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Faculty Of Medicine

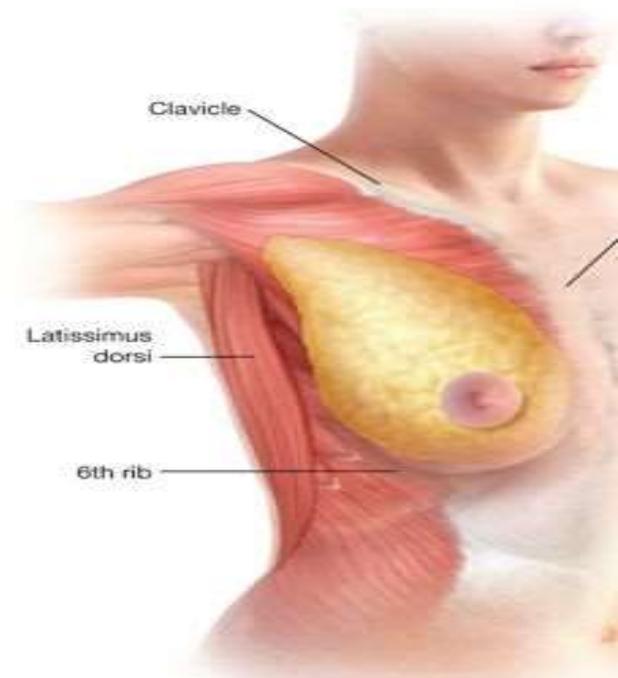


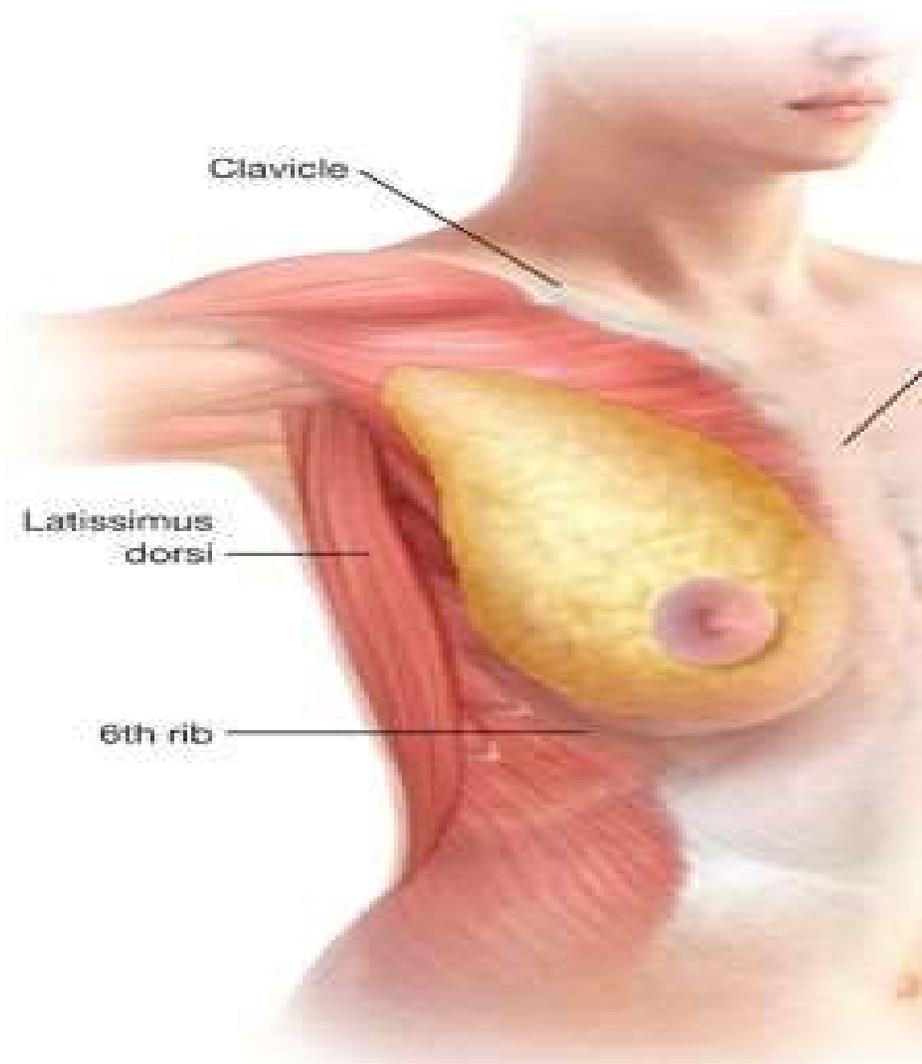
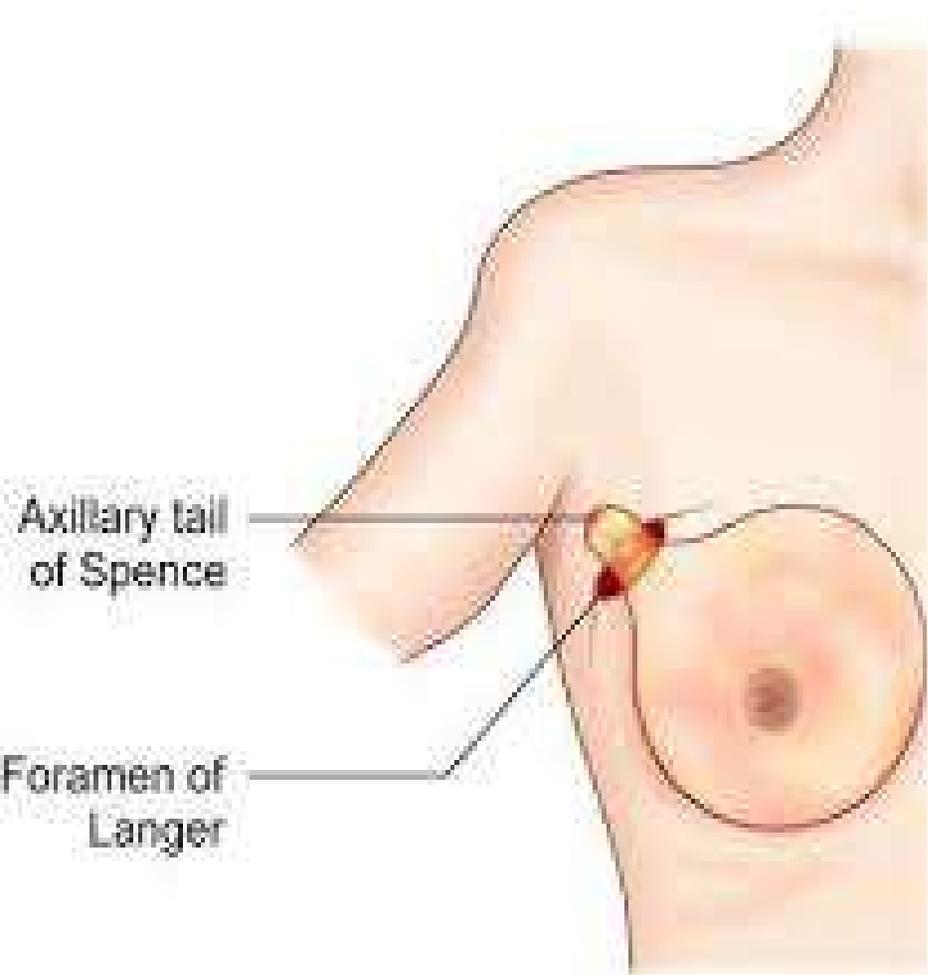
# Anatomy of the Breast

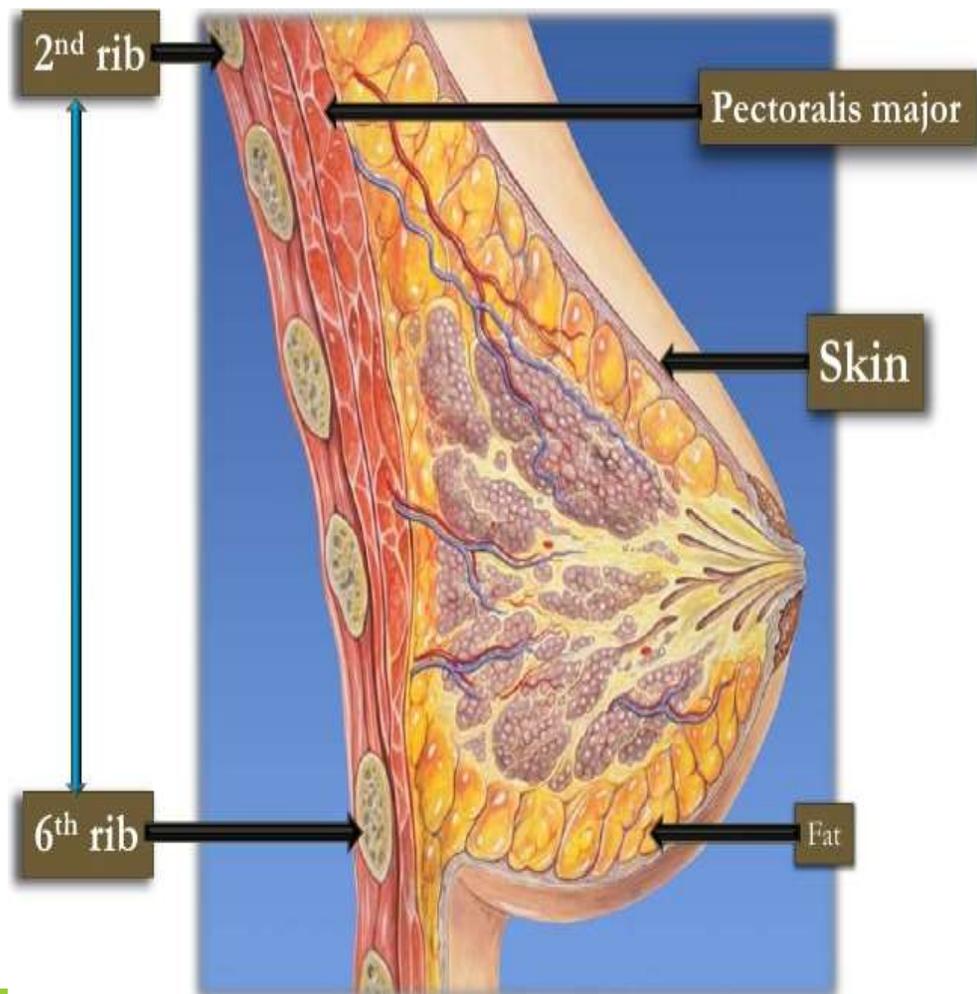
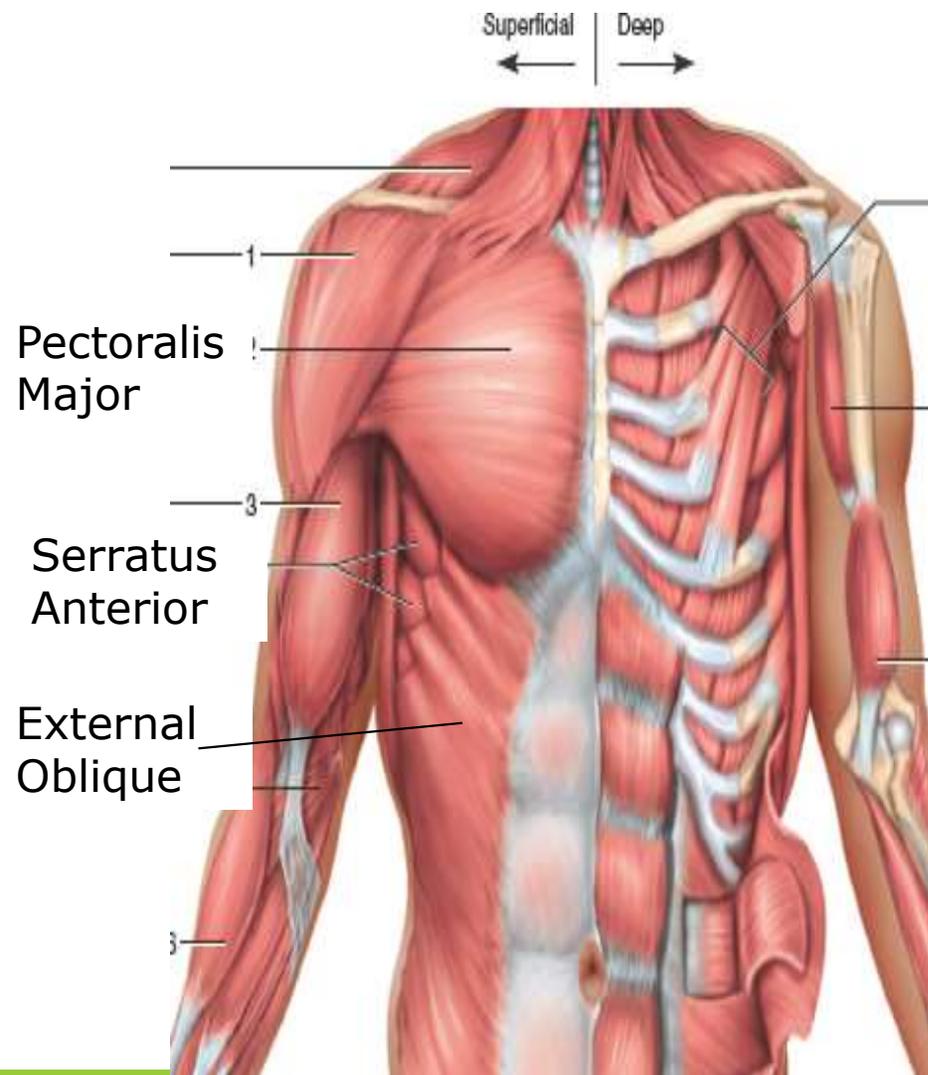
**Dr. Ahmed Salman**

Associate professor of anatomy & embryology

- ❖ The breasts are specialized accessory glands of the skin that secrete milk .
- ❖ They are present in both sexes.
- ❖ It is located in superficial fascia of pectoral region.
- ❖ It is axillary tail (**axillary tail of Spence** ) extends upward and laterally, pierces the deep fascia and enters the axilla. It passes through an opening in the deep Pectoral fascia is known as (**foramen of langer**)
- ❖ The base of the breast extends from the 2<sup>nd</sup> to 6<sup>th</sup> rib
- ❖ From the lateral margin of the sternum to the mid axillary line .







## Deep Relations:

The deep surface of the breast is related to the following structures in that order :

### 1) The retromammary space:

- It is loose areolar tissue between the gland and deep fascia (pectoral fascia)
- Allows the free mobility of the breast over the deep fascia.

**2) The deep fascia :** covering the pectoralis major muscle

**3) The flat base of the breast** lies on the pectoralis major (medial 2/3) and serratus anterior (lateral 1/3).

**4) The lower lateral part of the gland** rests on the external oblique muscle of the abdomen

## Structure of the breast

includes the skin, parenchyma and stroma.

**1) Skin:** covers the gland and fascia.

### a) Nipple

conical projection from just below the centre of the breast , Lies in the 4th intercostal space

#### Contains

a. Circular smooth muscle erect the nipple.

b. Longitudinal smooth muscle flatten the nipple.

- Carries the opening of lactiferous ducts (15-20 openings).

### b) Areola:

- Pigmented area of skin that surrounds the base of the nipple.

- It is rich in modified sebaceous gland particularly at the outer margin.

These become enlarged during pregnancy and lactation to form raised tubercles "tubercles of Montgomery"

These glands secrete oily secretin, which has a great importance to lubricate the nipple and areola and prevents them from cracking during lactation

➤ Fat and hair are absent under the areola and nipple .

**2) The stroma :** The gland has no capsule. The stroma is divided into :

**1) Fibrous stroma**

- Forms fibrous septa known as suspensory ligaments of Cooper.
- The septa divide the gland into 15-20 lobules.
- The septa anchor the skin and the gland to the pectoral fascia.

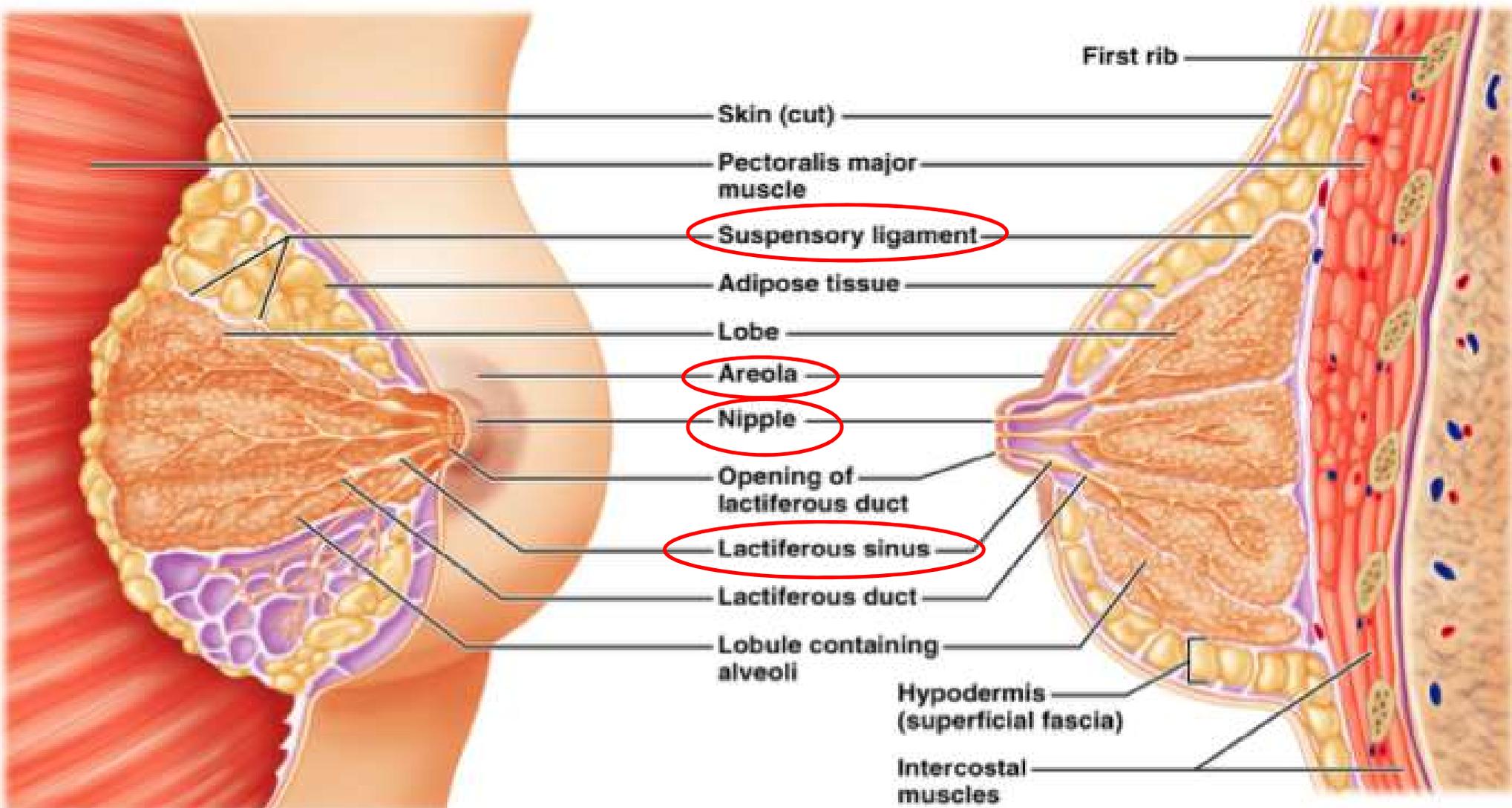
**2) Fatty stroma:**

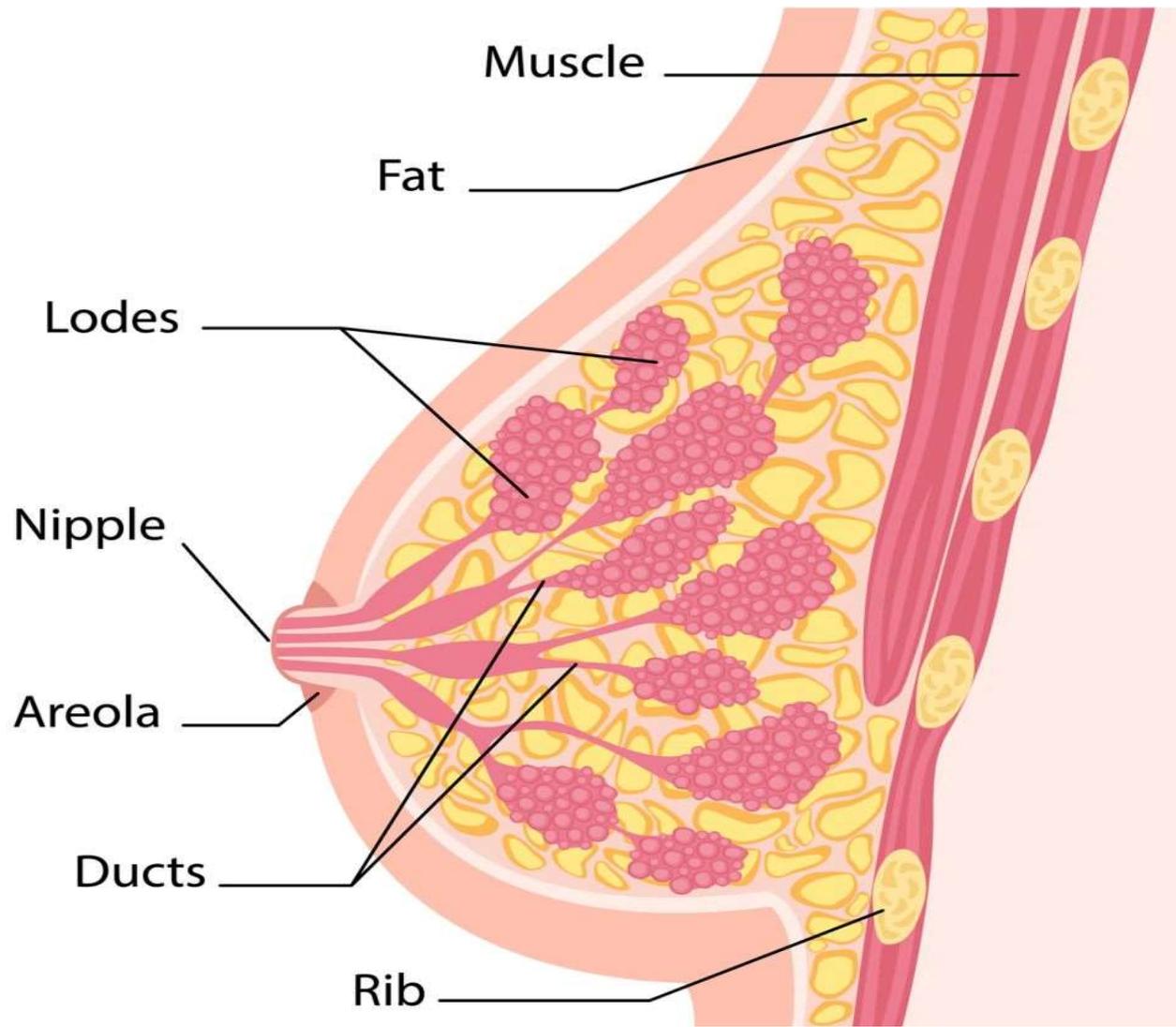
- Forms the main bulk of the gland , The gland is embedded into it
- It is responsible of the smooth contour of the breast.

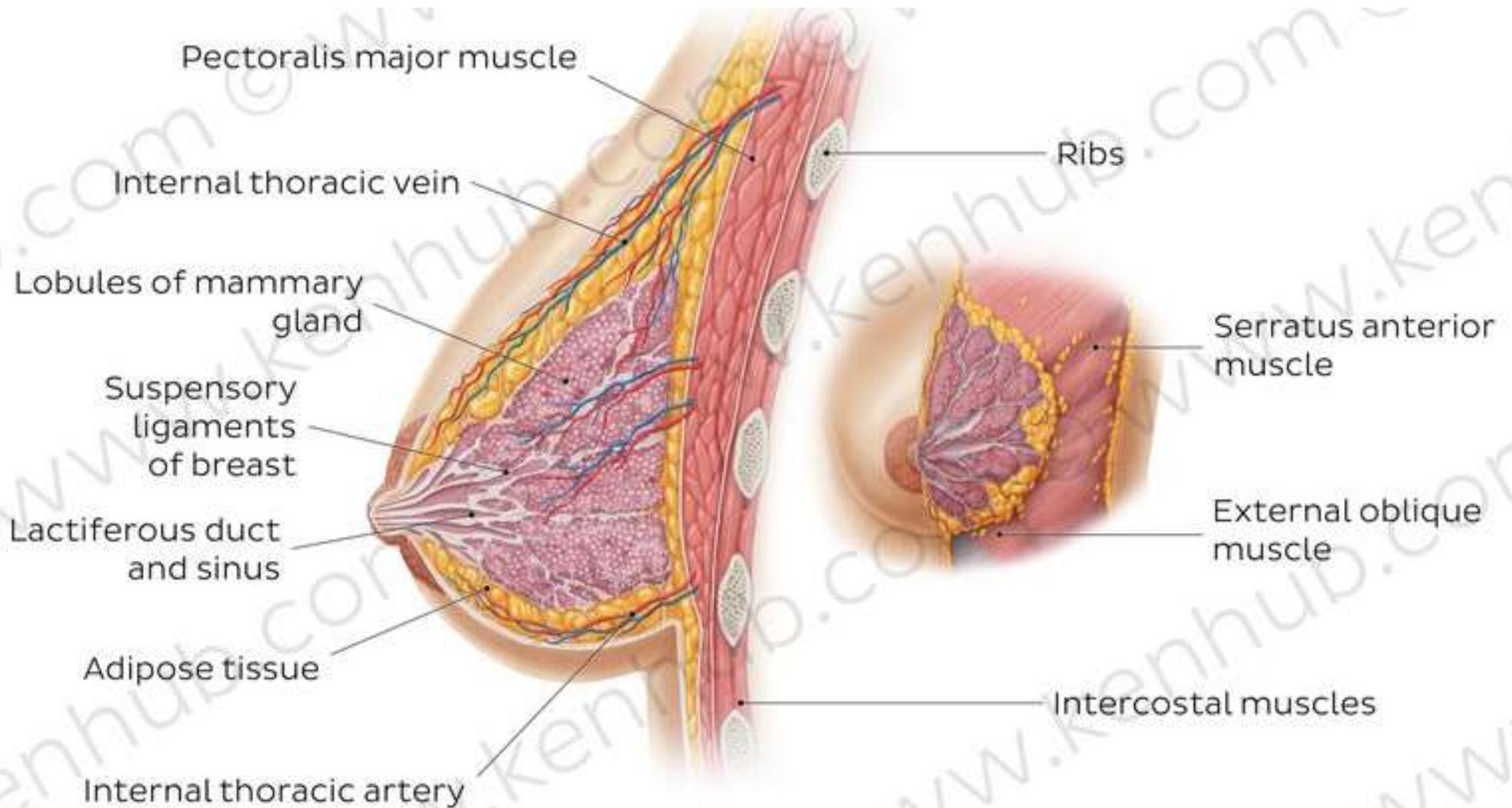
**3) Parenchyma (mammary gland):**

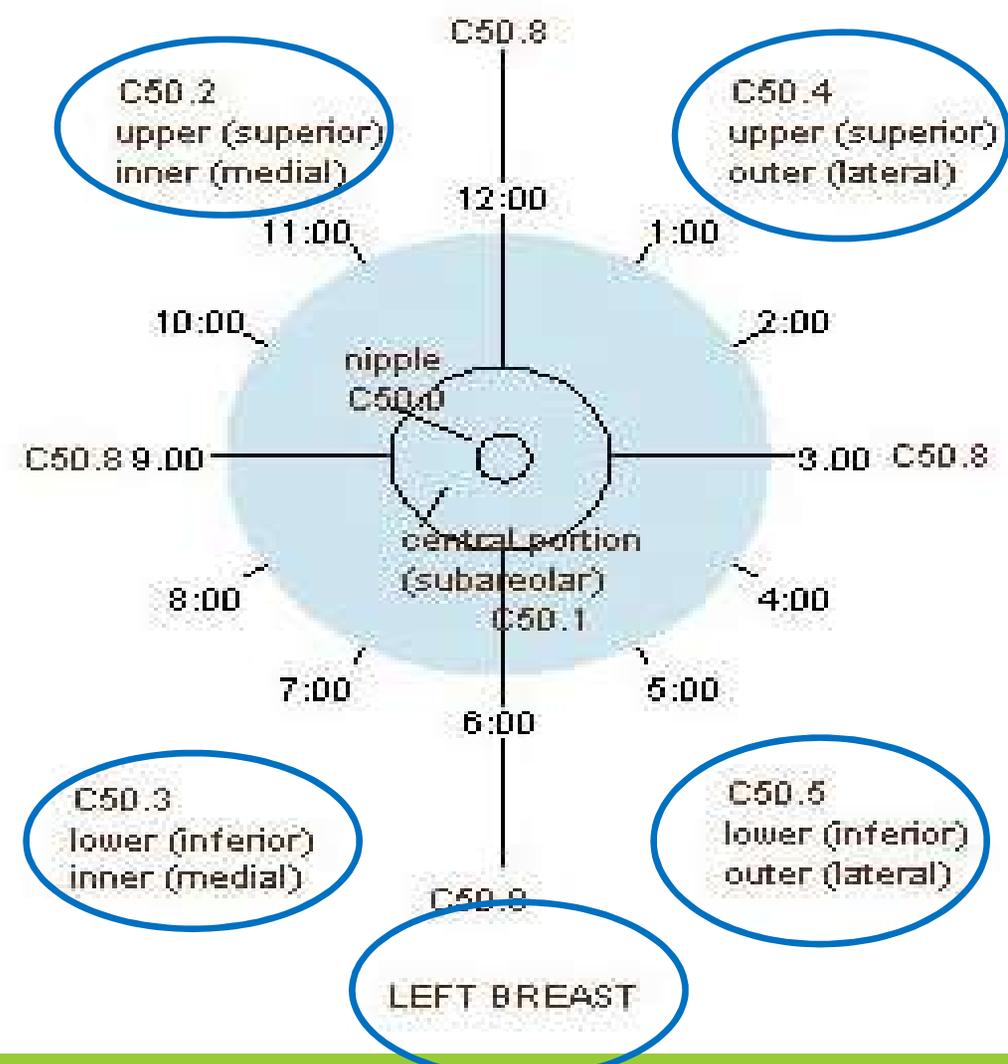
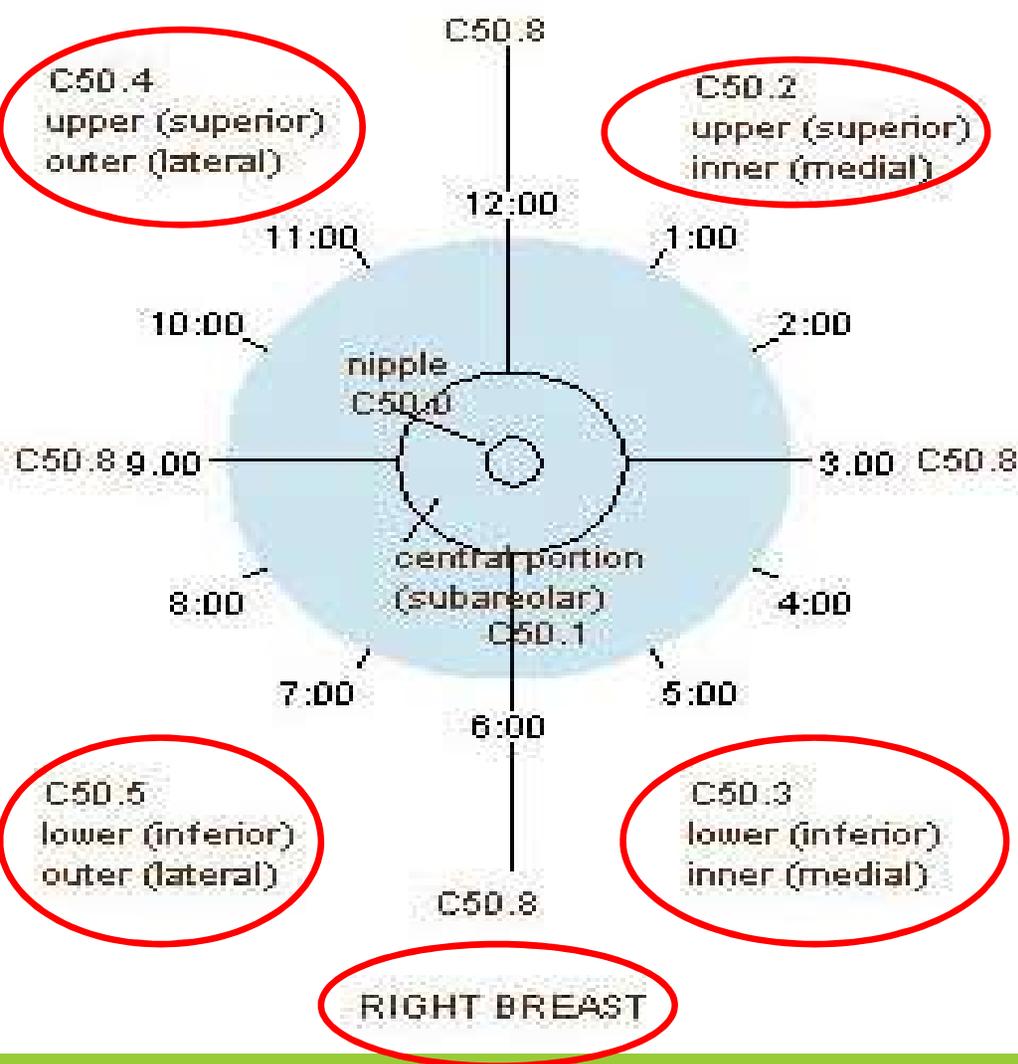
- Consists of the glandular tissue which secretes milk.
- The glandular tissue is divided into 15-20 lobules
- Each lobule has a lactiferous duct.

The lactiferous duct dilates under the areola to form to lactiferous sinus then become narrow again to open on the summit of the nipple.









## Arterial supply:

### 1) The medial part.

- a) Perforating branches of the internal mammary artery
- b) Anterior intercostal arteries from 2-6

### 2) The upper lateral part

Pectoral branch of the thoraco acromial artery. (branch of 2<sup>nd</sup> part of axillary artery).

### 3) The lower lateral part:

Lateral thoracic artery (branch of 3<sup>rd</sup> part of axillary artery).

## Venous drainage :

- 1) The subcutaneous tissues → venous circle at the base
- 2) The gland and stroma → small veins that accompany the arteries → internal mammary and axillary veins

Pectoral branch thoracoacromial artery

**Lateral**

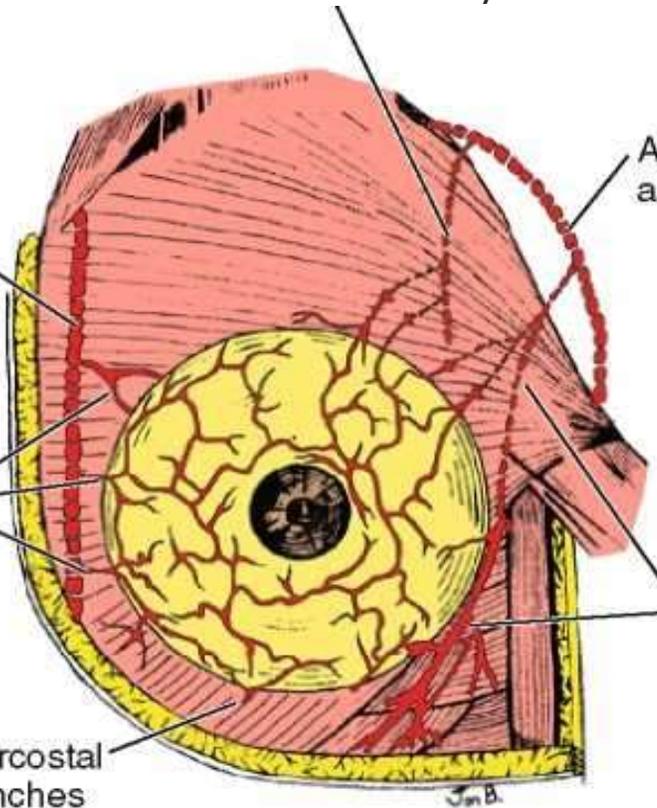
Internal  
mammary  
artery

Axillary  
artery

Anterior  
intercostal  
perforating  
arteries

Lateral  
thoracic  
artery

Intercostal  
branches  
of arteries



## Lymphatic drainage of the female breast:

**The superficial lymphatics**, form a dense plexus deep to the areola which is called the *subareolar plexus*

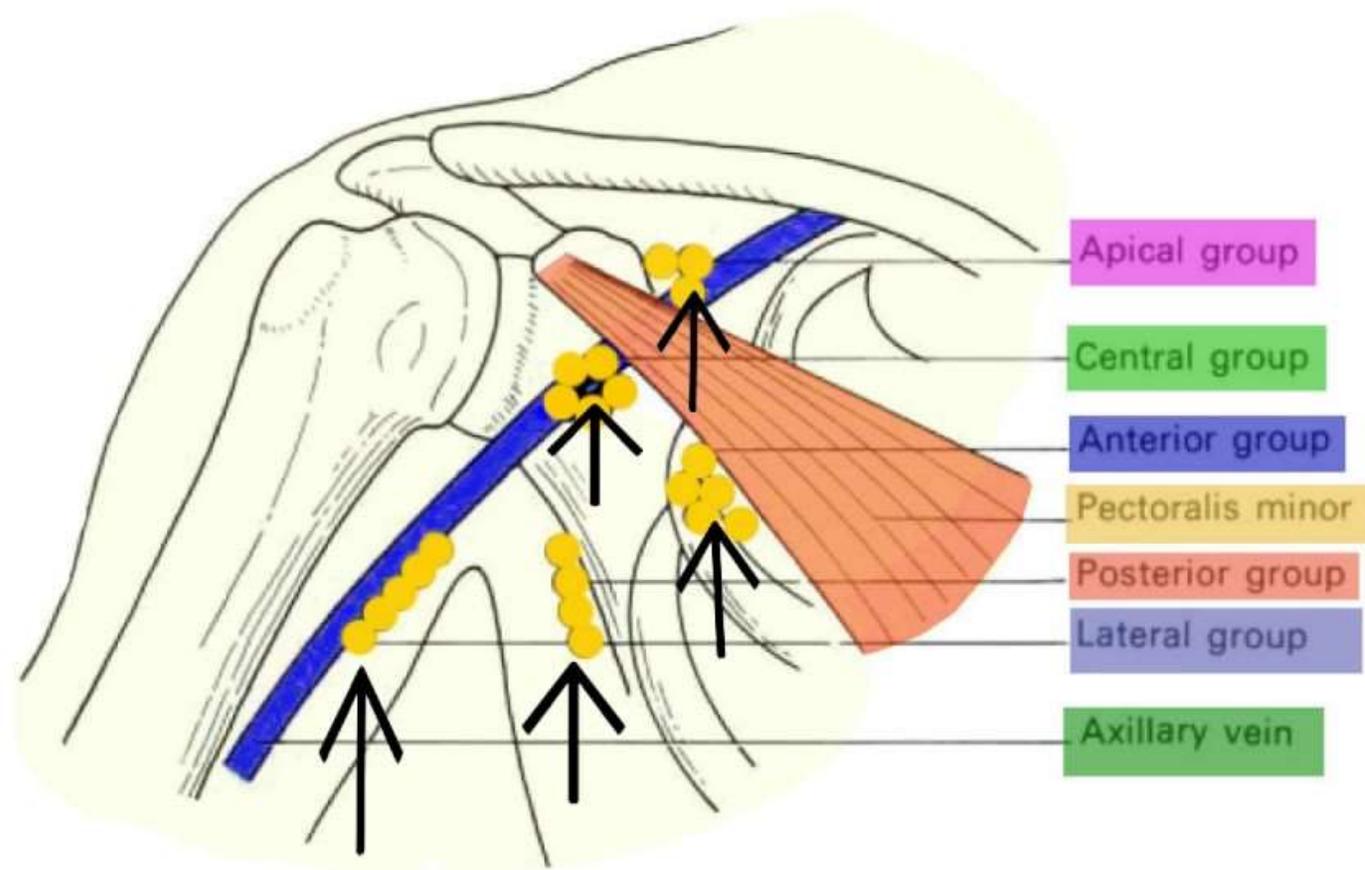
**The deep lymphatics** form a plexus on the deep fascia of pectoralis major which is called the *deep lymphatic plexus*

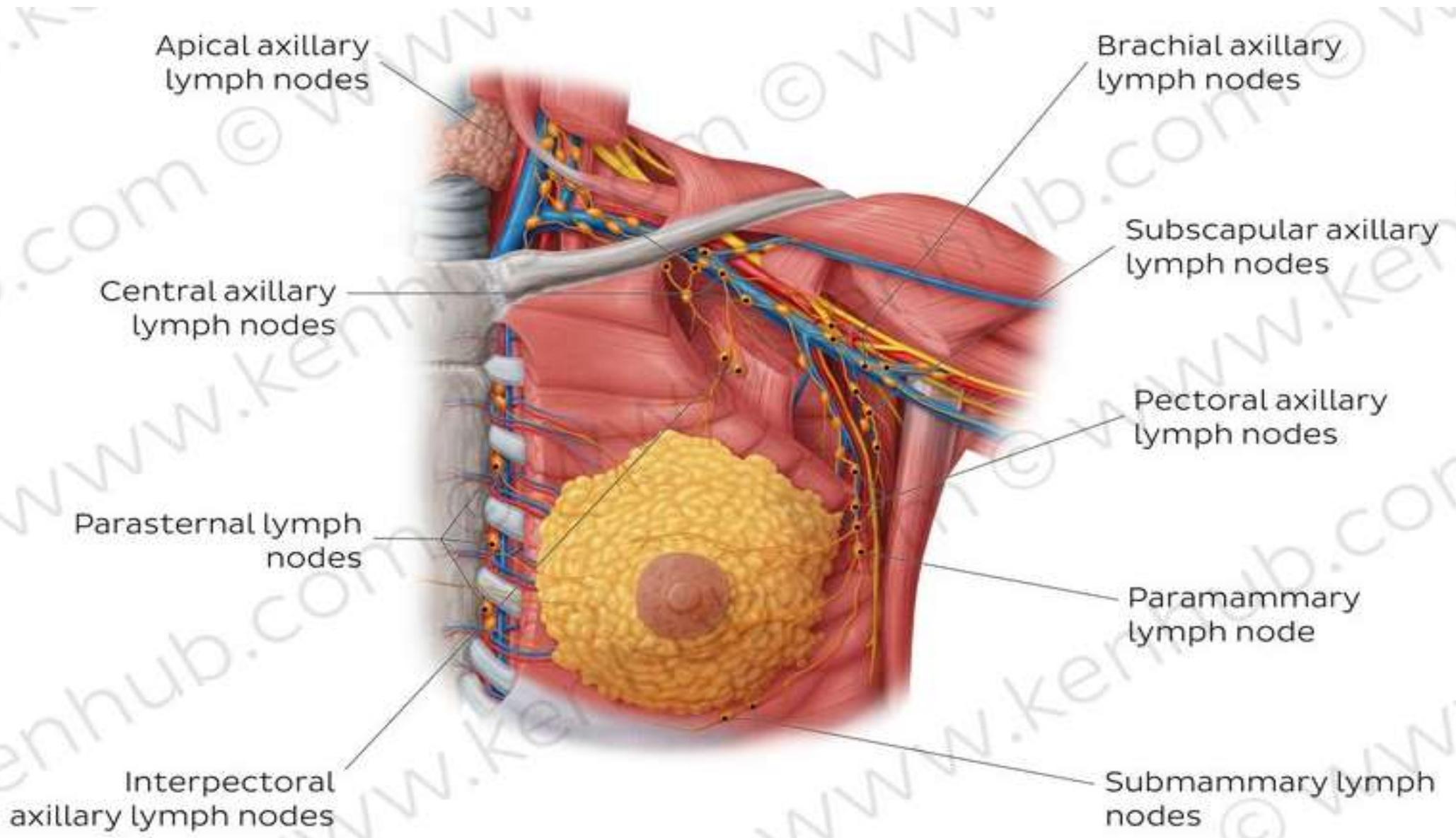
- **The central and lateral parts of the gland** drain into the ***pectoral (anterior)*** group of axillary lymph nodes
- One or two large lymphatics from the **upper part of the gland** pierce the clavicular head of pectoralis major and the clavipectoral fascia to end in the ***apical group of axillary lymph nodes***
- Lymphatics from the **medial part** of the gland pass through the intercostal spaces with the perforating branches of the internal mammary artery to end in the ***internal mammary (parasternal)*** lymph nodes
- Lymphatics from the **medial part** of the gland also cross the middle line to anastomose with the lymphatics of ***the opposite breast***
- Lymphatics from the **inferomedial** part of the gland anastomose the lymphatics of the ***rectus sheath, linea alba and subdiaphragmatic lymphatics***

## Lymphatic drainage of the female breast:

Area	Lymph Group
Central and lateral parts	Pectoral (anterior) group of axillary lymph nodes
Upper part	Apical group of axillary lymph nodes
Medial part	Internal mammary (parasternal) lymph nodes Cross to opposite breast
Inferomedial part	Lymphatics of the rectus sheath, linea alba and subdiaphragmatic lymphatics

# Lymphatic Drainage Of Breast





## **Carcinoma of the breast may give rise to the following features :**

- 1) Retraction or puckering of the skin due to invasion of the ligament of Cooper.
- 2) Peau d'orange or oedema with pitting oedema is due to obstruction of cutaneous lymphatics by cancer cells and pitting due to fixation of the hair follicles to subcutaneous tissue.
- 3) Retraction of the nipple is due to extension of the growth along the lactiferous ducts with accompanying fibrosis.
- 4) Breast may become fixed with the deep fascia, pectoral muscle and chest wall due to direct spread to the subjacent structures.
- 5) Axillary lymph nodes may be involved, these are stony, hard and fixed

## **Mammography**

- ❖ Mammography is a radiographic examination of the breast.
- ❖ This technique is extensively used for screening the breasts for benign and malignant tumors and cysts.





