The female breast

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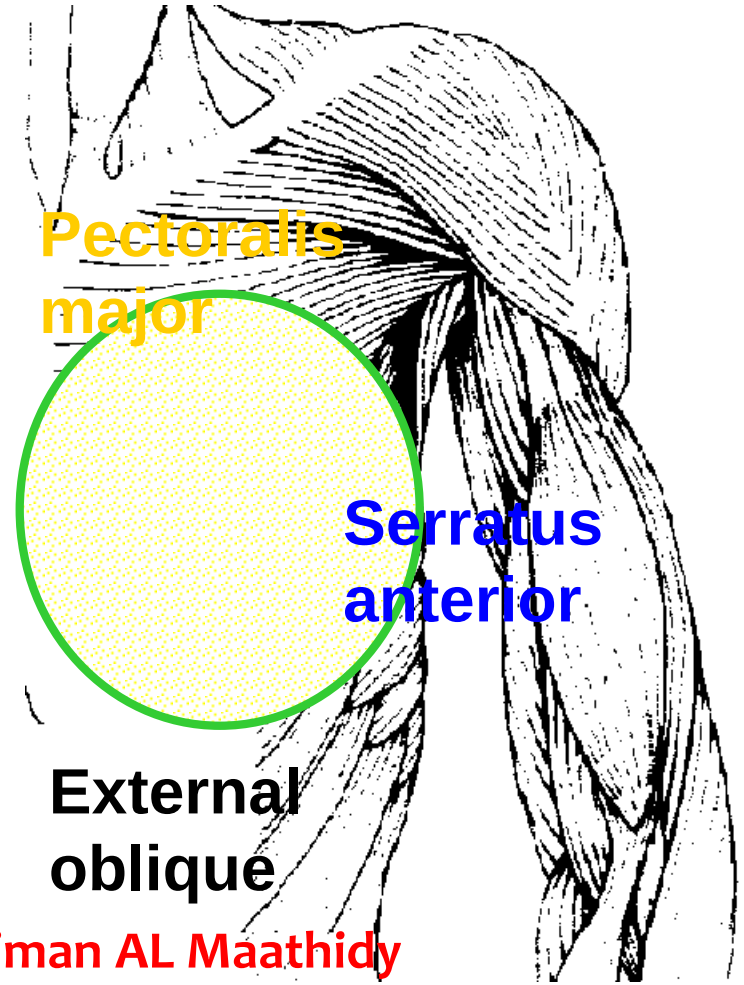
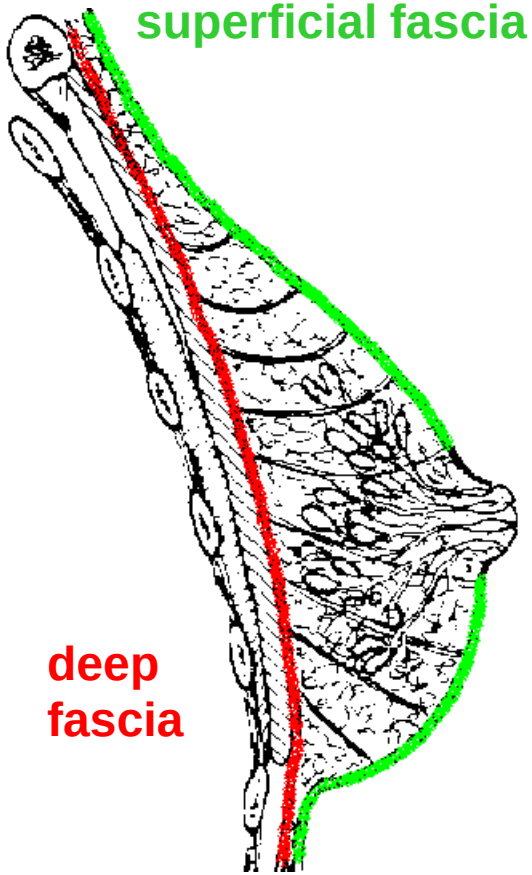
The female breast

- ✓ The breasts or mammary glands are skin glands capable of secreting milk.
- ✓ Being a skin gland, the breast is situated in the superficial fascia and has no capsule.

Base of the breast

✓The breast can be easily separated from the deep fascia covering pectoralis major, serratus anterior and external oblique muscles on the anterior thoracic wall.

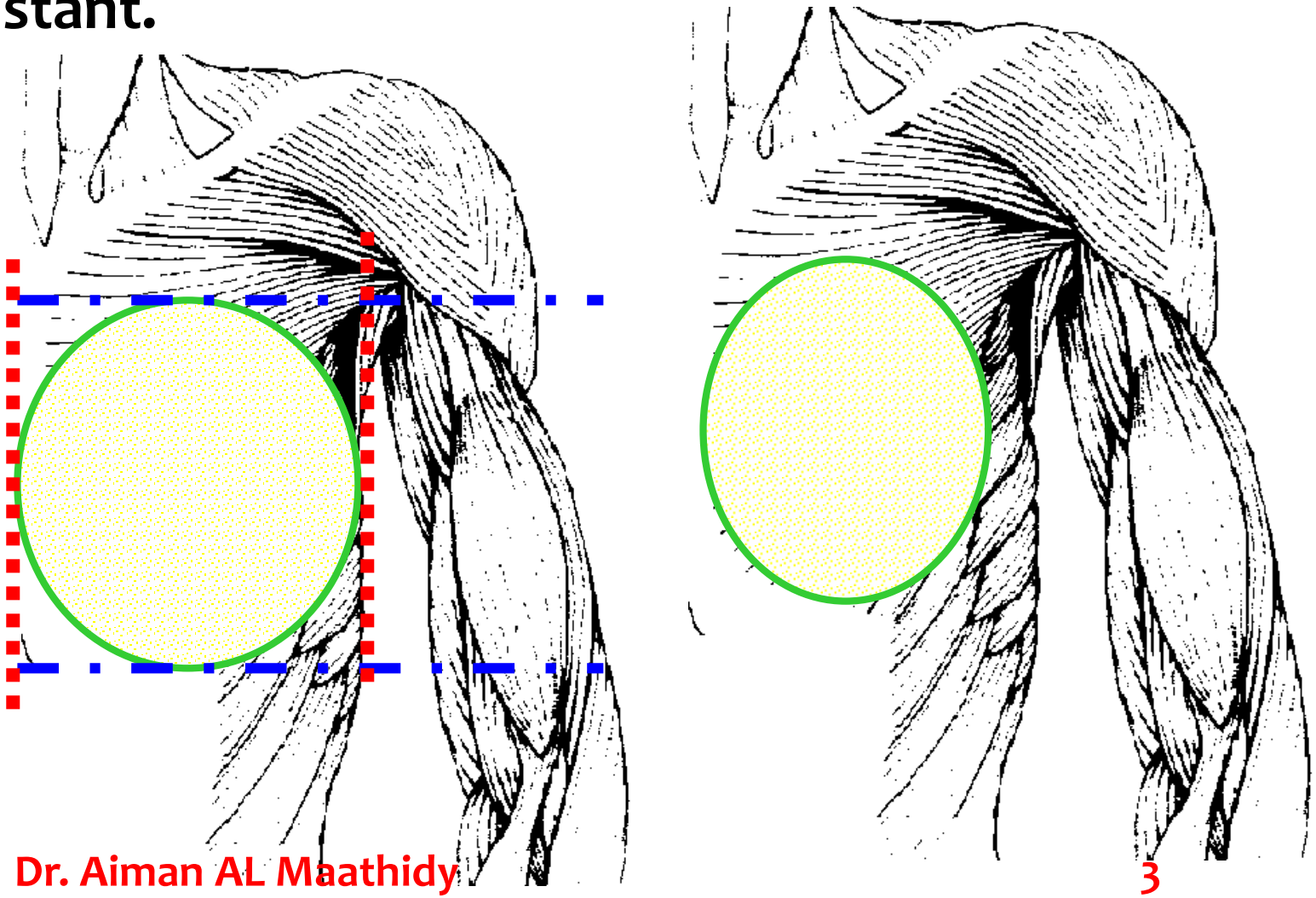




Base of the breast

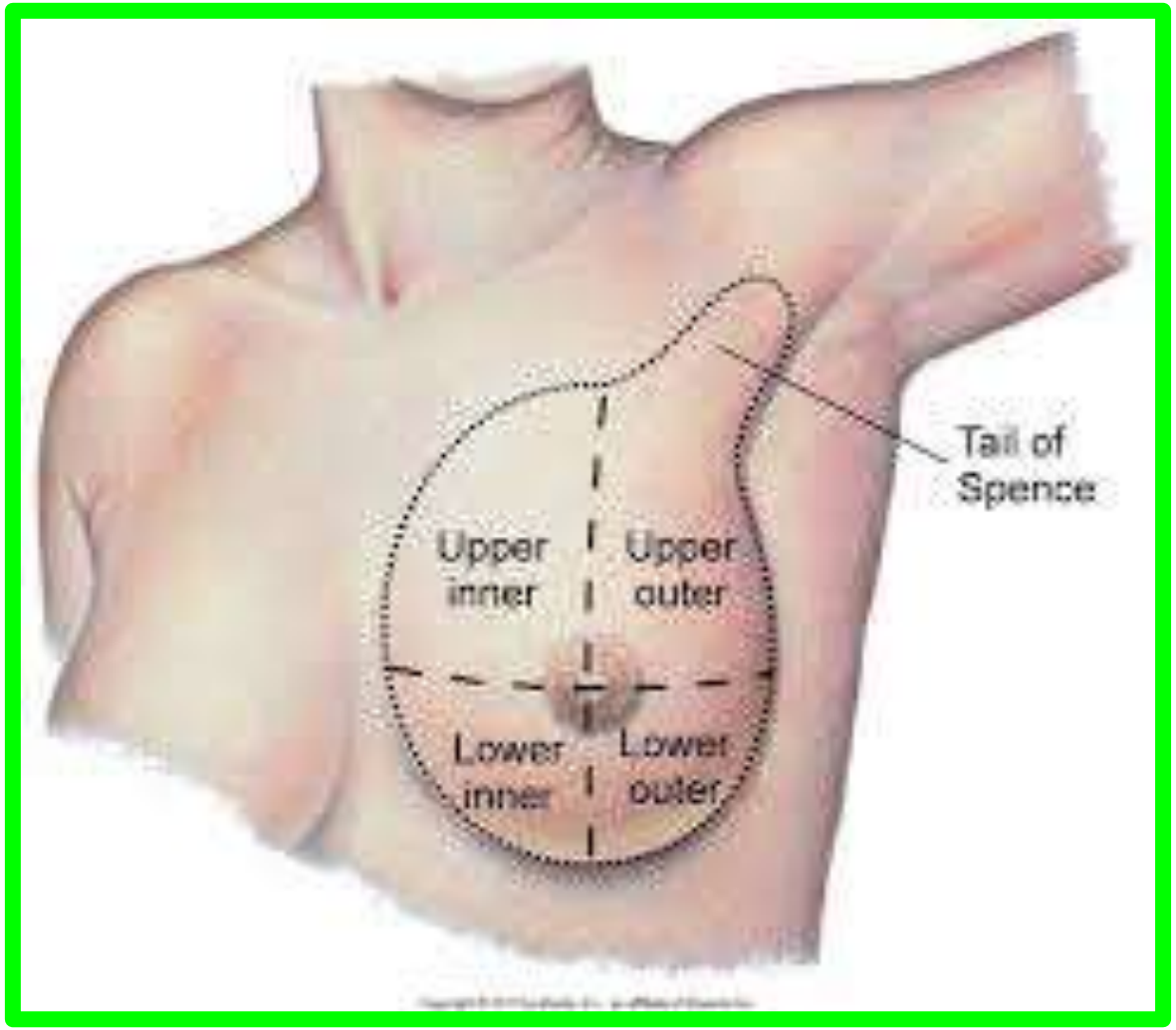
In spite of differences in the size and shape of the breasts, the size of the base of the breast is fairly constant.

