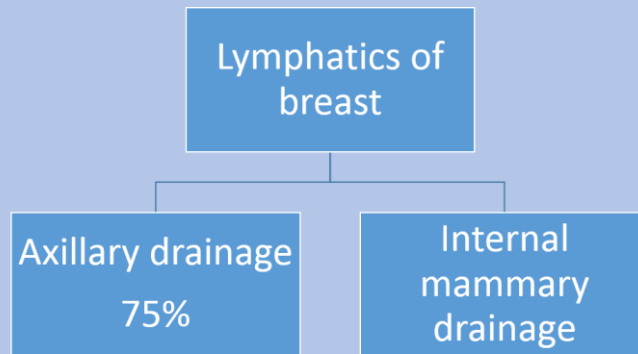
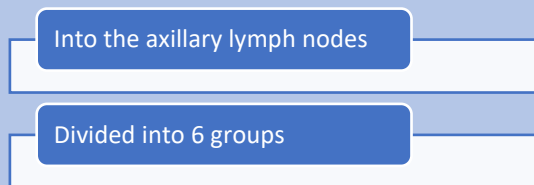


Lymphatic drainage of breast



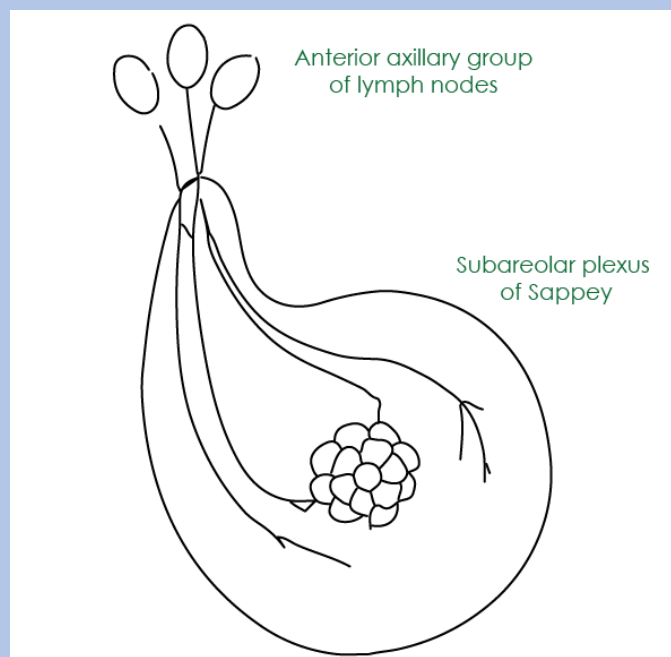
Axillary drainage



1. Axillary group of lymph nodes

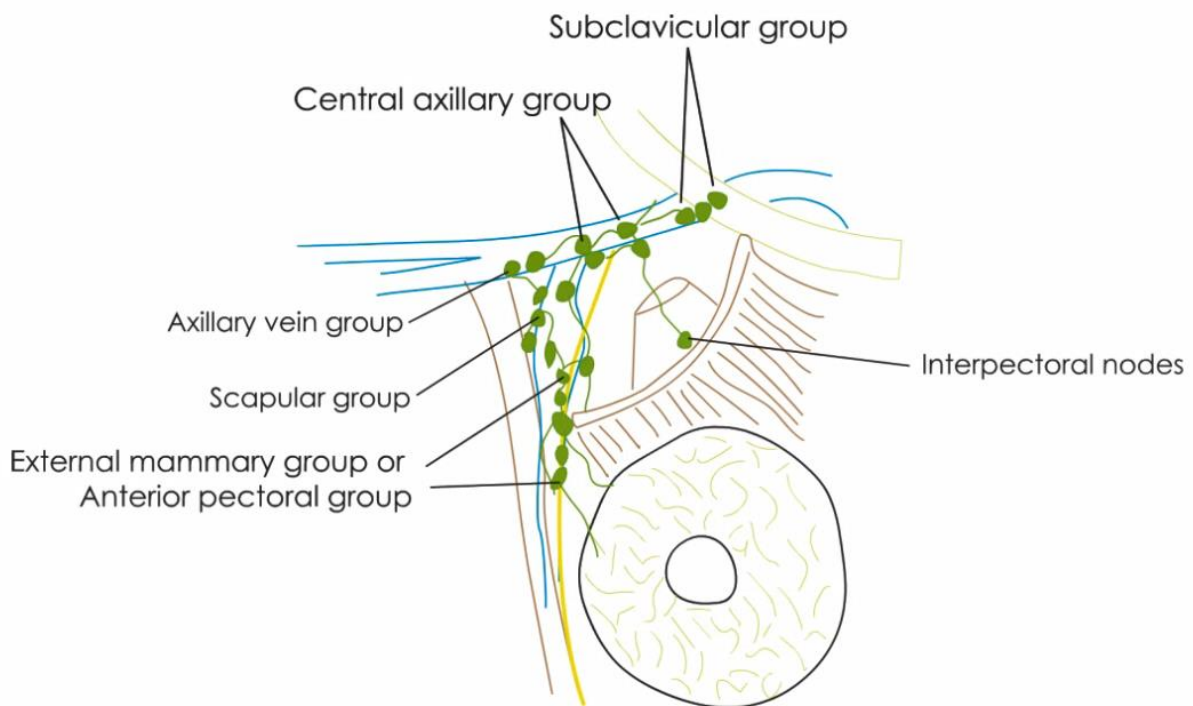
a. Anterior pectoral group (external mammary group)