**Inverted nipple**



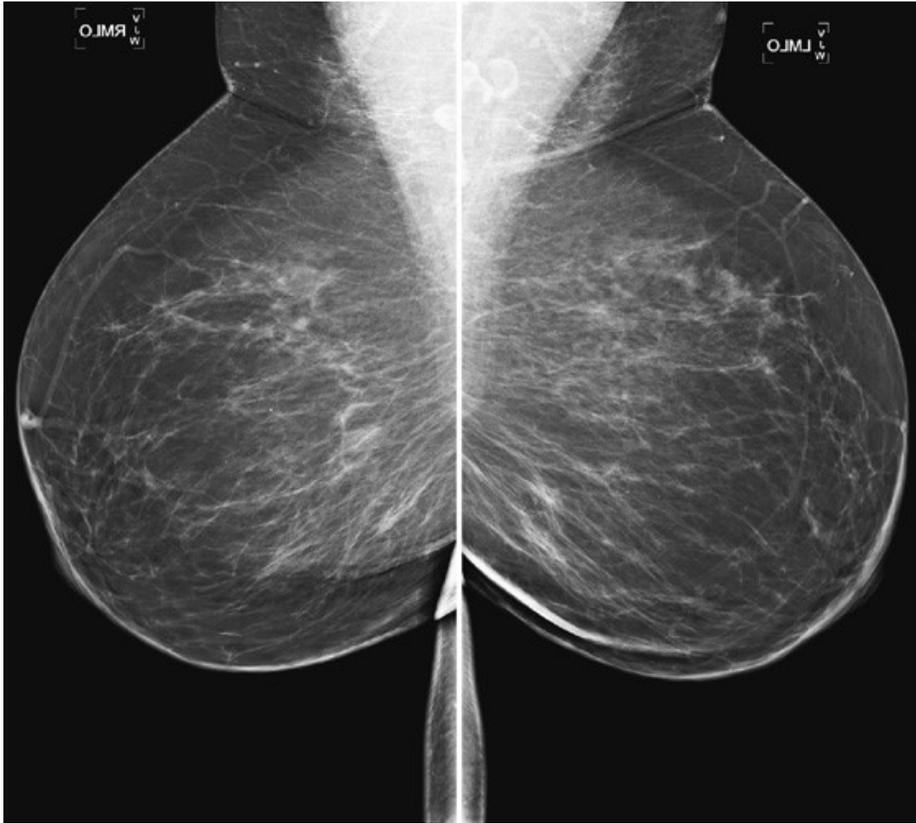
**Retracted nipple**



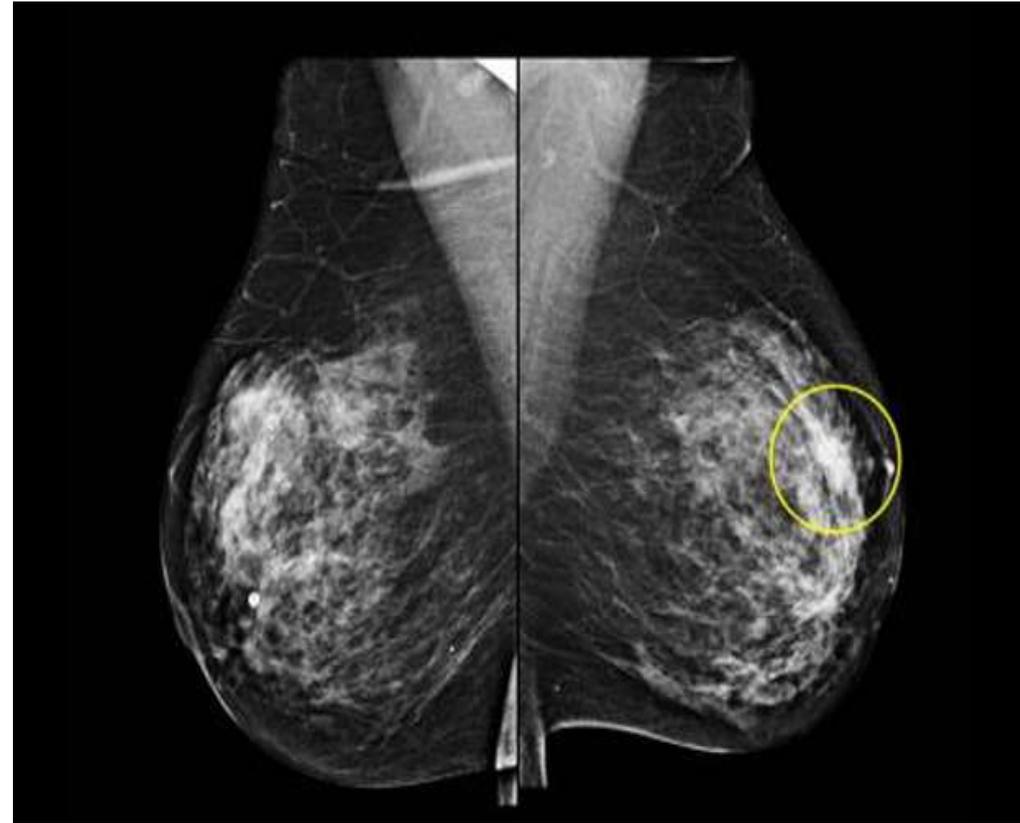
**puckering of the skin**



**Peau d'orange**

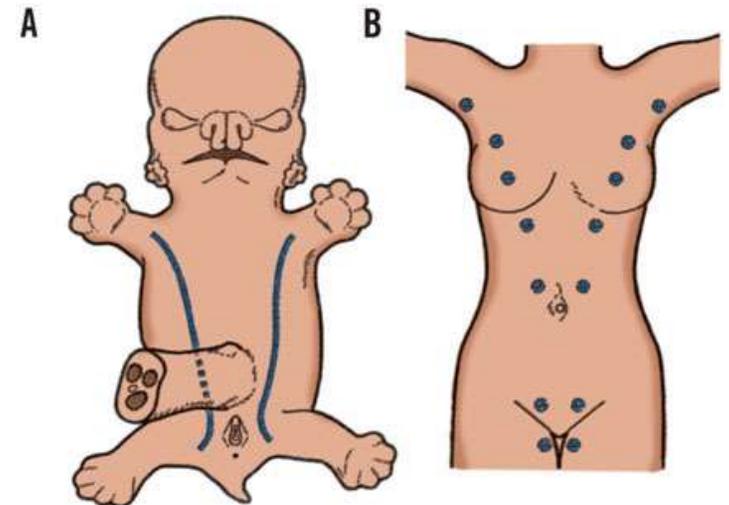


Normal Mammography



## Development of the Breasts

- A linear thickening of ectoderm appears called the **milk ridge**, which extends from the axilla obliquely to the inguinal region.
- the ridge disappears except for a small part in the pectoral region.
- This localized area thickens, becomes slightly depressed, and sends off 15 to 20 solid cords, which grow into the underlying mesenchyme.
- The underlying mesenchyme proliferates, and the depressed ectodermal thickening becomes raised to form the **nipple**.
- At the fifth month, the **areola** is recognized as a circular pigmented area of skin around the future nipple.