- ✓ **The base of the breast extends from the 2nd to the 6th rib in the midclavicular line**
- ✓ **the base of the breast extends from the edge of the sternum to the mid-axillary line.**



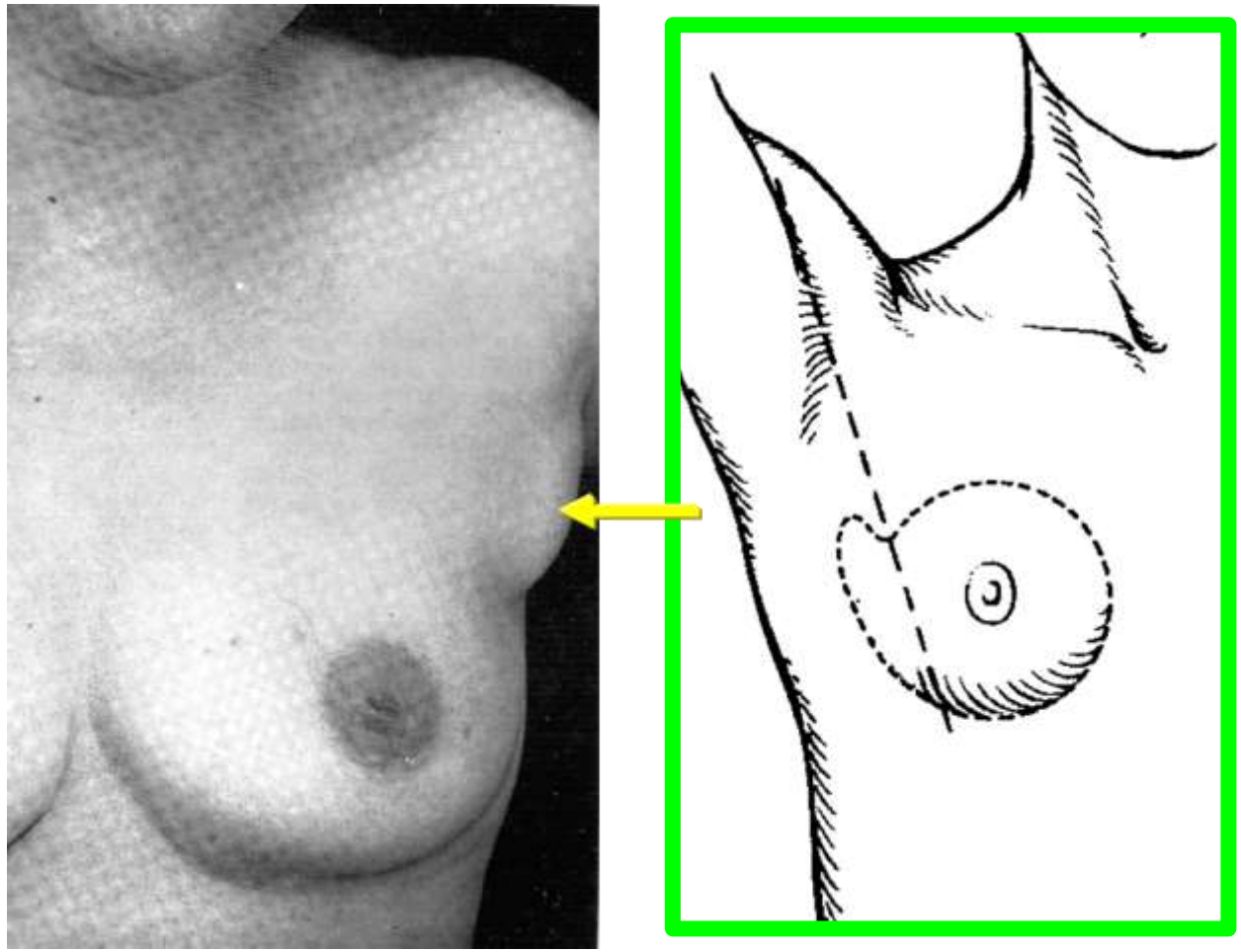
Axillary tail

- ✓ An axillary tail extends upwards and laterally along the inferior border of pectoralis major muscle.
- ✓ The axillary tail is important because it contains a large amount of glandular tissue, and a great percentage of breast tumors occur there.



Axillary tail

- ✓ This tail (of Spence) of breast tissue enters a hiatus (of Langer) in the deep fascia of the medial axillary wall.
- ✓ This is the only breast tissue found beneath the deep fascia



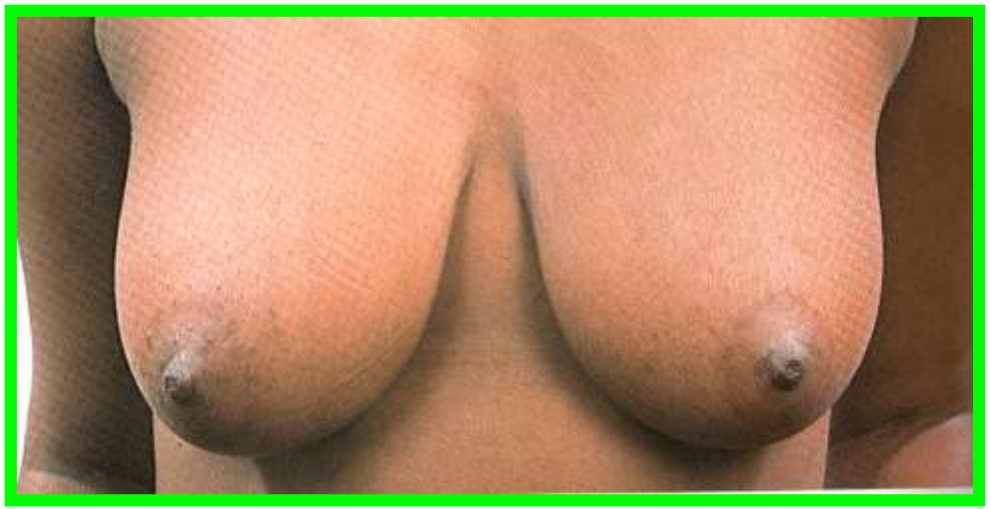
- ✓ The axillary tail may be visible as definite mass simulating an axillary tumor

The areola

- ✓ The areola is the hyperpigmented area of skin surrounding the nipple.
- ✓ The areola contains sebaceous glands called areolar glands of Montgomery
- ✓ The areolar glands enlarge during pregnancy and secrete an oily substance that protects the areola and nipple

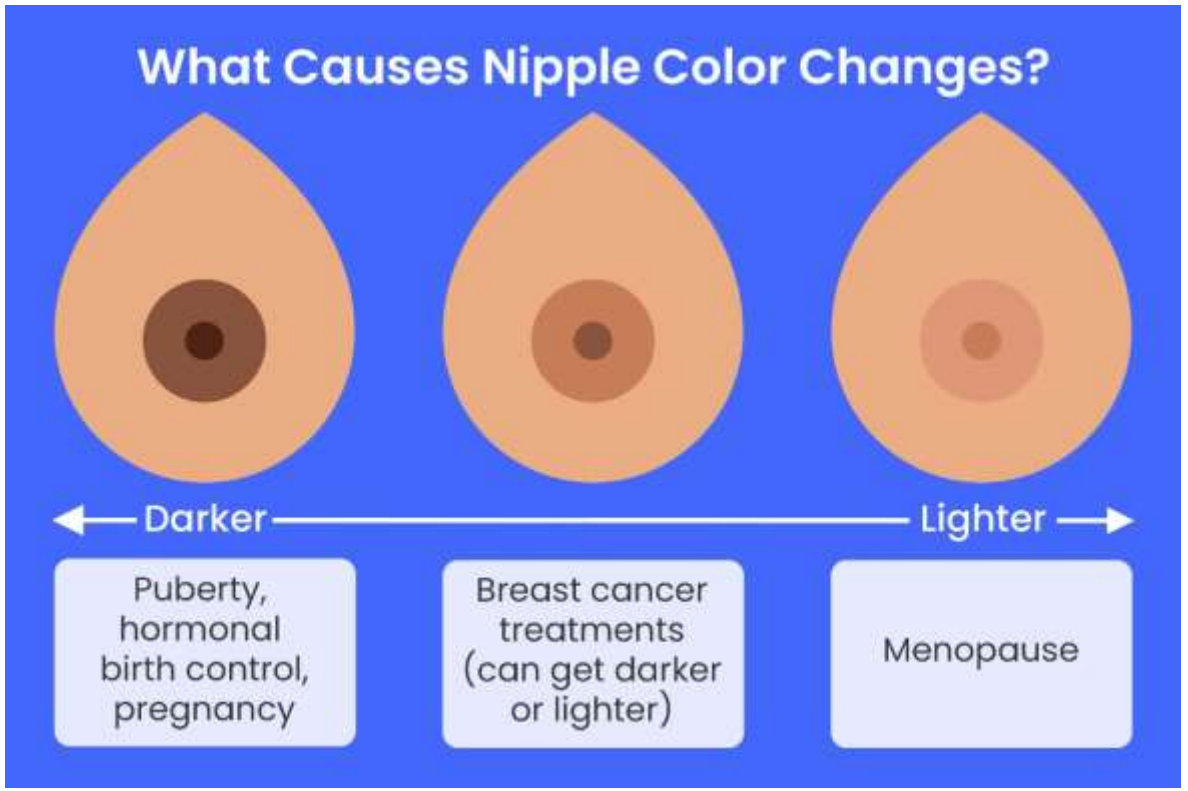
Size and color of the areola

- The areola is variable in size and color.
- The depth of color depends on the woman's skin color.
- It is pink in white nulliparous woman.
- It is dark brown in Negroes



Size and color of the areola

- ✓ At puberty, the areola enlarges and become more pigmented.
- ✓ During pregnancy, the areola enlarges and becomes deep brown to black.
- ✓ The color diminishes after pregnancy but never returns to the original pink color.



The areola

Small collection of smooth muscle located at the base of the nipple may cause erection of the nipple during nursing or sexual arousal.