- Along lateral border of pectoralis minor
- Deep to pectoralis major
- Along medial side of lateral thoracic artery from 2nd to 6th rib
- Deep to areola – extensive plexus of lymphatics present
- Called Subareolar plexus of Sappey
- Pass around the lateral border of pectoralis major to reach external mammary group.



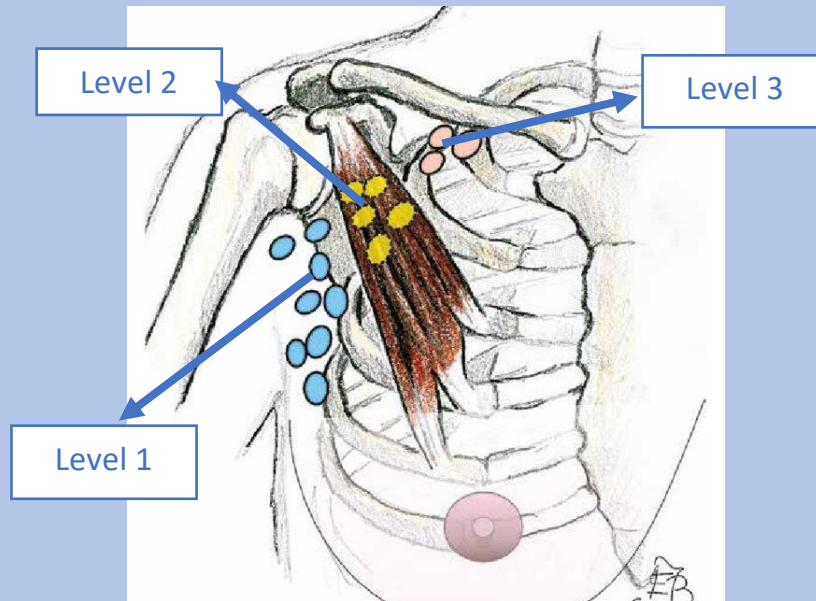
- b. Scapular nodes (posterior group)
 - lie on the subscapular vessels and their thoracodorsal branches
 - Intercommunicate with intercostal lymph nodes
- c. Central nodes
 - largest group of lymph nodes
 - they can be easily palpable in axilla
 - embedded in fat in the centre of the axilla
 - When these nodes enlarge, they can compress the intercostobrachial nerve, the lateral cutaneous branch of the second or third thoracic nerve that results in pain
- d. Interpectoral nodes (Rotter's nodes)
 - lie between the pectoralis major and minor muscles
- e. Axillary vein nodes (lateral group)
 - lie on the caudal and ventral surfaces of the lateral part of the axillary vein
- f. Subclavicular nodes (apical group)
 - lie on the caudal and ventral surfaces of the medial part of the axillary vein
 - Inaccessible unless Pectoralis major is sacrificed

Axillary drainage of breast lymphatics



Axillary lymph nodes can be divided into surgical levels:

- **level 1:** lying below pectoralis minor
- **level 2:** lying behind pectoralis minor
- **level 3:** lying between the upper border of pectoralis minor and lower border of the clavicle

