



MED437
KING SAUD UNIVERSITY



Female Breast

Lecture (5)

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هذا العمل مبني بشكل أساسي على عمل دفعة ٤٣٦ مع المراجعة والتدقيق وإضافة الملاحظات ولا يغني عن المصدر الأساسي للمذاكرة

- **Important**
- **Doctors Notes**
- Notes/Extra explanation

{وَمَنْ يَتَوَكَّلْ عَلَى اللَّهِ فَهُوَ حَسْبُهُ}

■ Objectives

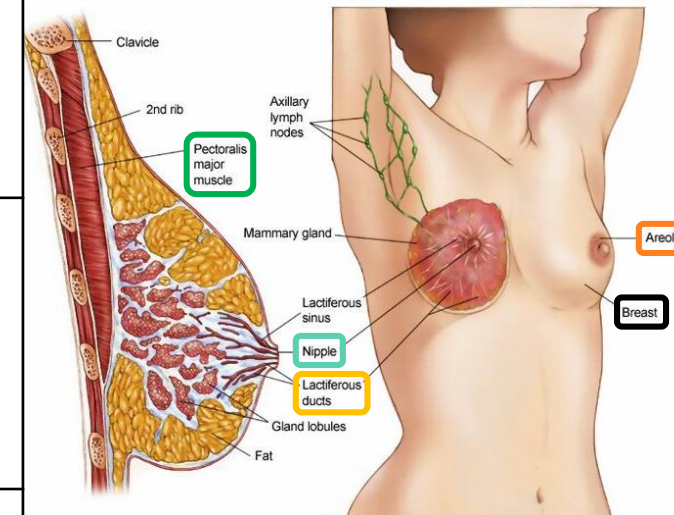
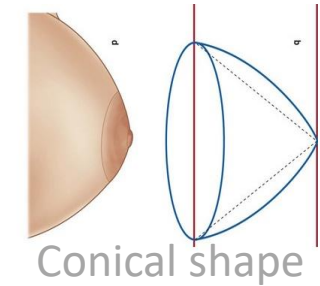
At the end of the lecture, students should be able to:

- ✓ Describe the **shape** and **position** of the female breast.
- ✓ Describe the **structure** of the mammary gland.
- ✓ List the **blood supply** of the female breast.
- ✓ Describe the **lymphatic drainage** of the female breast.
- ✓ Describe the **applied anatomy** in the female breast.

Breast

The breast (consists of **mammary glands** + associated **skin & connective tissue**) is a gland made up of lobes arranged radially around the nipple.

Shape		<ul style="list-style-type: none"> - It's a specialized accessory gland of the skin & conical (مخروط) in shape - NOT have capsule (that's why the cancer spread quickly)
Location		It lies in superficial fascia of the front / pectoralis region of chest
Parts	Apex (Nipple)	<ul style="list-style-type: none"> - Conical eminence that projects forwards from the anterior surface of the breast - It lies opposite 4th intercostal space in non lactating women, may change after breastfeeding - It carries 15-20 narrow pores of the lactiferous ducts - It surround by Areola (dark pink brownish* circular area of skin) - The subcutaneous tissues of nipple & areola are devoid of fat
	Base (3 muscles)	<ul style="list-style-type: none"> - 2/3 of it in Pectoralis region (Pectoralis major muscle)** - 1/3 of it in Inferolateral region (Serratus anterior & External oblique muscles) <p>Vertically It extends from 2nd to 6th ribs</p> <p>Horizontally It extends from sternum (lateral margin) to midaxillary line</p>
	Tail (Axillary tail)	Superolateral region (Axillary tail or axillary process) : sends a process into the axilla deep to pectoralis major muscle (deep part of the gland)



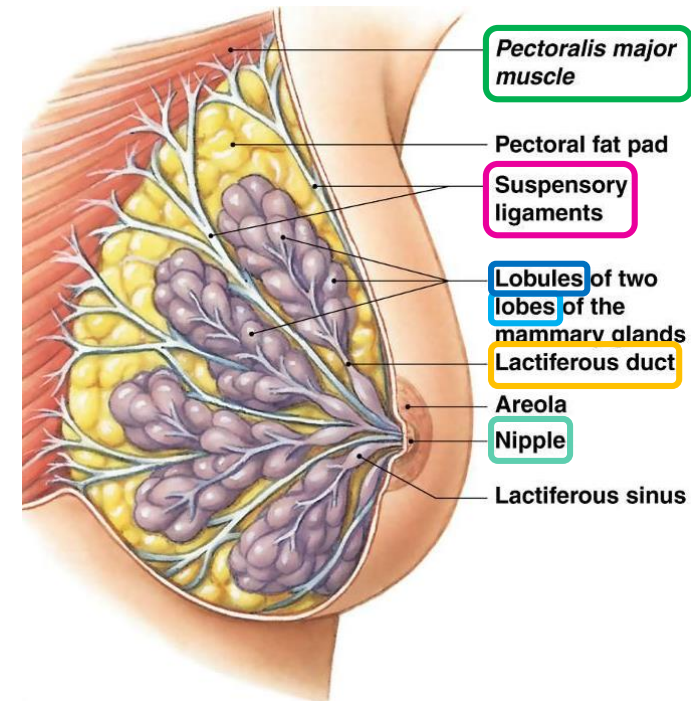
*In women before pregnancy, after 2nd trimester of 1st pregnancy it will become brown and never come back

The majority of the breast lies on pectoralis major (IMPOERTANT**)

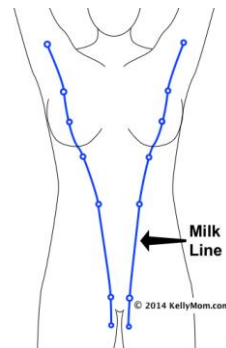
Mammary gland



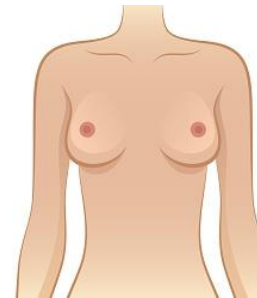
- It consists of **15-20 lactiferous ducts** which open by the same number of openings on the **summit** of the **nipple**
- It consists of **15-20 lobes**, each lobe is formed of a number of **lobules** which are **embedded** in the **subcutaneous fatty tissue** of superficial fascia
- It has **ligaments of Cooper = suspensory** (fibrous stands & fatty tissue) gives the breasts **SUPPORT**
 - In between skin & deep fascia of **pectoralis major muscle**
 - In between lobes & lobules* of mammary gland
- * Here the ligaments named **interlobar** and **interlobular ligaments of Cooper**
- It has **Retromammary space (loose areolar tissue)** allows the breast **MOVE freely**
 - In between **mammillary gland & deep fascia of pectoralis major muscle**
 - **Surgery to increase breast size** do in this space



Mammary ridge



Animal



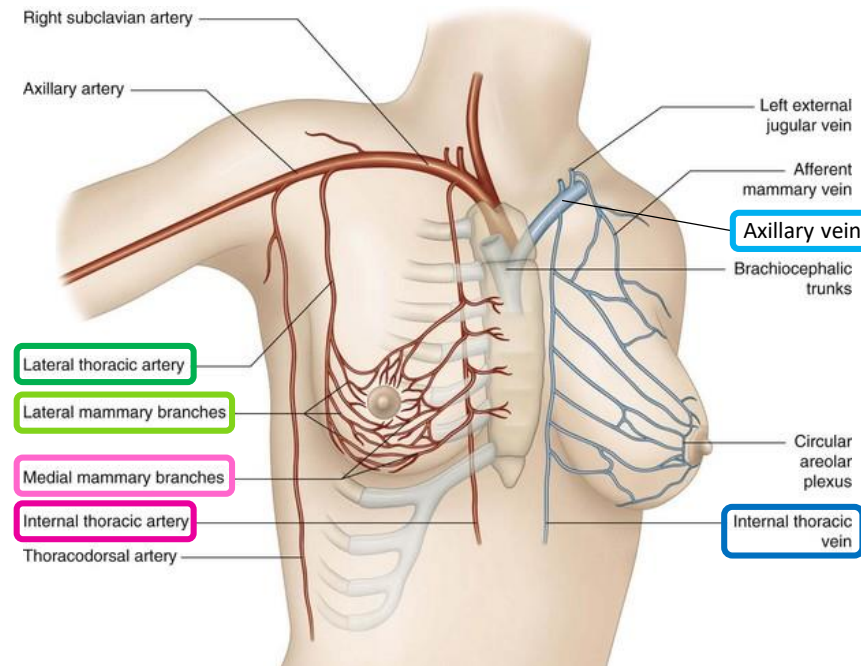
Human

- Extends from the **axilla** to the **inguinal region**
 - In **Human** → the ridge **disappears EXCEPT** for a **small part** in the **pectoral region** (only **1 nipple** on each breast)
 - In **Animals** → **several mammary glands** are formed **along this ridge** (have **multiple nipples**)

Breast SUPPLY

(Arterial supply & venous drainage)

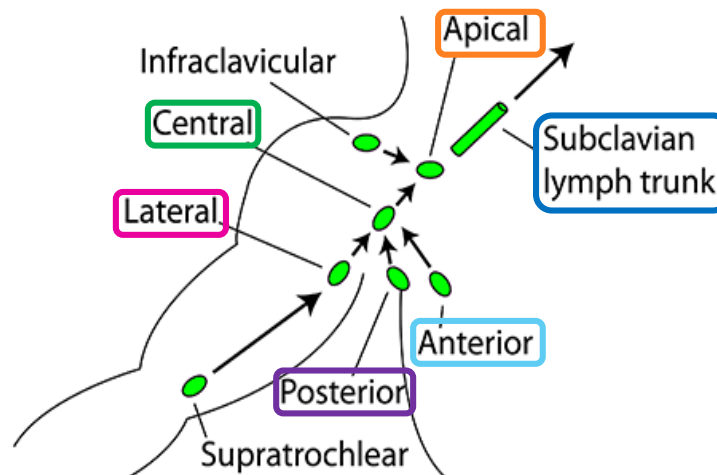
<p>Arterial supply</p>	<ul style="list-style-type: none"> - Perforating branches & Medial mammary branches of internal thoracic (internal mammary) artery from subclavian artery "1st branch" (SUPPLY medial part of breast) - lateral mammary branches of lateral thoracic artery from axillary artery (SUPPLY lateral part of breast) - Mammary branches of Intercostal arteries
<p>Venous drainage</p>	<p>(Veins are corresponding to the arteries)</p> <p>Circular venous plexus are found at the base of nipple → drain into axillary vein & internal thoracic vein (final drainage)</p>



Breast SUPPLY

(Lymphatic Drainage: Axillary Lymph Nodes **MAINLY**)

Lymphatic drainage	Axillary Lymph Nodes	<u>Pectoral (Anterior)</u>	lies on the pectoralis minor along lateral thoracic vessels
		<u>Subscapular (Posterior)</u>	lies on posterior wall of axilla on lower border of subscapularis ; along subscapular vessels
		<u>Brachial (Lateral)</u>	lies on lateral wall of axilla along 3rd part of axillary vessels
		<u>Central</u>	lies in axillary fat at the base of axilla
		<u>Apical</u>	lies at apex of axilla
		All of them will go to <u>Subclavian lymph trunk</u> (It is formed by union of efferent lymph vessels of apical group) Right side: usually opens in subclavian vein Left side: usually opens into thoracic duct	

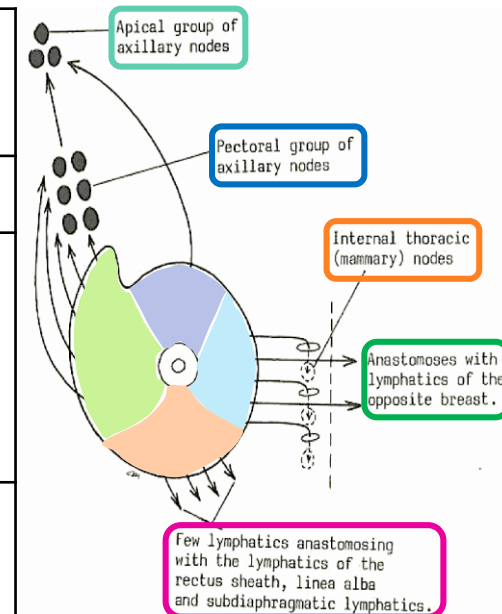


Breast SUPPLY

(Lymphatic Drainage: Lymphatic Plexus & Gland Parts)

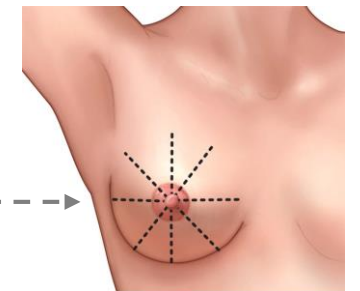
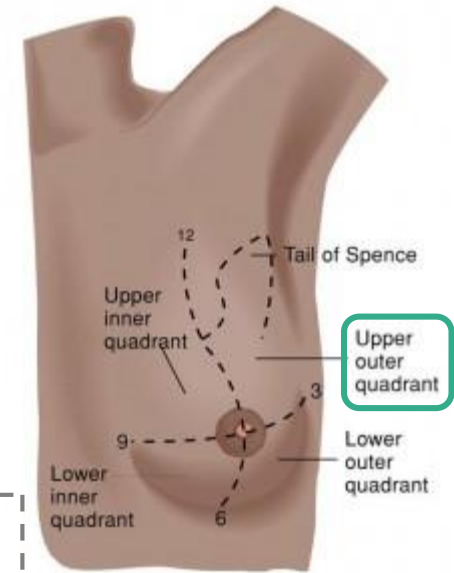
Lymphatic drainage	Plexus	Subareolar lymphatic	Lies beneath the areola
		Deep lymphatic	Lies on the deep fascia covering pectoralis major muscle
		Both plexuses <u>radiate</u> in many directions and <u>drain into</u> different lymph nodes (75% Axillary groups + 25% Internal thoracic lymph nodes = parasternal)	

Lymphatic drainage	Parts	Central	75% drain into <u>axillary lymph nodes (pectoral group)</u>
		Lateral	
		Upper	drains into <u>axillary lymph nodes (apical group)</u>
		Medial	drains into <u>internal thoracic lymph nodes (parasternal)</u> FORMING a CHAIN <u>along</u> the internal thoracic vessels & some of them PASS ACROSS the front of sternum to anastomose with that of opposite side (cancer could go to the other side by this way)
		Inferomedial	<u>anastomose with lymphatics of rectus sheath, linea alba and (deeply) subdiaphragmatic lymphatics</u>

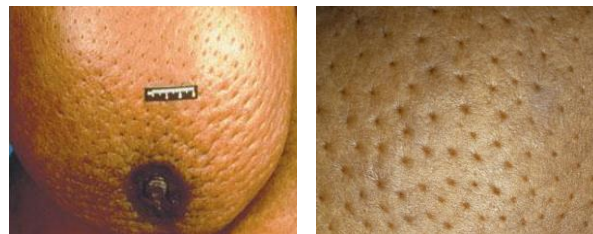


Breast Cancer

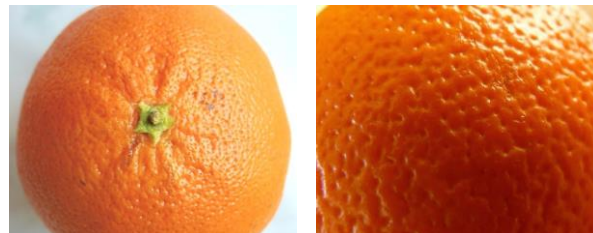
- It is a **common surgical condition**
- **60% of carcinomas** of breast occur in the **upper lateral quadrant** (lateral=outer)
- **75% of lymph** from the breast **drains into the axillary lymph nodes**
- In case of **carcinoma of one breast**, the **other breast & the opposite axillary lymph nodes** are **affected** BECAUSE of the **anastomosing lymphatics between both breasts**
- **Treatment choice** In patients with **LOCALIZED cancer breast**: simple **mastectomy** (surgery to remove the breast) followed by **radiotherapy** to the **axillary lymph nodes**
- The **lactiferous ducts** are **radially arranged** from the **nipple**, SO **incision of the gland** **SHOULD BE** made in a **radial direction** to **avoid cutting through the ducts**
- **Infiltration of the ligaments of Cooper = suspensory** leads to its **shortening & giving breast** dimpling appearance تنقيير = **peau de'orange appearance** (French word meaning skin of orange)



Peau de'orange appearance →



Orange (fruit) appearance →



MCQs

1. Where is the circular venous plexus are found?

- A. At the apices of nipple
- B. At the base of nipple
- C. At the base of the breast
- D. Lateral to thoracic lymph nodes

2. Along lateral thoracic vessel located the pectoral group of axillary lymph nodes which lies on which of the following structure?

- A. Serratus anterior
- B. Subscapularis
- C. Pectoralis minor
- D. Pectoralis major

3. Most of the carcinoma of breast occur in which quadrant?

- A. Upper lateral
- B. Lower lateral
- C. Upper medial
- D. Lower medial

4. The appearance of peau d'orange is caused by infiltration of what?

- A. Lactiferous duct
- B. Mammary ridge
- C. Retromammary space
- D. Ligament of cooper

5. The left subclavian trunk usually open into?

- A. Internal thoracic vein
- B. Internal jugular vein
- C. Thoracic duct
- D. Subclavian vein

6. The lactiferous ducts of mammary gland are?

- A. Less than 10
- B. From 10-15
- C. From 15-20
- D. More than 20

7. 2/3 of the breast's base lies in which one of the following muscles?

- A. Serratus anterior
- B. External oblique
- C. Pectoralis minor
- D. Pectoralis major

8. The nipple of the breast lies opposite of?

- A. 3rd costal cartilage
- B. 3rd intercostal space
- C. 4th intercostal space
- D. 4th costal cartilage

1. B 2. C 3. A 4. D 5. C 6. C 7. D 8. C



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- References:
 1. Girls' & Boys' Slides
 2. Greys Anatomy for Students
 3. TeachMeAnatomy.com

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