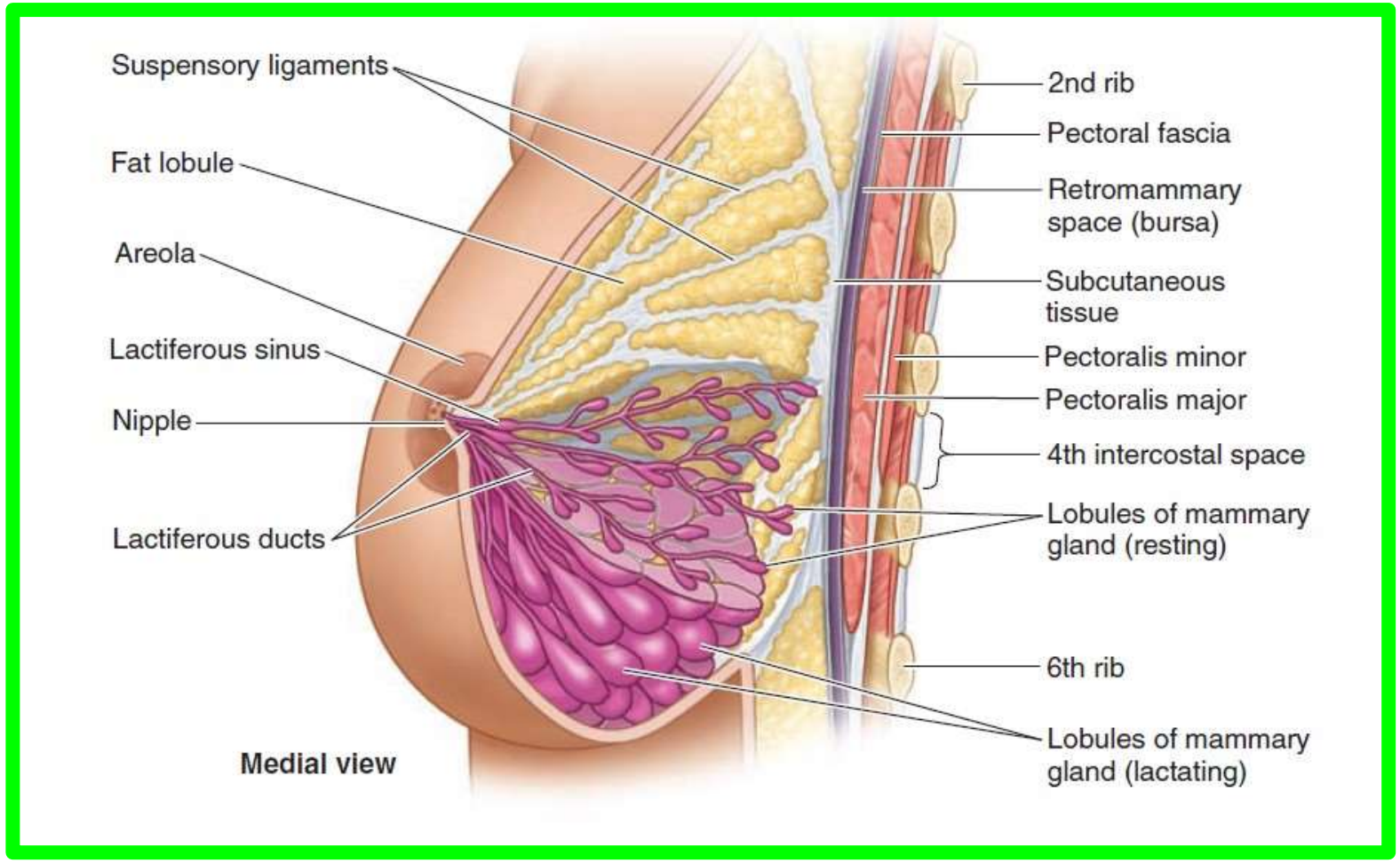
Contracted areola

Relaxed areola

Breast lobes

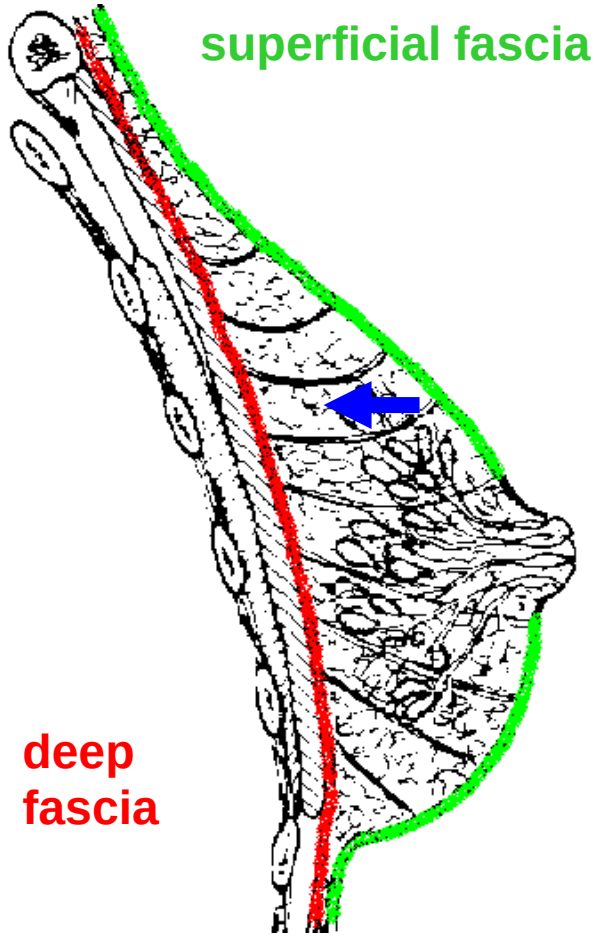
- There are 15-20 lobes of glandular tissue.
- Each lobe is drained by a lactiferous duct.
- Lactiferous ducts extend from the nipple in a radial manner.

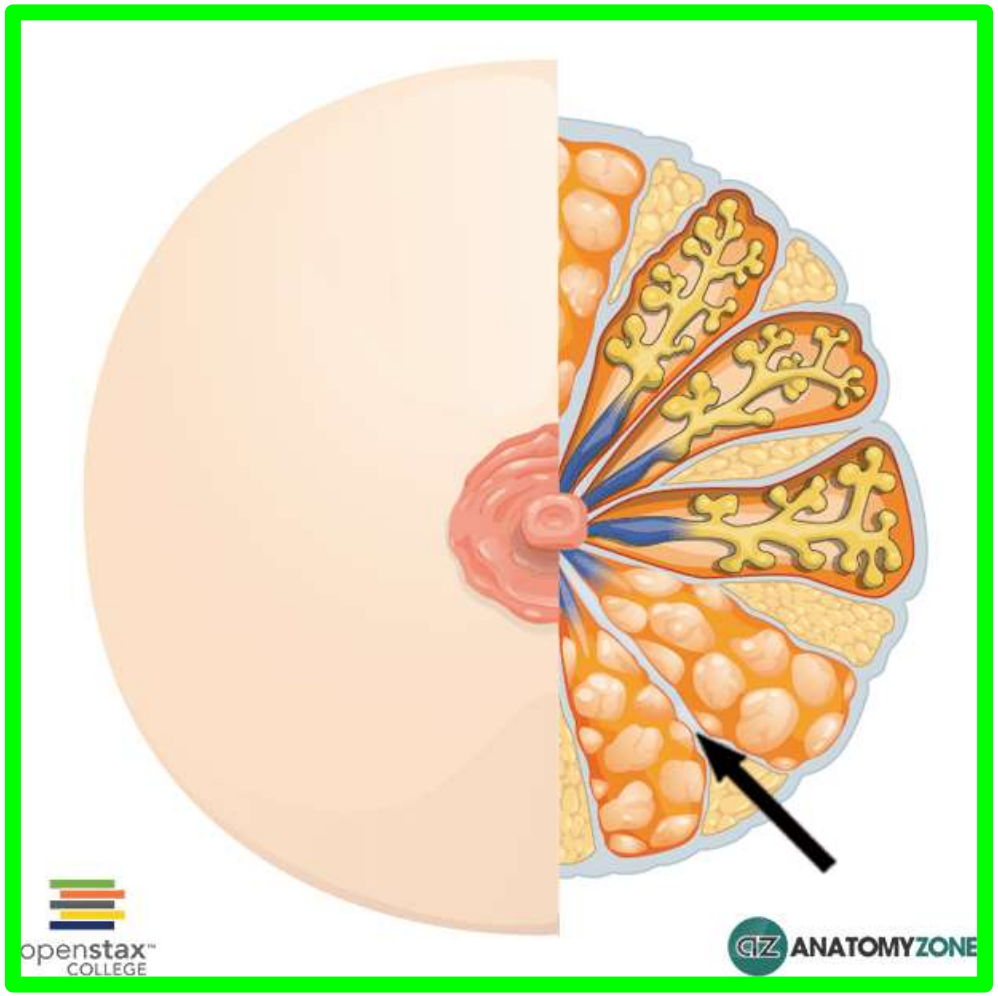
- Under the areola, each duct has a dilated portion called lactiferous sinus in which milk accumulates during lactation.



Suspensory ligaments

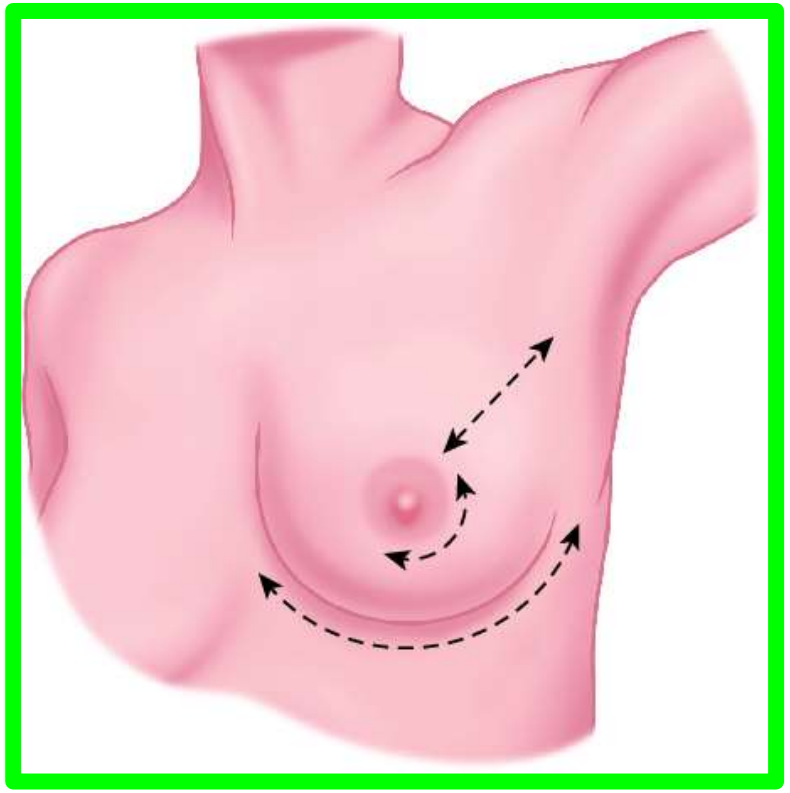
- ✓ The lobes are separated by fibrous tissue septa which are called the suspensory ligaments of the breast (ligaments of Cooper).
- ✓ The suspensory ligaments of the breast extend from the deep fascia to the skin.

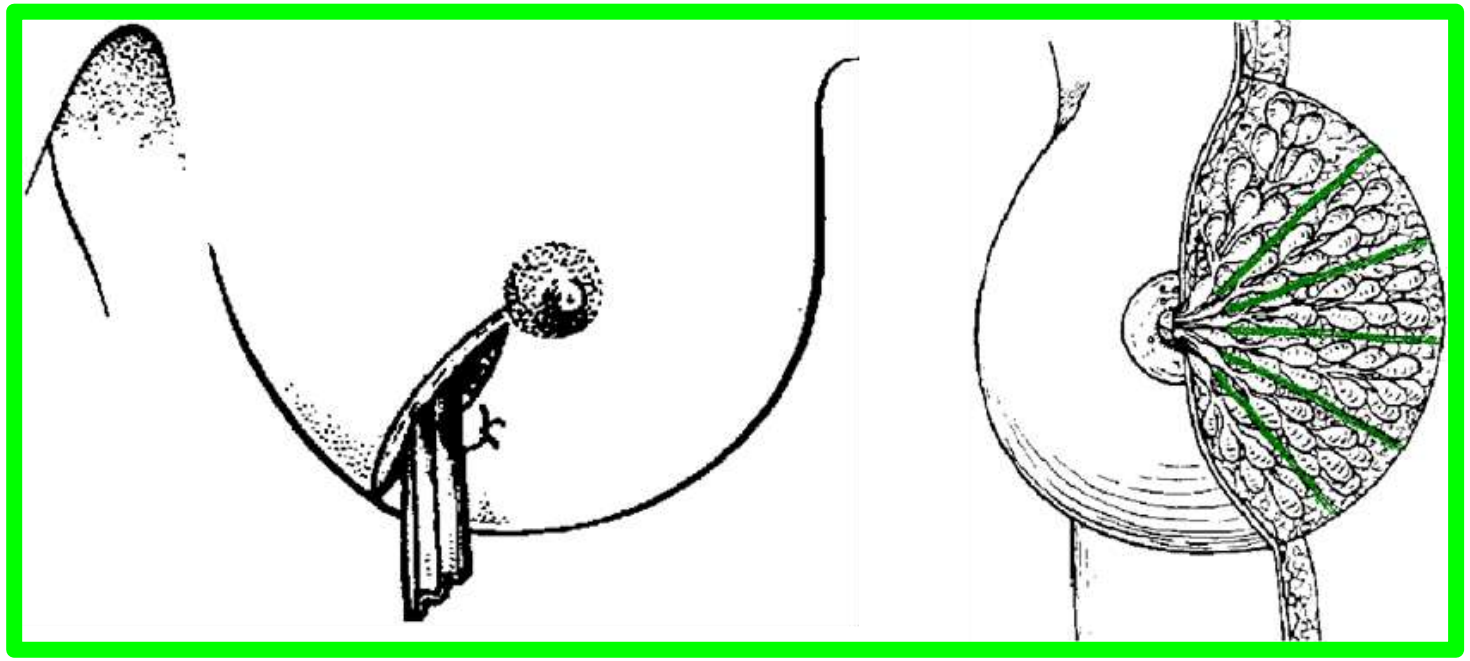




Suspensory ligaments

Abscess in the breast should be opened by a **radial incision** to avoid cutting across a number of lactiferous ducts (being radially arranged) and to prevent spread of infection from one lobule to another across the borders (suspensory ligaments).





VASCULATURE OF BREAST

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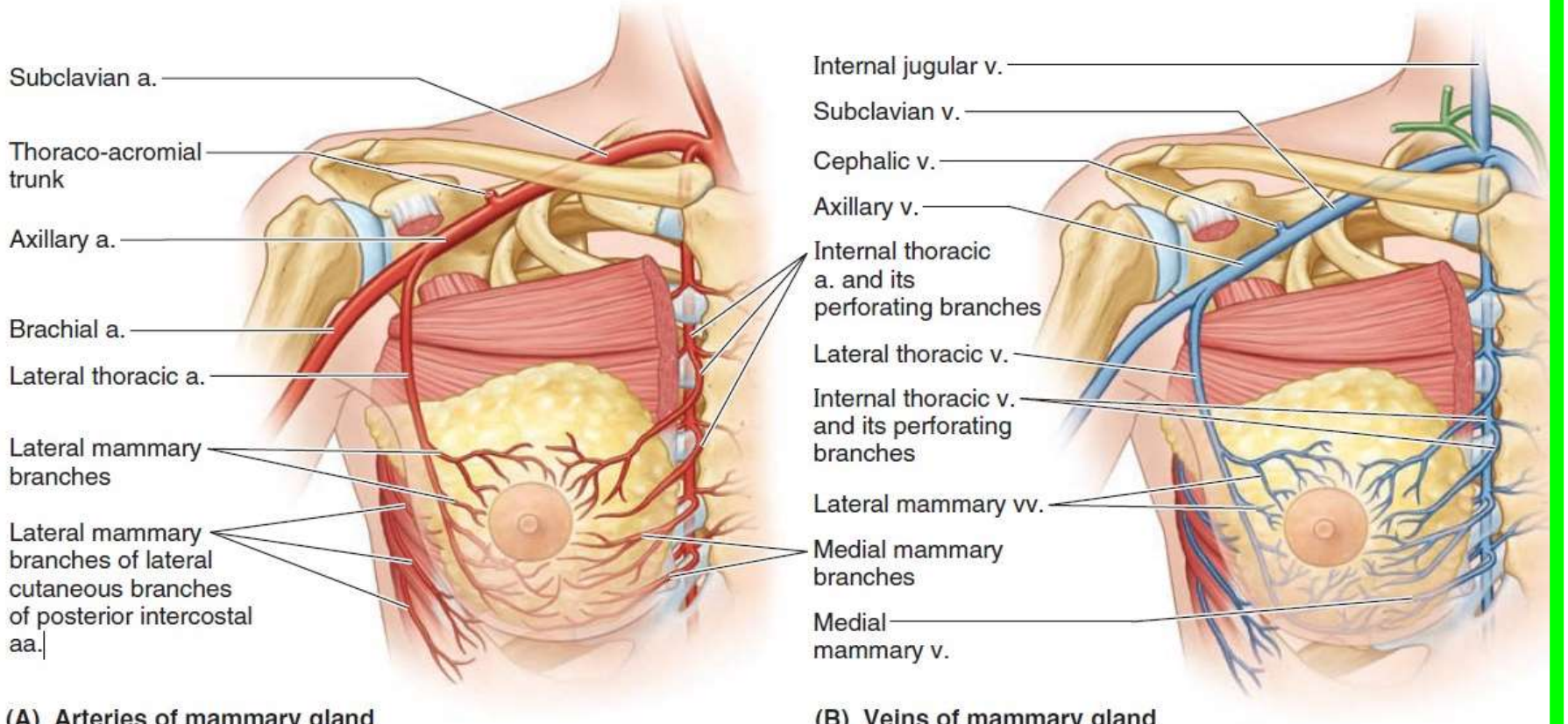
The arterial supply of the breast is derived from

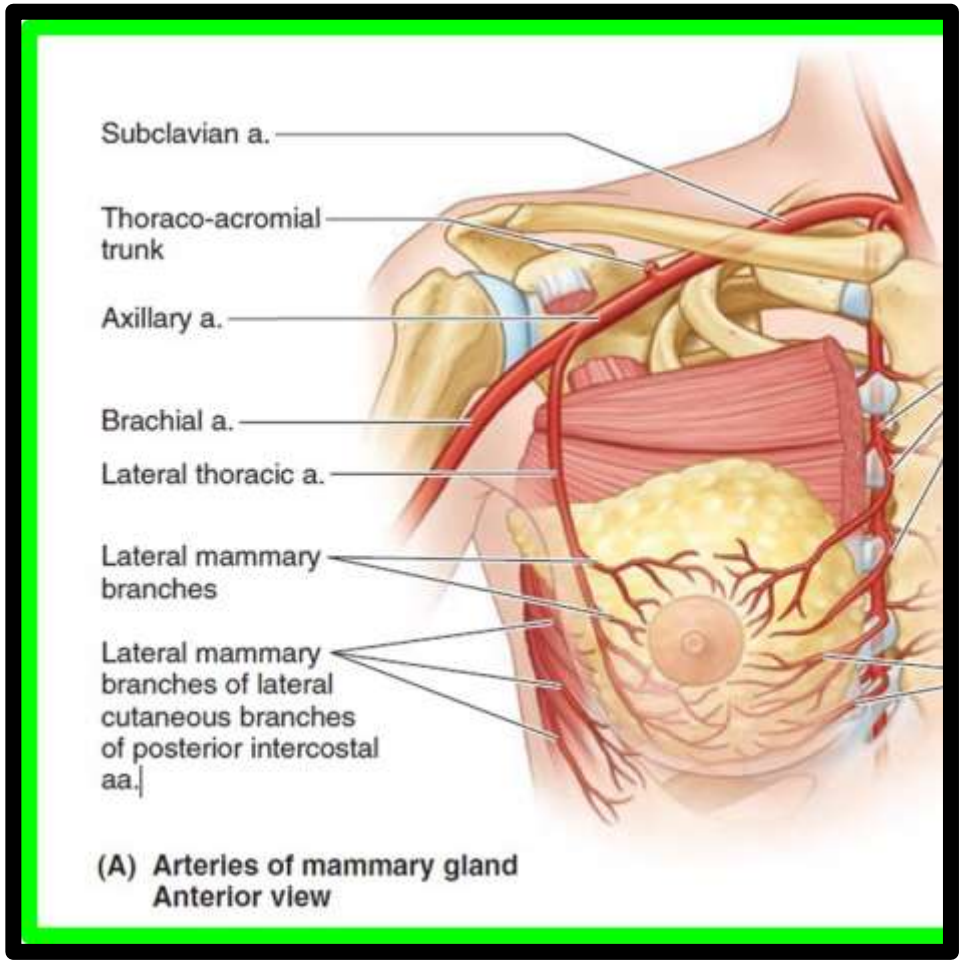
- ✓ **Medial mammary branches** of perforating branches and *anterior intercostal branches of the* ***internal thoracic artery***, originating from the subclavian artery

At the **2nd-4th intercostal spaces** these perforating branches are particularly large.



VASCULATURE OF BREAST

- ✓ Mammary branches of lateral thoracic and thoracoacromial arteries, branches of the axillary artery
- ✓ *Posterior intercostal arteries*, branches of the thoracic aorta in the intercostal spaces



(A) Arteries of mammary gland Anterior view

Venous drainage

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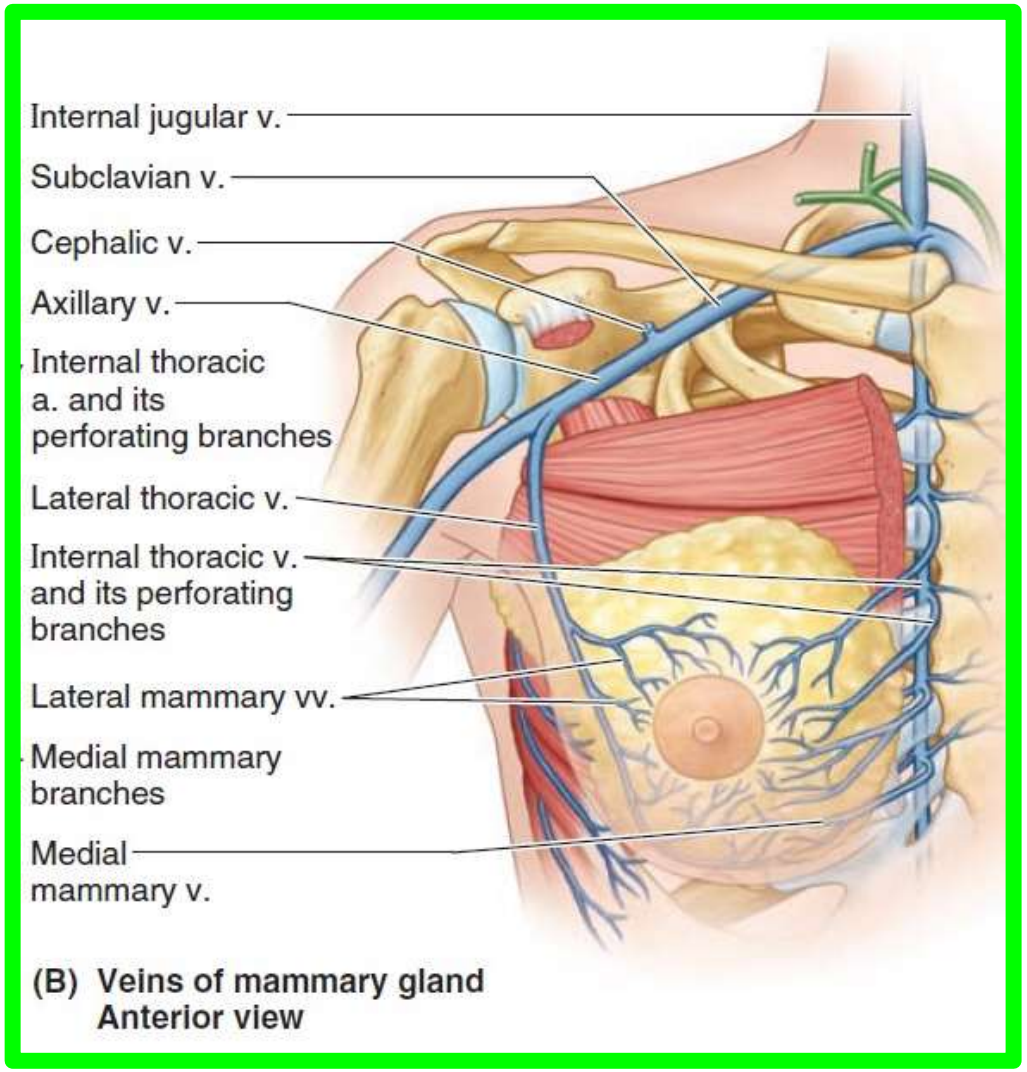
The venous drainage of the breast is mainly to the axillary vein, but there is some drainage to the internal thoracic vein.

- The intercostal veins communicate posteriorly with the vertebral venous system.
- By this pathway, metastasis of the breast may travel to the skeleton
- venous spread of breast cancer may reach the liver through porto-caval anastomoses



(B) Veins of mammary gland
Anterior view

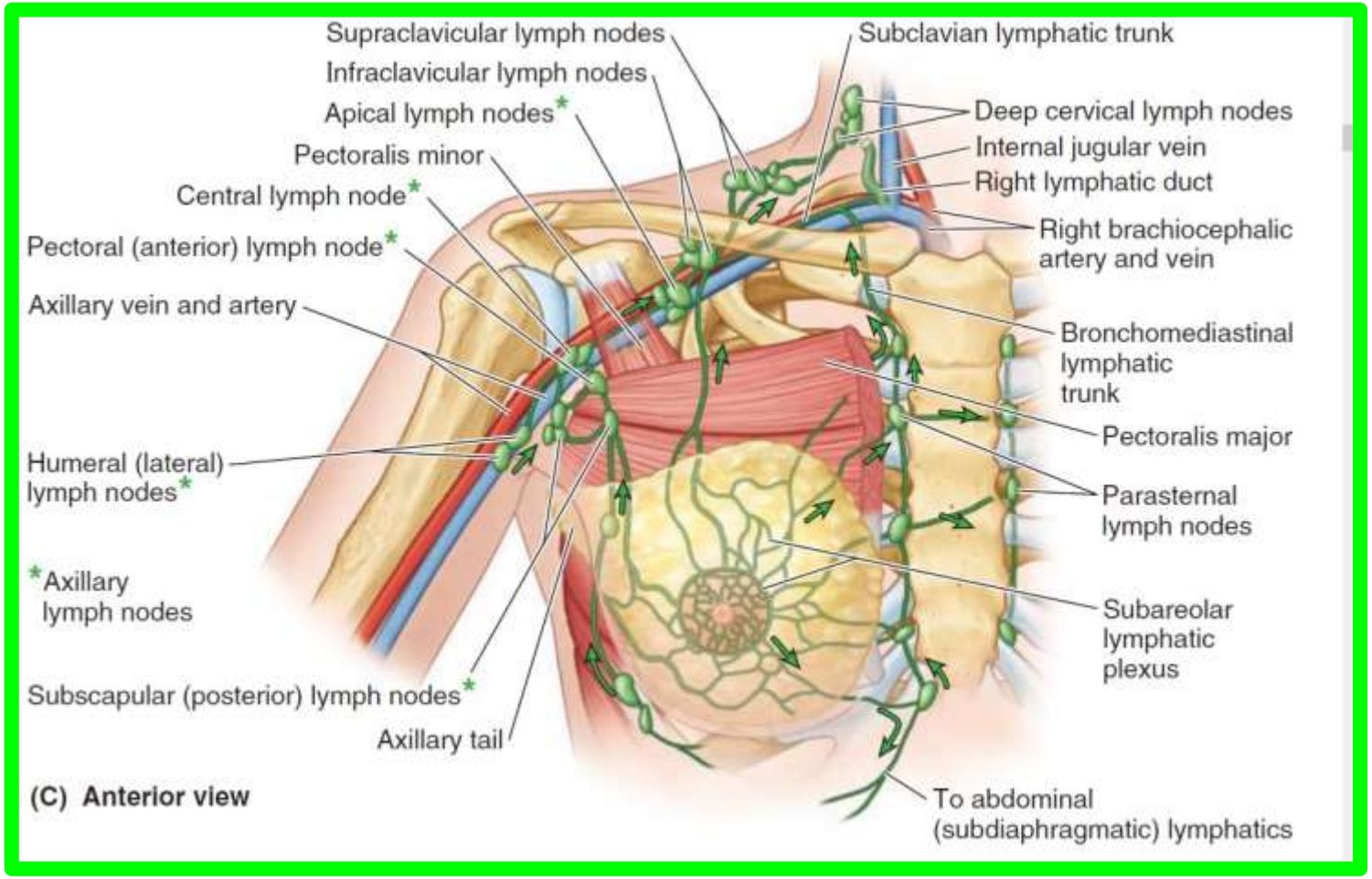
Lymph drainage

The lymphatic drainage of the breast is important because of its role in the metastasis (spread) of cancer cells.

Lymph passes from lobules of the gland, nipple, and areola to the subareolar lymphatic plexus and from it:

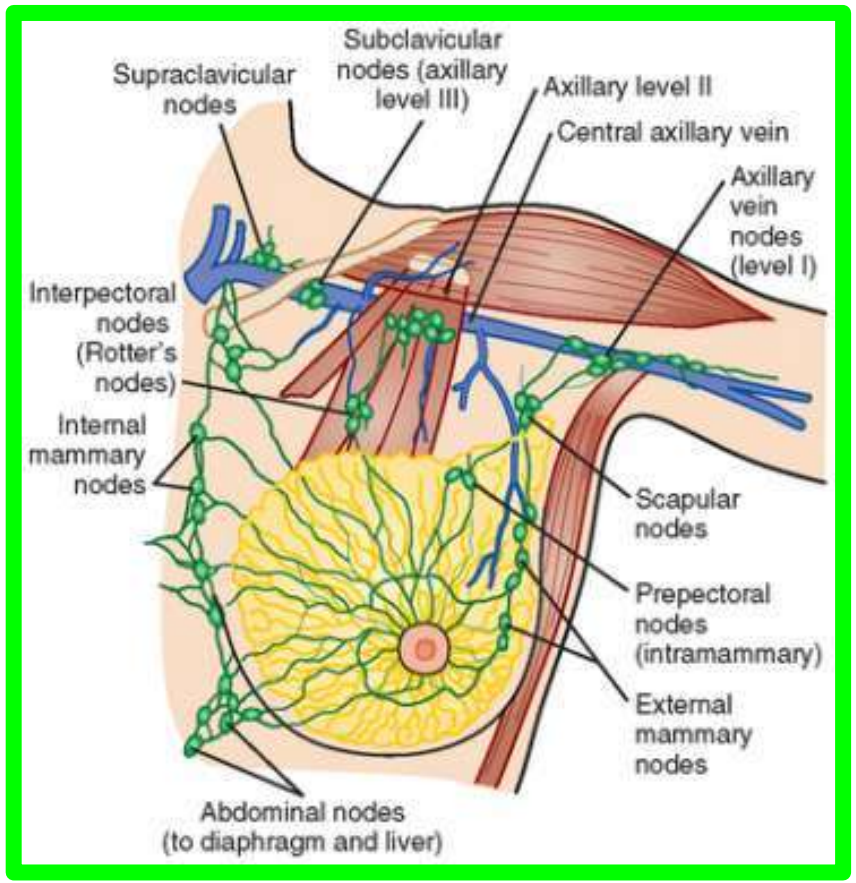
- **Most lymph (75%), especially from the lateral quadrants of the breasts, drains to the axillary lymph nodes**

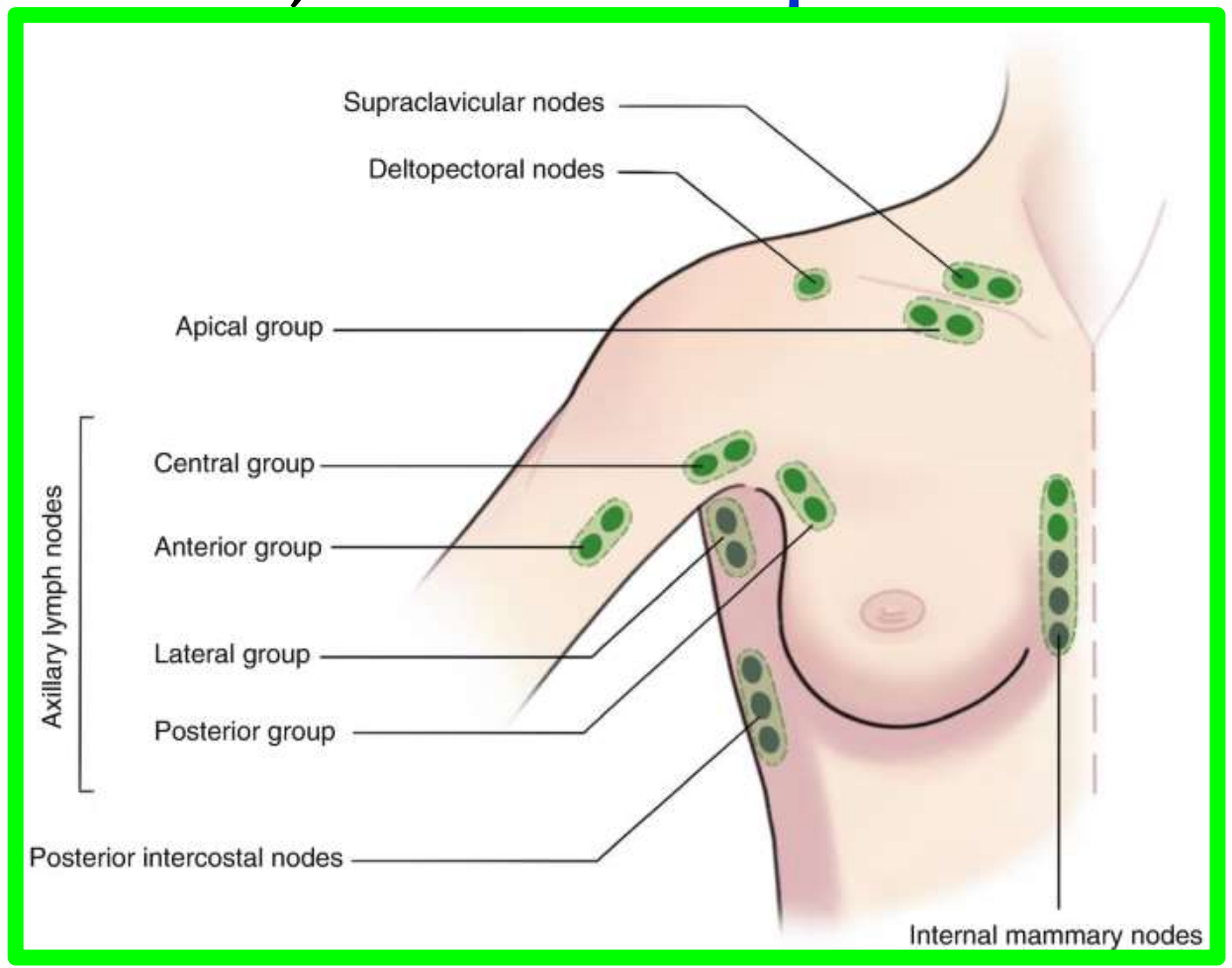
that includes the pectoral, humeral, subscapular, central, and apical groups).



Lymph drainage

- Most of the lymph first drains to the pectoral (anterior) nodes. However, some lymph may drain directly to other axillary nodes or to interpectoral, deltopectoral, supraclavicular, or inferior deep cervical nodes.

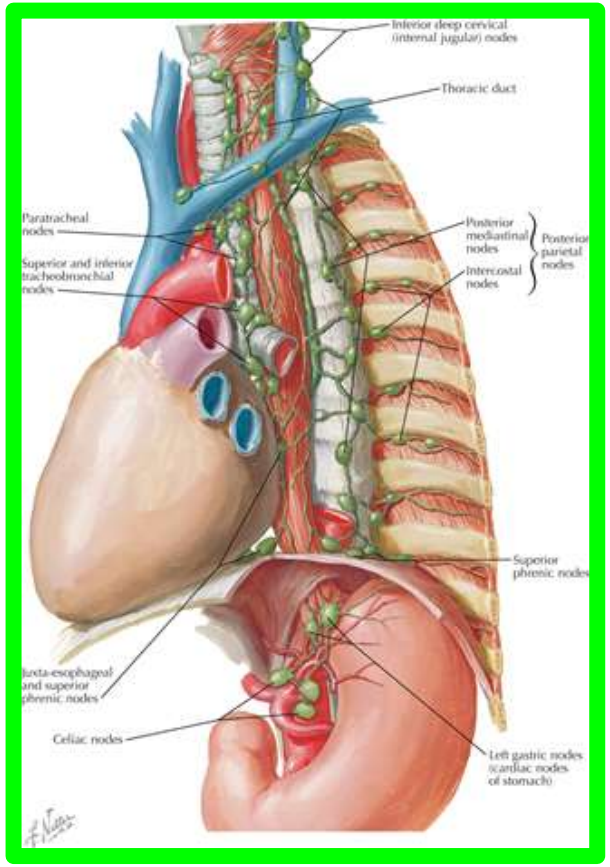


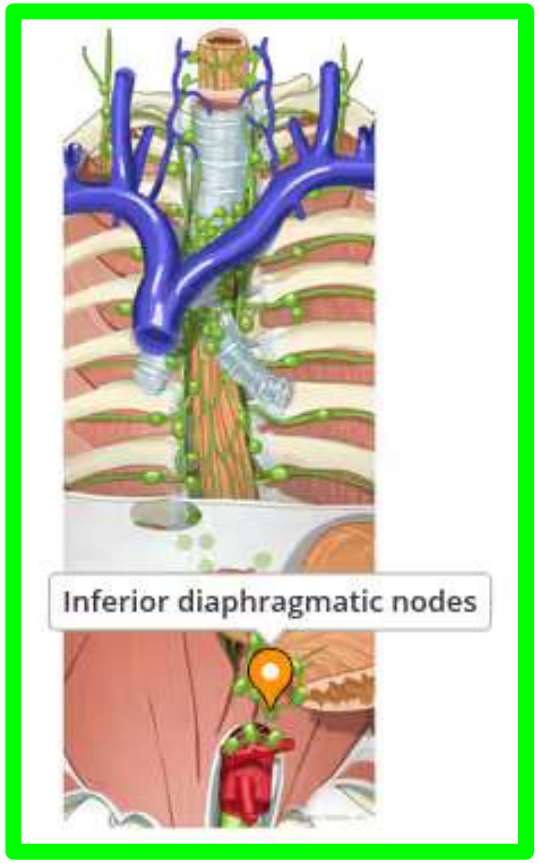


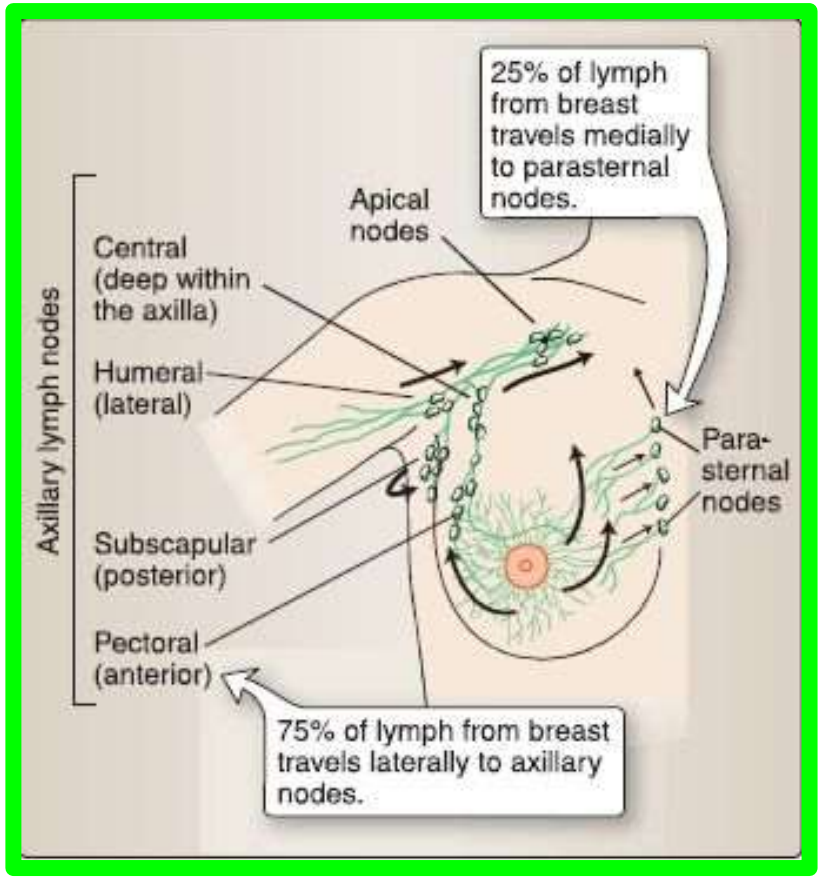
Lymph drainage

Lymph from the medial breast quadrants drains to the parasternal lymph nodes or to the opposite breast.

- **Lymph from the inferior breast quadrants may pass deeply to abdominal lymph nodes (inferior phrenic nodes).**





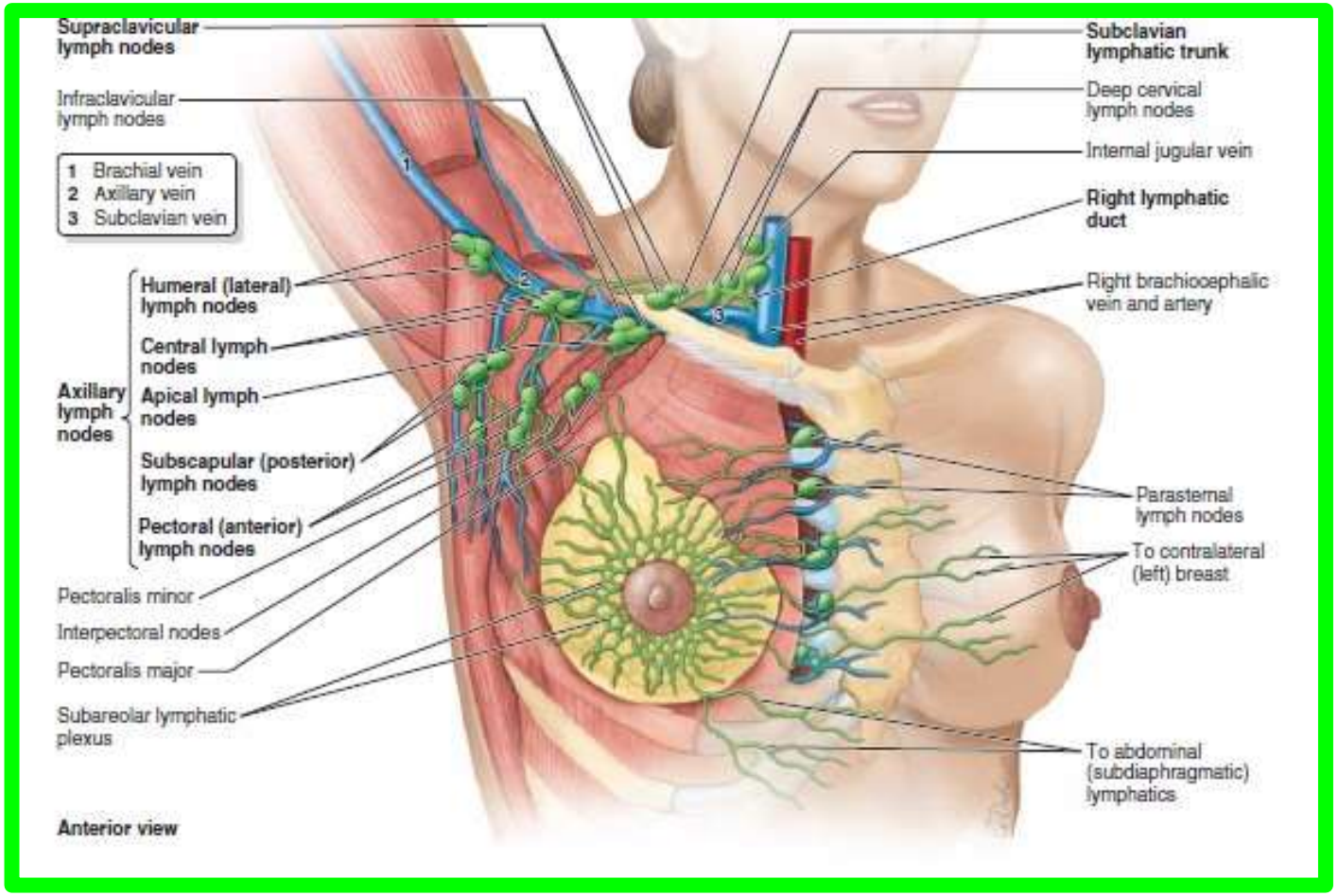


Axillary Lymph Nodes

There are five principal groups of axillary lymph nodes:

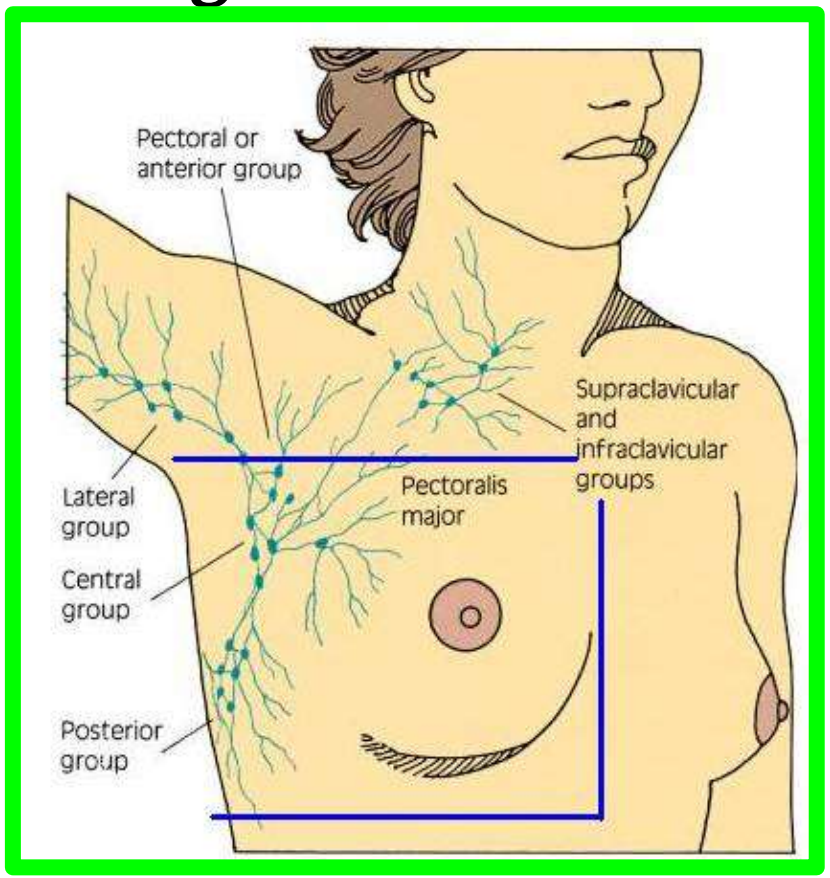
- ❑ **The pectoral (anterior) nodes** consist of **three to five** nodes that lie along the medial wall of the axilla, around inferior border of the pectoralis minor.

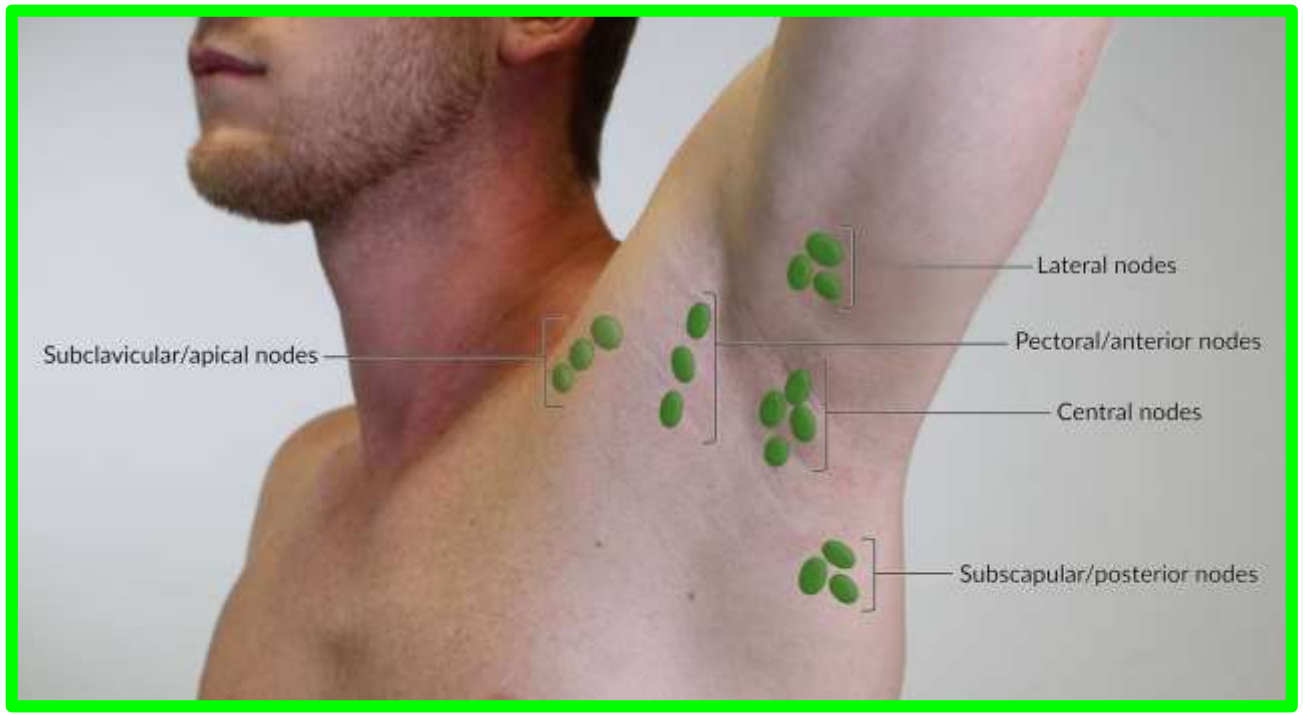
- ✓ The pectoral nodes receive lymph mainly from the anterior thoracic wall, including most of the breast.



Axillary Lymph Nodes

- **The subscapular (posterior) nodes consist of six or seven nodes that lie along the posterior axillary fold and subscapular blood vessels. These nodes receive lymph from the posterior aspect of the thoracic wall and scapular region.**

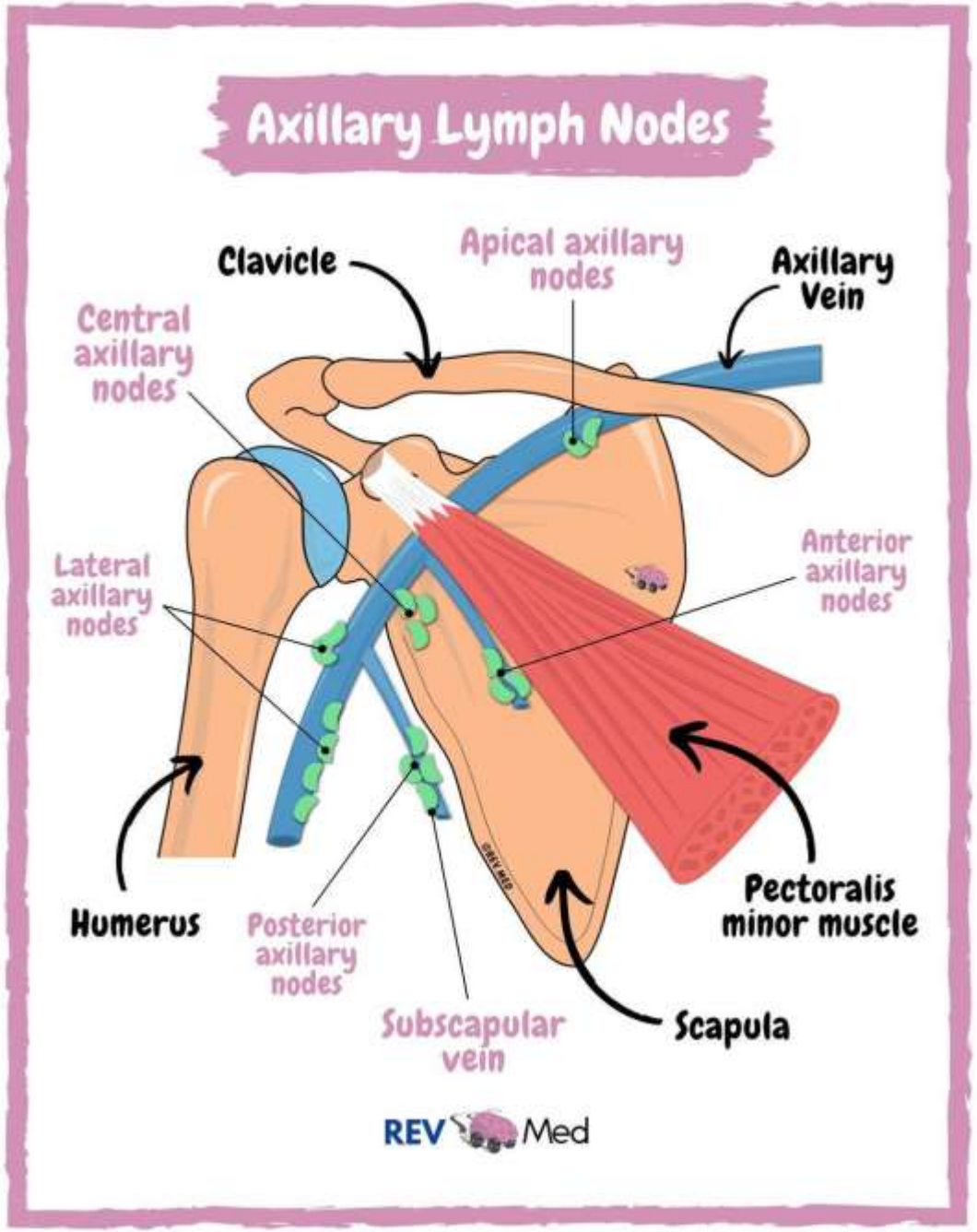




Axillary Lymph Nodes

- **The humeral (lateral) nodes** consist of four to six nodes that lie along the lateral wall of the axilla, medial and posterior to the axillary vein.