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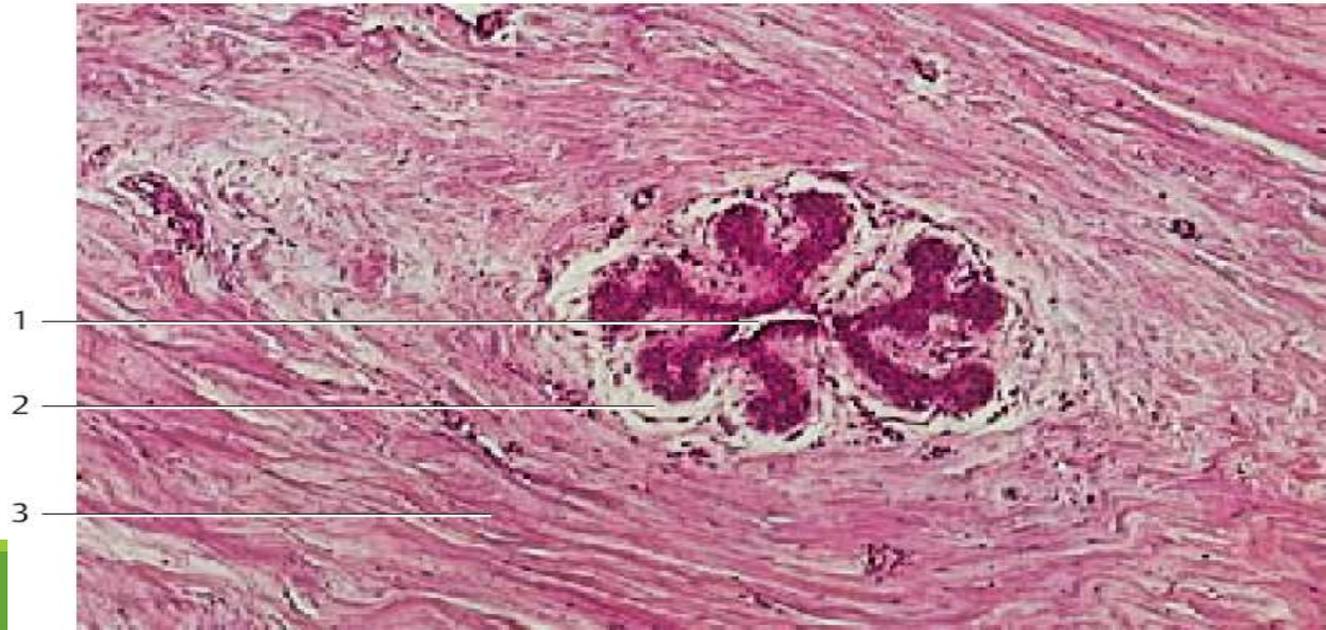
## Histology of the breast

The mammary gland is a compound tubule alveolar, formed of lobes and lobules. The lobules are separated by dense & fatty C.T.

### Resting gland:

- Ducts (lactiferous ducts) are embedded in abundance of fatty C.T. and are considered the principal glandular elements
- The ductule epithelium cells show small alterations and vacuolation during the menstrual cycle.
- Alveoli are collapsed and represented by solid cords of cells.

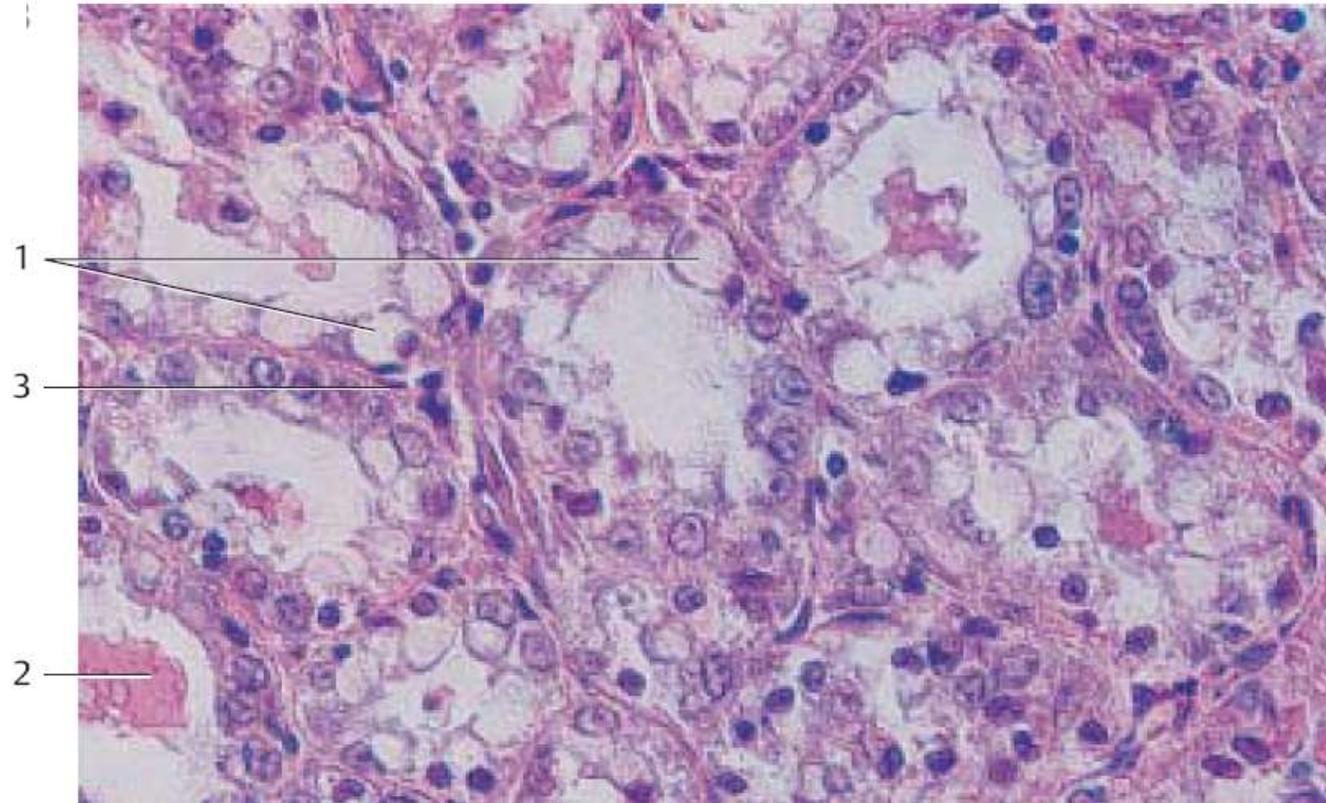
- 1-Sinus lactiferi
- 2- Connective tissue sheath
- 3- Coarse fibrous collagenous connective tissue



## Lactating gland:

- Little amount of C.T. and many secretory acini and ducts.
- Some acini and ducts are distended with milk others are empty.
- The acini are lined by either tall columnar or low cuboidal cells depending on the state of activity
- Milk in acini appears interrupted with vacuoles of dissolved fat.
- Myoepithelial cells are found around the acini and beneath the terminal ductule epithelium.

- 1-Secretory product in gland cells (vacuoles)
- 2 -Secretory product
- 3 -Myoepithelial cells





Thank  
You



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