre for sternal end appears-18 yrs.
- fuses with shaft 21 yrs. The sternal end is growing end.



# JOINTS:

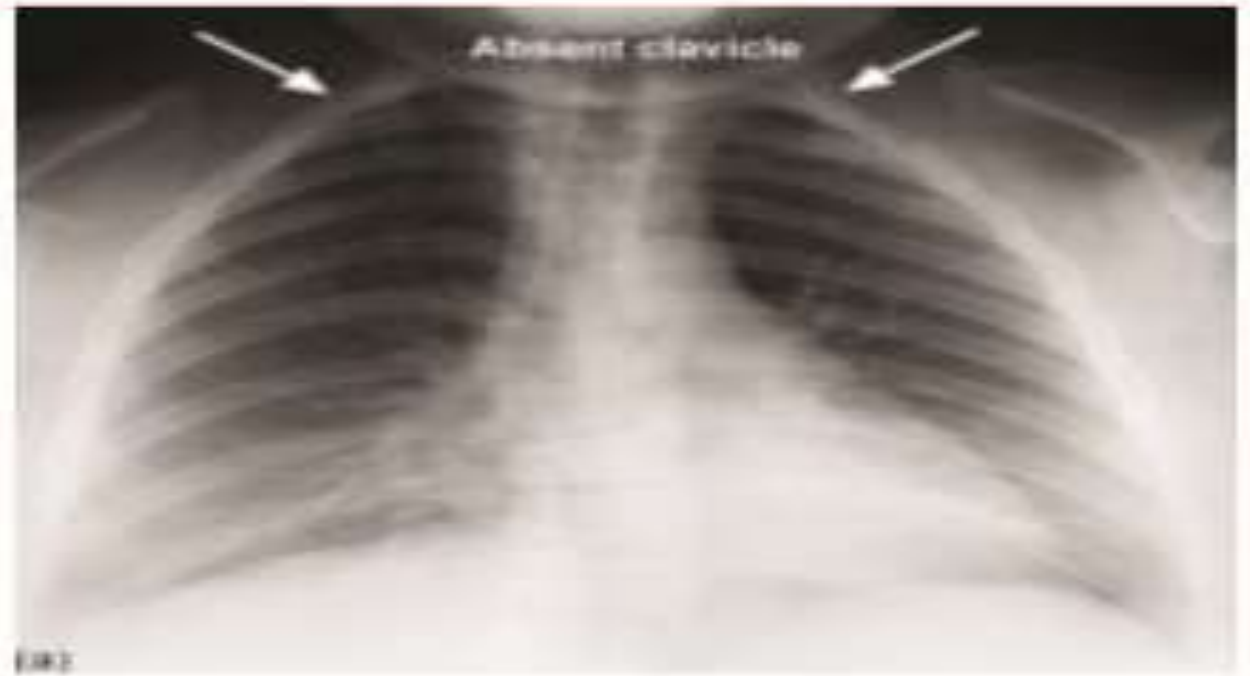
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## Applied

- **Clavicle is fractured**-fall on outstretched hand or on the shoulder. The fracture usually takes place at the **junction of medial 2/3 & lateral 1/3**.



- Clavicle is congenitally absent.



# Difference between male & female clavicle

Sex	Length	Weight
Male	Greater than the female.	Heavier.(more than 21gm)
Female	Less than the male.	Lighter(6-7 gm)
Female	Shorter, thinner, less curved than male.	Muscular impressions less marked than male.

THANK YOU