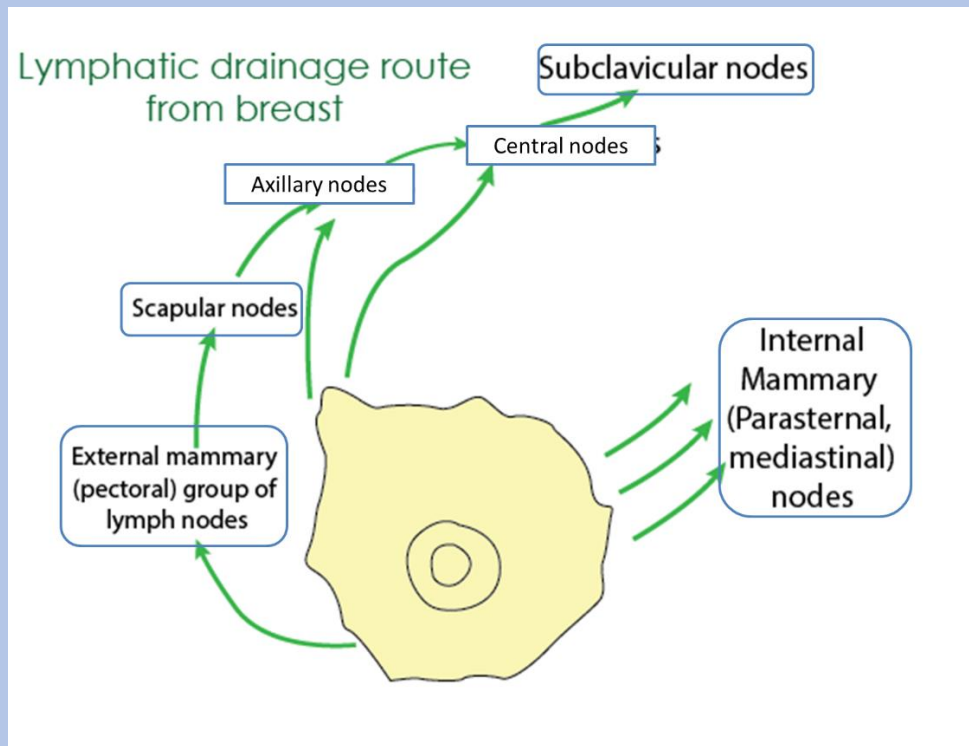


2. Internal mammary group of lymph nodes

- Located on medial edge of the breast on the pectoralis fascia
- accompany the perforating blood vessels
- also receive lymphatic trunks from the skin of the opposite breast, the liver, the diaphragm, the rectus sheath, and the upper part of the rectus abdominis
- This route to the venous system is shorter than the axillary route

Drainage route

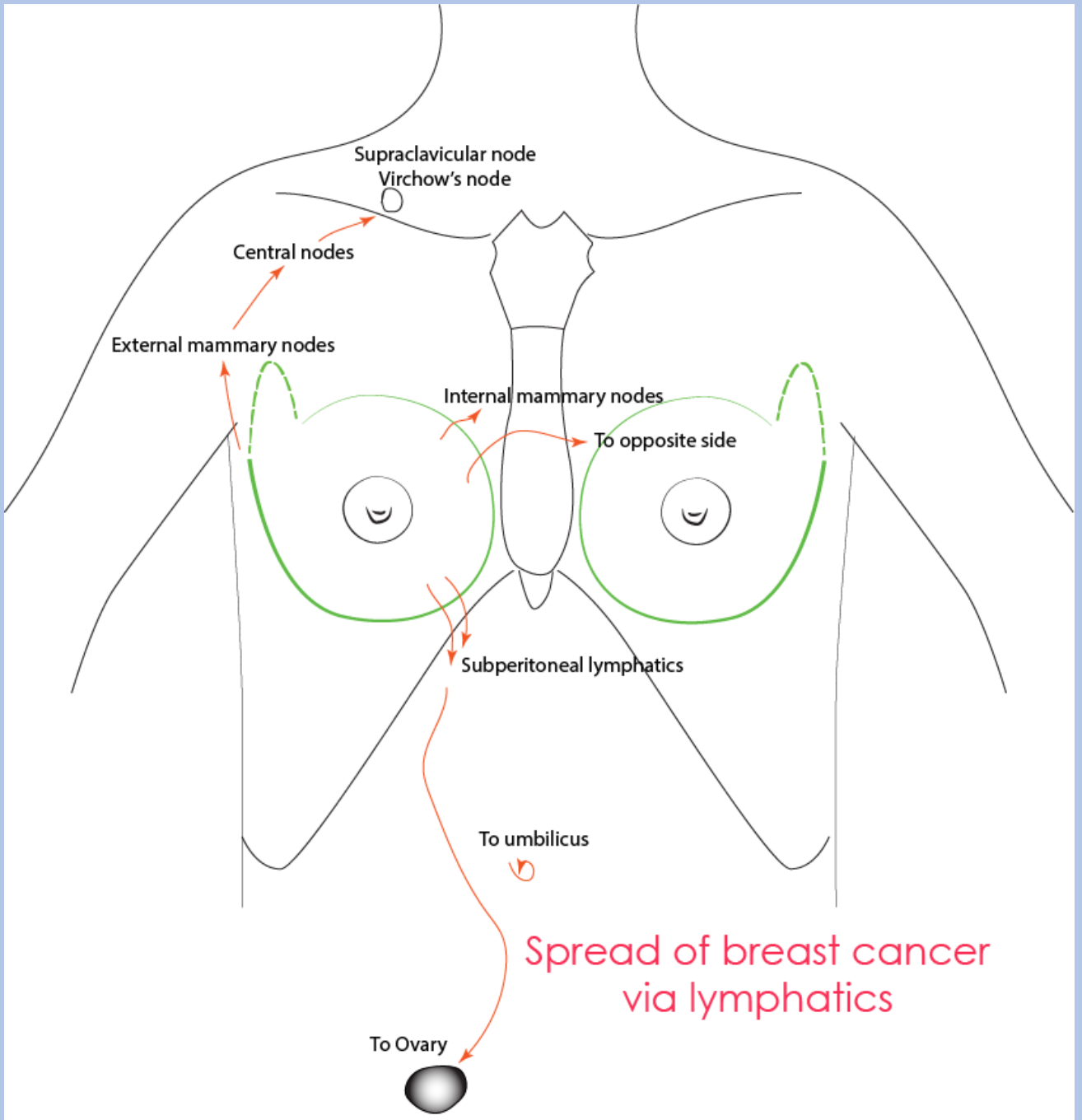
- In general lymphatic from breast accompany blood vessels
- Spread of tumor will be to lower axilla first, then to middle axilla before reaching upper axilla



Applied aspects

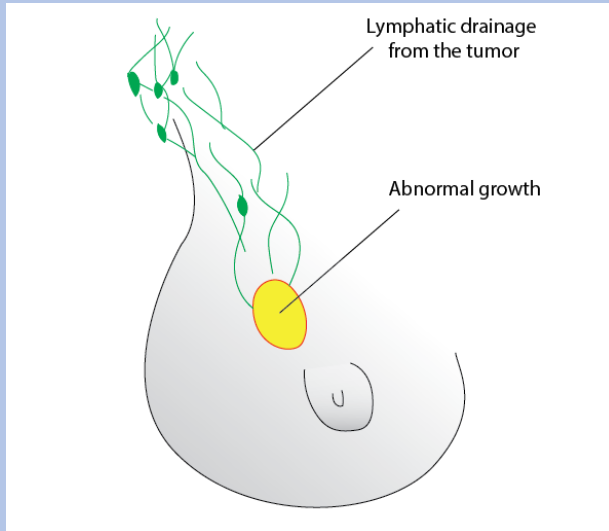
Spread of breast cancer

- Lymphatic metastasis occurs primarily to the axillary and the internal mammary lymph nodes.
- Tumours in the posterior one-third of the breast are more likely to drain to the internal mammary nodes.
- Spread by the bloodstream - initial spread may be via the lymphatic system.
- In order of frequency the lumbar vertebrae, femur, thoracic vertebrae, rib and skull
- Metastases may also commonly occur in the liver, lungs and brain

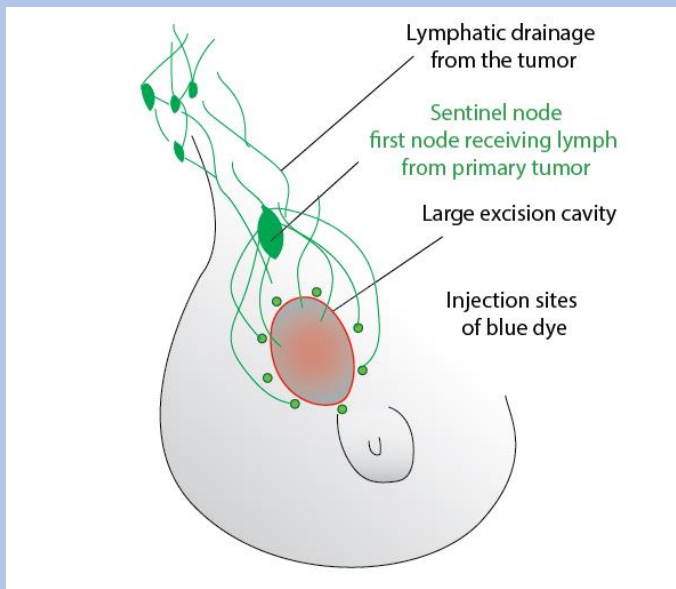


Sentinel node

- First site of metastatic disease
- It is the first node receiving lymph from primary tumor
- Detected using blue- dye and gamma camera



After the excision of an abnormal growth from breast



Blue dye is injected to its walls and first node receiving the dye is observed using gamma camera