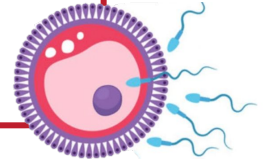


Female breast

Reproductive block-Anatomy-Lecture 5

Editing file



Objectives

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

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

Part 4

I don't remember when was the last time I wrote one of these, I don't even remember where I put it, maybe in one of the Embryology lects? I wonder.
It's Saturday, 10th of October 2020. COVID-19 is still going strong, I don't know the exact number of cases right now due to the fact that all news sites are closed, I believe that the last time it was announced is probably two months ago and it was around 2.3 billion, yes with a B.

Oh look guys, we're at part 4, who would've thought? And you're still reading? You know I'm starting to develop this connection with you, I think we would've been great friends. I haven't interacted with another person ever since this whole thing started you know? Internet and phone lines are all down and people stopped leaving their houses a long time ago.

But it's alright, I got you, right? you'll always be by my side.

The voices have been getting stronger don't you agree? You must have heard them too! I've even caught myself replying to them more than once but I always play it off as if I wasn't talking to them. I don't want them to know I'm listening, I wanna hear what they're saying behind my back so I'm acting that way.

I know it, they're talking about me, they want to kill me don't they? the wanna steal my food. I won't let them. I still have enough food to last me for a month or two, guess being as paranoid as I am really payed off didn't it?

Gotta go, they're talking again, I wanna eavesdrop on them, I'll be right back, don't go anywhere.

-A Lost Man.

Color guide :

Only in boys slides in **Green**

Only in girls slides in **Purple**

important in **Red**

Notes in **Grey**



Breast

Shape

- It is conical in shape and **It has NO capsule**

Location

- It lies in superficial fascia of the front of chest.

It has

Apex (Nipple)

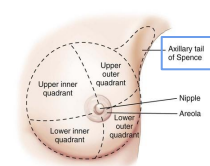
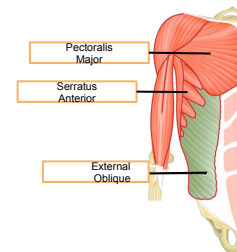
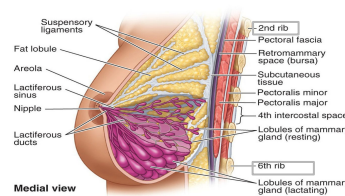
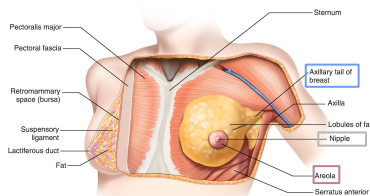
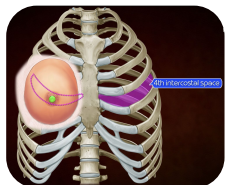
- Conical eminence that projects forwards from the anterior surface of the breast
- It lies opposite **4th** intercostal space
- It carries 15-20 narrow pores of the lactiferous ducts
- It is surrounded by **Areola** which is dark pink brownish circular area of skin
- The subcutaneous tissues of nipple & areola are **devoid of fat** (It has erectile tissue)

Base (3 muscles)

- Upper $\frac{2}{3}$ of its base lies on fascia over **Pectoralis major muscle**
- While its Inferolateral $\frac{1}{3}$ lies on fascia over **Serratus anterior & External oblique muscles**
- **Vertically** It extends from **2nd** rib superiorly to **6th** ribs inferiorly
- **Horizontally** It extends from lateral margin of the sternum medially to midaxillary line laterally

Tail (axillary tail/process)

- Small superolateral part of the breast extends upward and laterally
- **Pierces the fascia at the lower border of pectoralis major muscle** and sends a process into the axilla called the **axillary tail** or **axillary process**



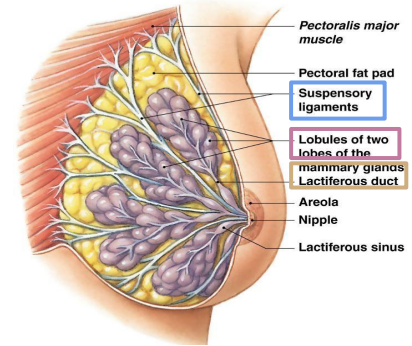
Mammary glands



They are Non capsulated, modified sweat glands (exocrine glands)

Present in both sexes, but it well developed in females. And Become functioning only in lactating females

Location : Lie on the front and the sides of the chest within the superficial fascia



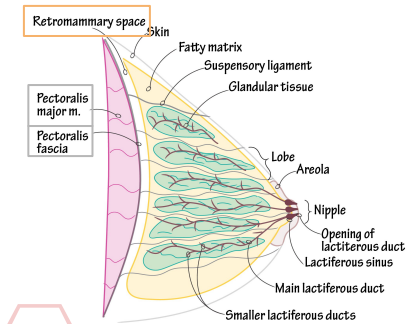
Retromammary space

Definition

Space that found behind the breasts and filled with loose connective tissue

a layer of loose areolar tissue that separated the gland from deep fascia which covering the underlying muscles