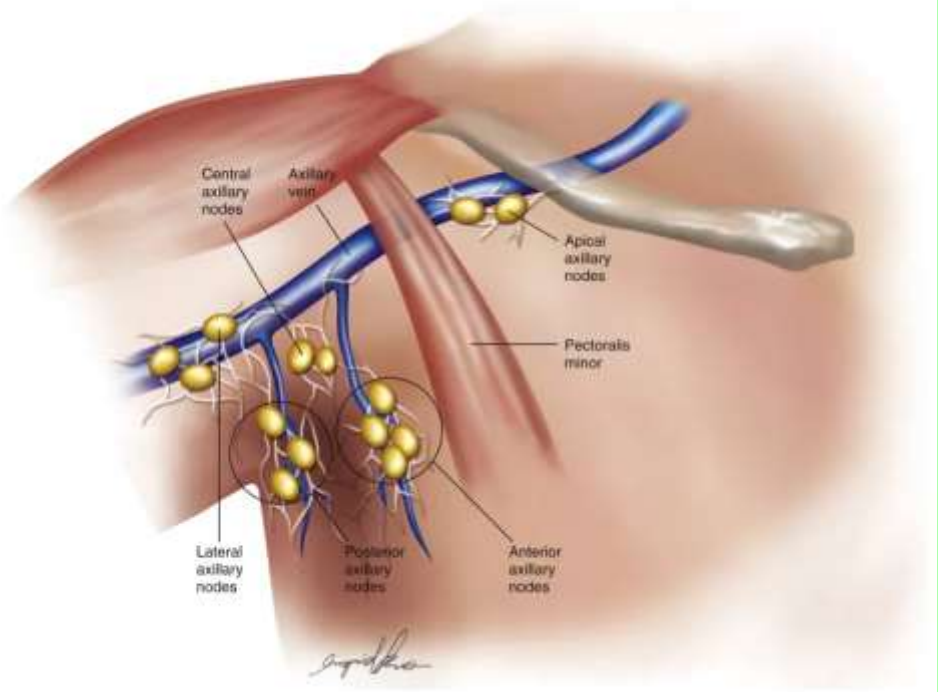
These humeral nodes receive nearly all the lymph from the upper limb,



Axillary Lymph Nodes

Efferent lymphatic vessels from the pectoral, subscapular, and humeral nodes pass to:

- **The central nodes. These nodes consist of three or four large nodes situated deep to the pectoralis minor near the base of the axilla, in association with the second part of the axillary artery.**



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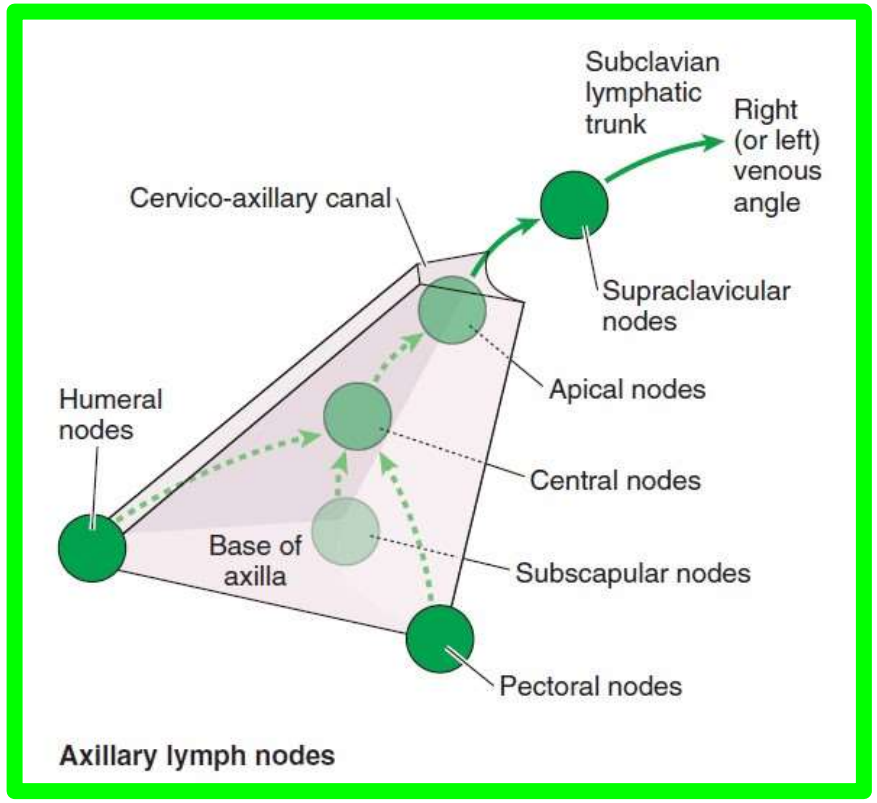

Axillary Lymph Nodes

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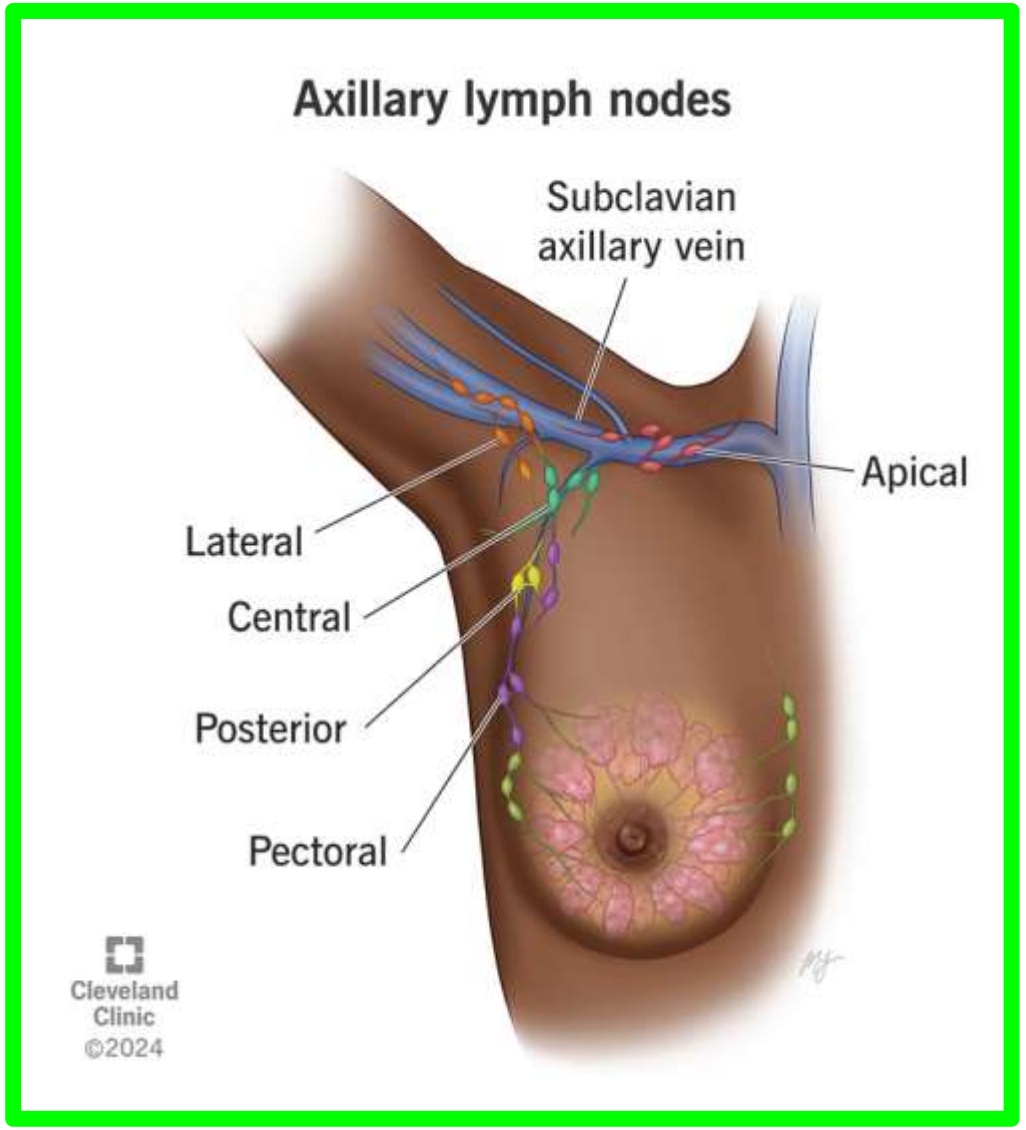
- Efferent vessels from the central nodes pass to the apical nodes

- The apical nodes are located at the apex of the axilla along the medial side of the axillary vein and the first part of the axillary artery.

These nodes receive lymph from all other groups of axillary nodes as well as from lymphatics accompanying the proximal cephalic vein.

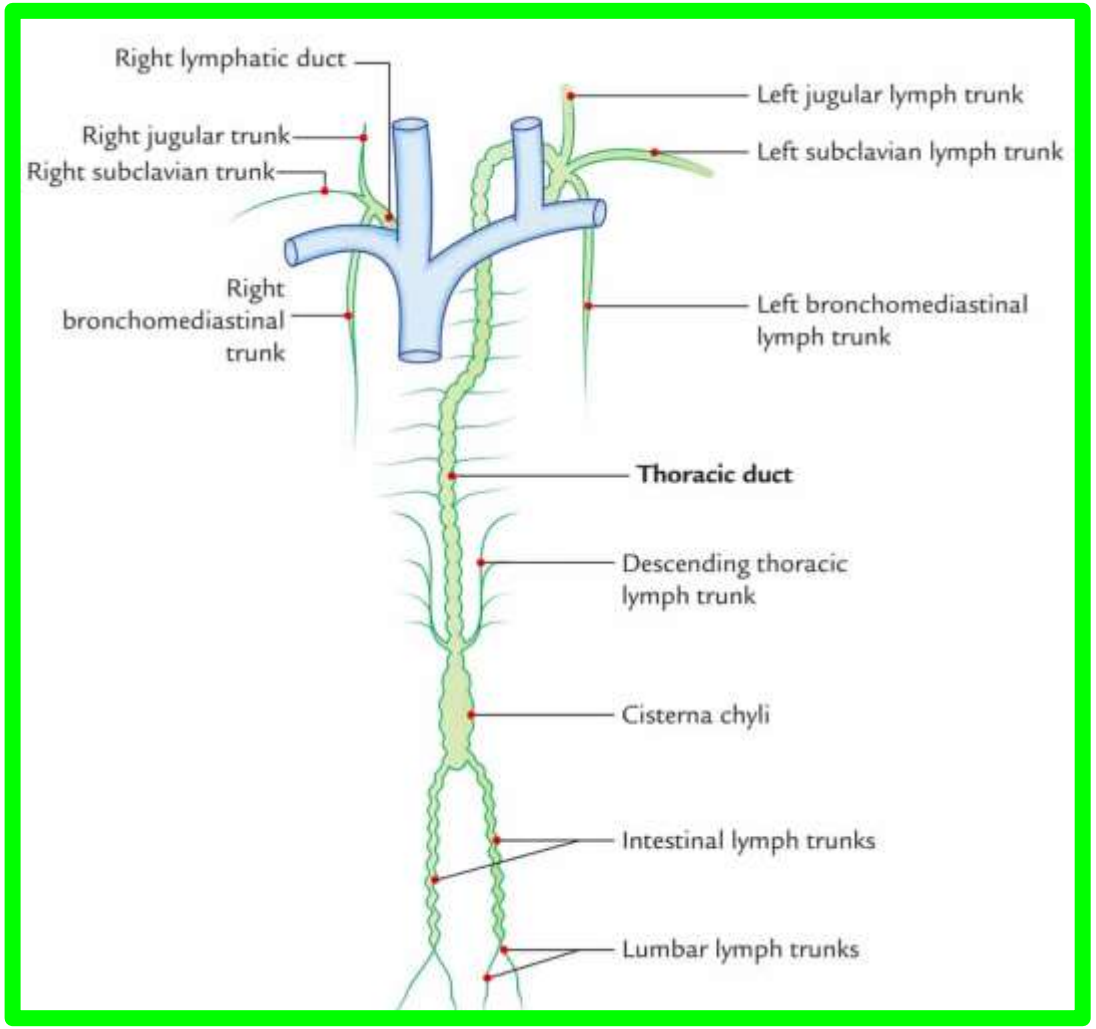


Axillary Lymph Nodes

Efferent vessels from the apical nodes traverse the cervico- axillary canal and unite to form the subclavian lymphatic trunk

The subclavian lymphatic trunk may be joined by the jugular and bronchomediastinal trunks on the right side to form the right lymphatic duct.

On the left side, the subclavian trunk most commonly joins the thoracic duct.

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