Importance: allows the breast to move freely. - often the site of breast implantation



Structures of mammary gland

1

It is formed of 15-20 lobes, each lobe is formed of a number of lobules which are embedded in the subcutaneous fatty tissue of superficial fascia

2

ligaments of Cooper (suspensory ligament)

- The lobes and lobules are separated by **interlobar** and **interlobular** fibrous & fatty tissue called suspensory ligaments or ligaments of Cooper
- run **radially** and connect the skin of breast with deep fascia of underlying pectoralis major muscle
- importance: helps to give the breasts SUPPORT
- it has cilinal importance also :When breast cancer occurs , it invade these ligaments leading to **dimpling appearance** of breast.

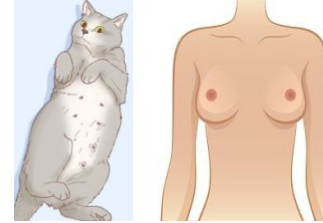
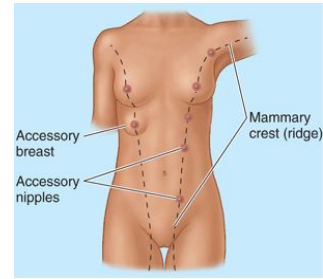
3

It has from 15-20 **lactiferous ducts** which open by the same number of openings on the summit of the nipple



Mammary ridge

- The mammary glands (breast) are derived from 2 thickened strips (mammary ridge) of epidermal ectoderm, the primitive mammary ridges or milk lines,
- Which appear during week 6, The ridges extend from the axillae to the inguinal regions, but rapidly regress except in the thorax



Animal vs human

In Human

the ridge disappears EXCEPT for a small part in the pectoral region

Extends from the axilla to the inguinal region

In Animal

several mammary glands are formed along this ridge

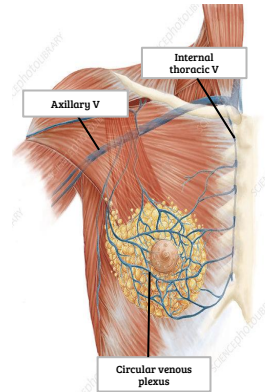
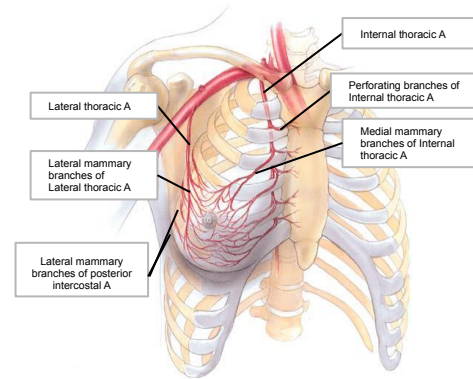
Supply of breast

Arterial supply

1. Perforating branches & mammary branches of **internal thoracic (internal mammary) artery**
2. Mammary branches of **lateral thoracic artery**
3. Mammary branches of the **posterior Intercostal arteries**

Venous drainage

- Veins are corresponding to the arteries:
- 1. **Internal thoracic** → brachiocephalic vein
- 2. **Axillary** → subclavian vein
- 3. **Intercostal** → azygous (Rt) or hemiazygous (Lt) venous system
- Circular venous plexus (superficial) are found at the base of nipple → Finally, veins of this plexus drain into **axillary & internal thoracic veins**

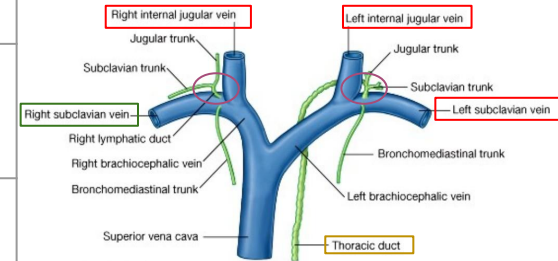
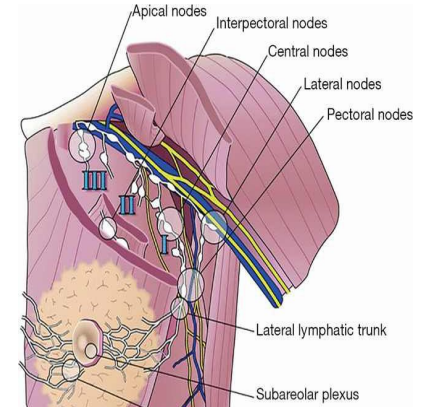


Axillary lymph nodes

They are arranged into 5 groups which lie in axillary fat

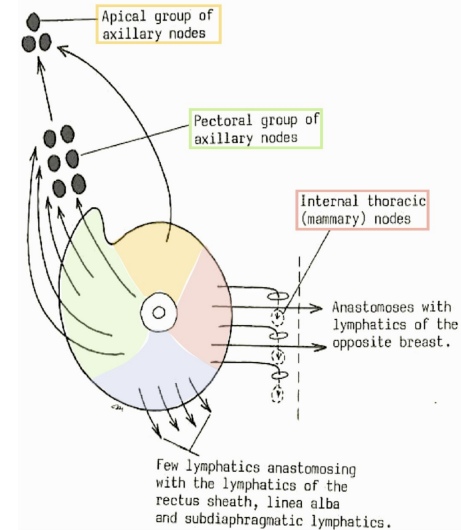
| | | |
|---|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Pectoral (Anterior) group | lies on the pectoralis minor along lateral thoracic vessels |
| 2 | Subscapular (Posterior) group | lies on posterior wall of axilla on lower border of subscapularis; along subscapular vessels. |
| 3 | Brachial (Lateral) group | lies on lateral wall of axilla along 3rd part of axillary vessels. |
| 4 | Central group | lies in axillary fat at the base of axilla. |
| 5 | Apical group | lies at apex of axilla immediately behind the clavicle. Subclavian lymph trunk: it is formed by union of efferent lymph vessels of apical group, It usually opens in subclavian vein. |

- Efferent drainage continues with cervical lymph nodes.
- **On the right side:** It usually opens in **right lymphatic duct (subclavian vein)**
- **On the left side:** it usually opens into **thoracic duct**
- Both will terminate at the **junction** between the **internal jugular** and the **subclavian vein**, thus, the lymphatic drainage returns back to the circulation.



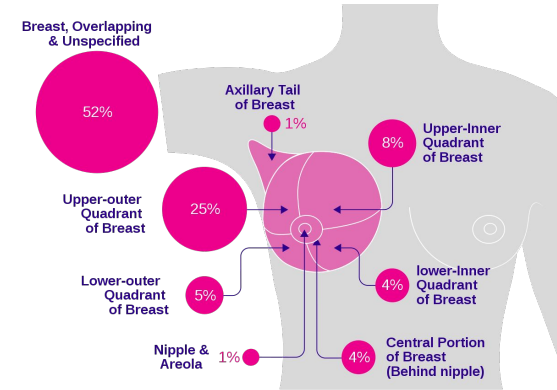
Lymphatic drainage of the breast

| 1) Plexus | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Superficial lymphatic plexus | Both | Deep lymphatic plexus | |
| <ul style="list-style-type: none"> Also called Subareolar lymphatic plexus. Lies beneath the areola. | Both plexuses radiate in many directions and drain into different lymph nodes (Axillary groups and Internal thoracic lymph nodes.) | <ul style="list-style-type: none"> Also called submammary plexus Lies on the deep fascia covering pectoralis major. | |
| 2) Gland parts | | | |
| Central & lateral parts | Upper part | Medial part | Inferomedial part |
| (75%) Drain into pectoral group of axillary lymph nodes. | Drains into apical group of axillary lymph nodes. | Drains into internal thoracic (parasternal) lymph nodes, forming a chain along the internal thoracic vessels. | Anastomose with lymphatics of rectus sheath, linea alba and subdiaphragmatic lymphatics. |
| Some lymphatics from the medial part of the gland pass across the front of sternum to anastomose with that of opposite side, Dangerous because even if the breast cancer was removed it still can appear in the opposite side | | | |



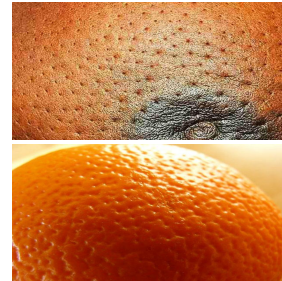
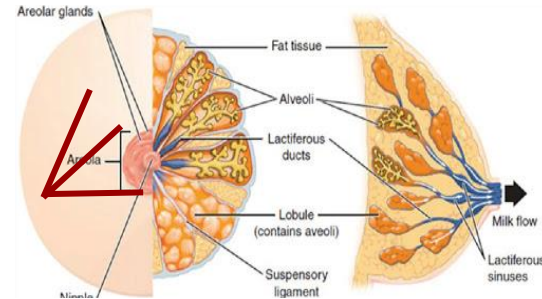
Breast cancer

- It is a common surgical condition.
- 60% of carcinomas of breast **occur in the upper lateral quadrant.**
- 75% of lymph from the breast drains into the **axillary lymph nodes.**
- In case of **carcinoma of one breast**, the **other breast** and the opposite axillary lymph nodes are **affected** because of the anastomosing lymphatics between both breasts.
- In patients with localized cancer breast, a simple mastectomy, followed by radiotherapy to the axillary lymph nodes is the **treatment of choice.**



Applied anatomy

- 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** leads to its shortening giving **peau de'orange (skin dimpling)** appearance of the breast.



Now we can say goodbye

Congratulations you have finished your basic Anatomy 

Be proud of yourself for you have studied 76 lectures of Anatomy in the past two years.

huge thanks to our amazing batch leaders, academic leaders and secret reviewers, wWe couldn't have done this without you ☐

To our members 

Thank you for your perfect work! We don't think it would have been possible to achieve our goals without everyone's efforts! You guys deserve a treat!



We think that it's time to show you Anatomy's heroes

- **Mohammed Al-huqbani**
- **Salman Alagla**
- **Ziyad Al-jofan**
- **Ali Aldawood**
- **Khalid Nagshabandi**
- **Sameh nuser**
- **Abdullah Basamh**
- **Alwaleed Alsaleh**
- **Mohaned Makkawi**
- **Abdullah Alghamdi**
- **Khalid AL-Dossari**
- **Naif Al-Dossari**
- **Faisal Alqifari**
- **Suhail Basuhail**
- **Jehad Alorainy**
- **Khalid AlKhani**
- **Omar Alammari**
- **Ajeed Al Rashoud**
- **Taif Alotaibi**
- **Noura Al Turki**
- **Amirah Al-Zahrani**
- **Alhanouf Al-haluli**
- **Sara Al-Abdulkarem**
- **Renad Al Haqbani**
- **Nouf Al Humaidhi**
- **Jude Al Khalifah**
- **Nouf Al Hussaini**
- **Maha Al Nahdi**
- **Razan Al zohaifi**
- **Amirah Al Dakhilallah**
- **Rahaf Al Shabri**
- **Rawan Al Zayed**
- **Ghaida Al Braithen**
- **Alwateen Al Balawi**
- **Reema Al Masoud**
- **Fay Al Buqami**
- **Haifa Al Waily**
- **Danah Al Halees**
- **Rema Al Mutawa**
- **Renad Al Mutawa**
- **Reham Yousef**

QUIZ

| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 |
|----|----|----|----|----|----|----|----|
| C | B | B | C | D | B | C | A |

Q1: The nipple of the breast lies opposite of?

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

Q2: which of the following helps the breast to move freely?

- A. ligaments of cooper
- B. Retromammary space
- C. axillary tail
- D. lobes and lobules

Q3: 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

Q4: mammary ridge extends from the..... to the.....:

- A. Axilla, diaphragm
- B. Neck, inguinal region
- C. Axilla, inguinal region
- D. Axilla, umbilicus

Q5: carcinomas of the breast mostly occur in:

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

Q6: peau d'orange appearance of the breast is due to the infiltration of:

- A. Pectoral fascia
- B. Ligament of cooper
- C. Areola
- D. Lactiferous ducts

Q7: The right subclavian trunk opens into

- A. Brachiocephalic vein
- B. Thoracic duct
- C. Subclavian vein
- D. Jugular trunk

Q8: The upper part of the breast drain into which group of Axillary lymph nodes?

- A. Apical group
- B. Pectoral group
- C. Brachial group
- D. Central group



Members board



Btw if you see anything out of place in this lec, it's probably written by me so chill it's just a joke since this is the last anatomy lec -Also reviewer

Team leaders

btw we need to thank these two for making anatomy much more entertaining for us for the past two years.

- **Abdulrahman Shadid**

- **Ateen Almutairi**

Thank you for your work.

Boys team:

- **Mohammed Al-huqbani** (Absolute)
- **Salman Alagla**
- **Ziyad Al-jofan**
- **Ali Aldawood**
- **Khalid Nagshabandi** (Tiffany*)
- **Sameh nuser**
- **Abdullah Basamh** (on his 473rd coffee cup)
- **Alwaleed Alsaleh** (I miss you:())
- **Mohaned Makkawi** (you too)
- **Abdullah Alghamdi**

Girls team :

- **Ajeed Al Rashoud**
- **Taif Alotaibi**
- **Noura Al Turki**
- **Amirah Al-Zahrani**
-  **Alhanouf Al-haluli**
- **Sara Al-Abdulkarem**
- **Renad Al Haqbani**
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- **Danah Al Halees**
- **Rema Al Mutawa**
- **Maha Al Nahdi**
-  **Razan Al zohaifi**
- **Ghalia Alnufaei**

-Last Anatomy lec y'all, I'll miss reviewing this team's work.

-No I'm not crying

-Maybe

-Ok yes

-Also also Reviewer

Contact us:

