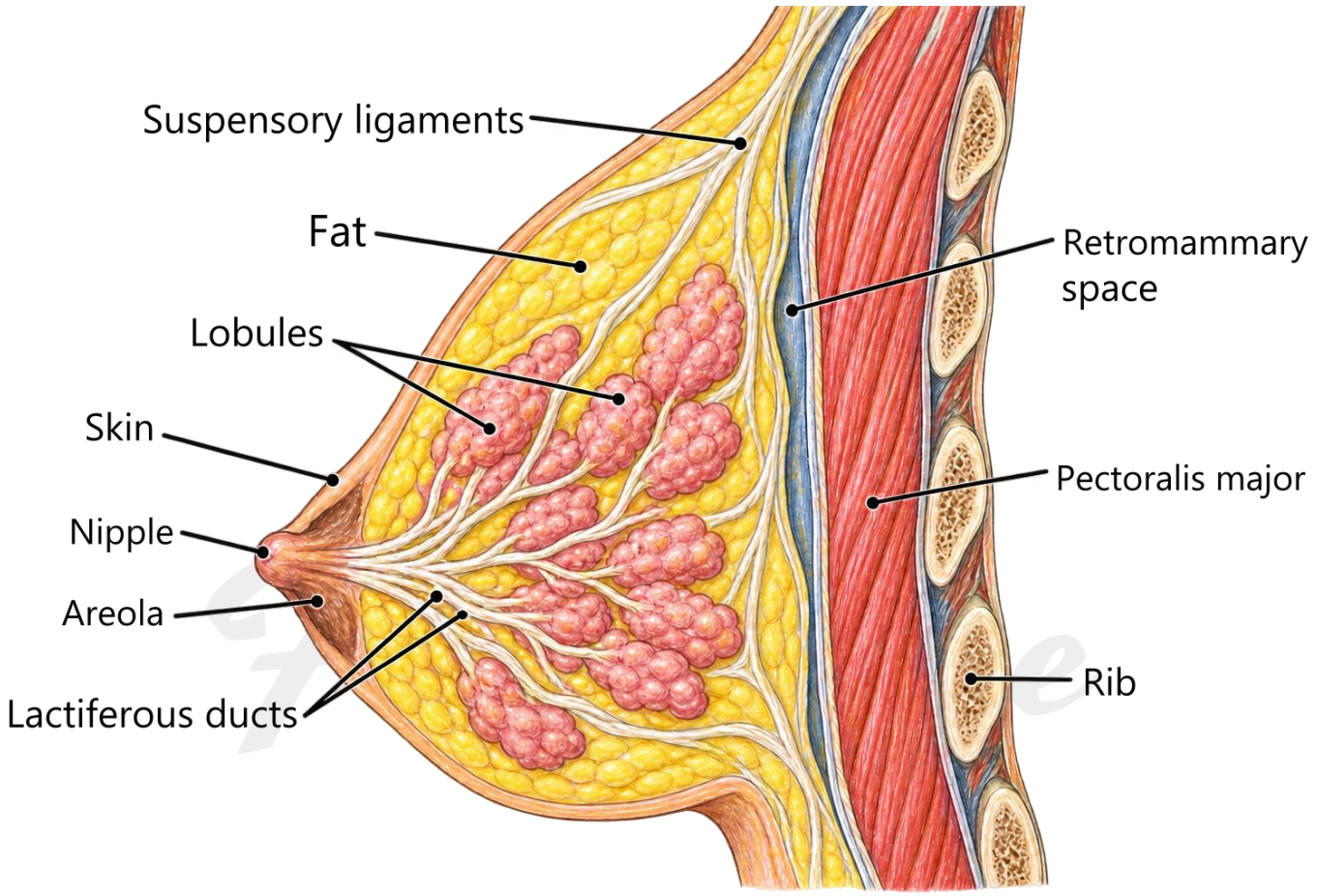
General Surgery - Topic 25 - Breast

Breast Disease

- The breast contains lobules and ducts embedded in fat and connective tissue over the pectoral region.

Applied Anatomy



Breast lobules, ducts, supporting ligaments and the retromammary plane explain important examination findings

Breast Structure and Supporting Tissues

- Its axillary tail extends towards the axilla and must be included in clinical examination.
- Cooper's suspensory ligaments connect the skin and deeper fascia and help support the breast.
- A retromammary plane allows movement over the underlying pectoral fascia.

Blood Supply and Lymphatic Drainage

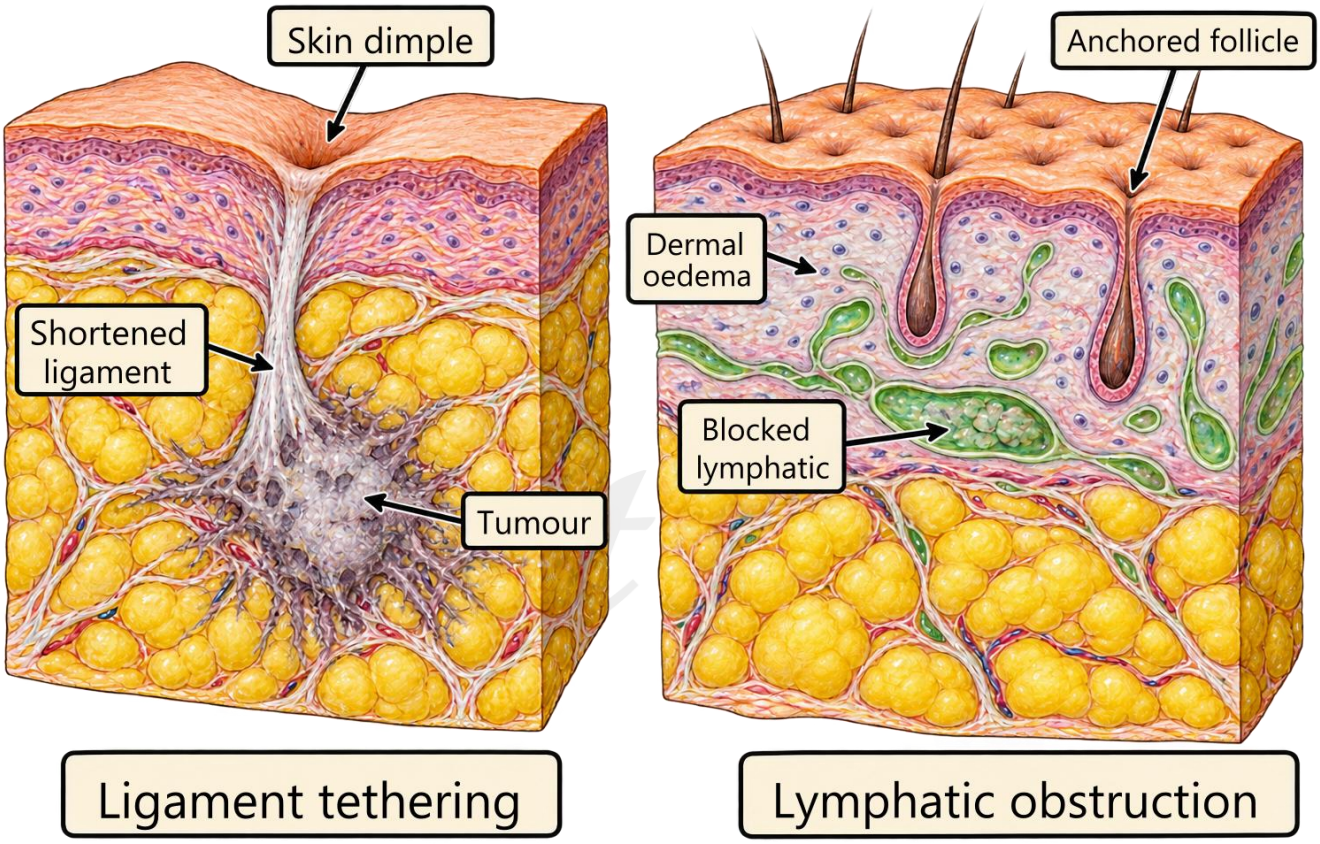
- Blood supply arises from branches of the internal thoracic, lateral thoracic and intercostal systems, among other contributors.
- Most lymph drains towards the axillary nodes, while medial regions also communicate with parasternal pathways.
- Axillary node levels are described in relation to pectoralis minor and help communicate the extent of nodal treatment.

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- Level I nodes lie lateral to pectoralis minor, level II nodes lie behind it, and level III nodes lie medial to its medial border.
- Lymphatic drainage varies, so a sentinel node is identified by mapping rather than assumed from the quadrant alone.

Anatomical Basis of Skin and Nipple Signs

- Tumour involvement of ligaments can cause dimpling, while obstruction of dermal lymphatics can produce peau d'orange.
- Involvement of ducts or adjacent tissues can cause new nipple retraction.



Tissue sections show how ligament tethering causes a dimple and dermal lymphatic obstruction causes skin oedema

History and Clinical Examination

Focused History

Breast Symptoms and Previous History

- Ask about a lump, pain, nipple discharge, skin change, nipple change and the duration or progression of each symptom.
- Ask whether pain or nodularity varies with the menstrual cycle.
- Record pregnancy, lactation, previous breast disease, biopsies, surgery, irradiation and relevant medicines.

Cancer Risk, Systemic Symptoms and Patient Concerns

- Assess family history of breast, ovarian and related cancers, including the relative's age at diagnosis.

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- Ask about constitutional symptoms and bone, respiratory or neurological symptoms when malignancy is suspected.
- Determine the effect on daily life and explore the patient's main concern without offering reassurance before assessment.
- Men can also develop breast cancer, so a suspicious male breast mass needs appropriate investigation.

Consent, Privacy and Positioning

- Explain the purpose and sequence, obtain consent and offer an appropriate chaperone.
- Provide privacy for undressing and draping and expose only what is needed for the examination.
- Begin with inspection while seated, then palpate in a suitable semi-reclined or supine position.
- Explain that the examination can be paused or stopped at any time.
- For a teaching station, demonstrate the method on a mannequin before performing a supervised patient examination.

Inspection

- Compare the breasts for size, contour, scars, erythema, visible veins, skin dimpling and nipple position.
- Observe with the arms relaxed and in appropriate raised or pectoral-contraction positions to reveal tethering.
- Look for an eczematous nipple lesion, ulceration or peau d'orange.
- A long-standing symmetrical nipple inversion differs from a newly acquired unilateral change, but history and examination must be integrated.

Palpation Technique on a Mannequin

Systematic Palpation

- Position the mannequin or patient so that breast tissue is spread comfortably over the chest wall, with the ipsilateral arm supported.
- Use the pads of the middle fingers and a systematic overlapping pattern to cover all breast tissue.
- Apply light, moderate and deeper pressure as appropriate without painful pinching between finger and thumb.
- Include the axillary tail and the area from the clavicle to the inframammary fold and from the sternal edge towards the lateral chest.

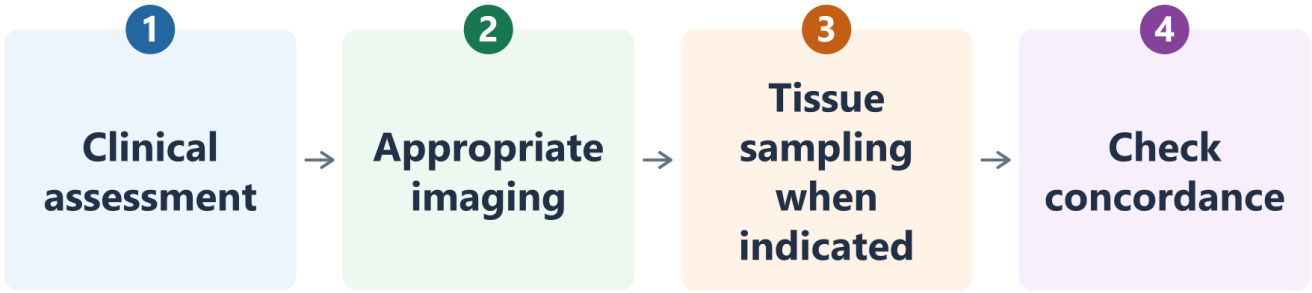
Lump, Nipple and Nodal Assessment

- For a lump, document its clock-face position or quadrant, distance from the nipple, size, surface, consistency, tenderness and mobility.

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- Assess whether it is tethered to skin or deeper structures and compare findings with the opposite breast.
- Examine the nipple and areola, and assess discharge only when clinically indicated rather than repeatedly squeezing every nipple.
- Examine the axillary and supraclavicular nodes with the arm supported and the muscles relaxed.
- Complete a relevant general examination when advanced disease is suspected.
- Allow the patient to dress, explain the next step and document the findings clearly.

Investigations and Triple Assessment



- Triple assessment combines clinical examination, appropriate breast imaging and pathological sampling when indicated.
- The three components should be interpreted together, and disagreement requires further investigation.

Imaging and Tissue Assessment

A. Breast Imaging

- Ultrasound is useful for distinguishing solid from cystic lesions and is often the initial imaging test in younger patients or during pregnancy.
- Diagnostic mammography is selected according to age, symptoms and the clinical pathway and can show masses, distortion or suspicious calcification.
- A normal image does not end the assessment of a clinically suspicious persistent mass.

B. Tissue Diagnosis

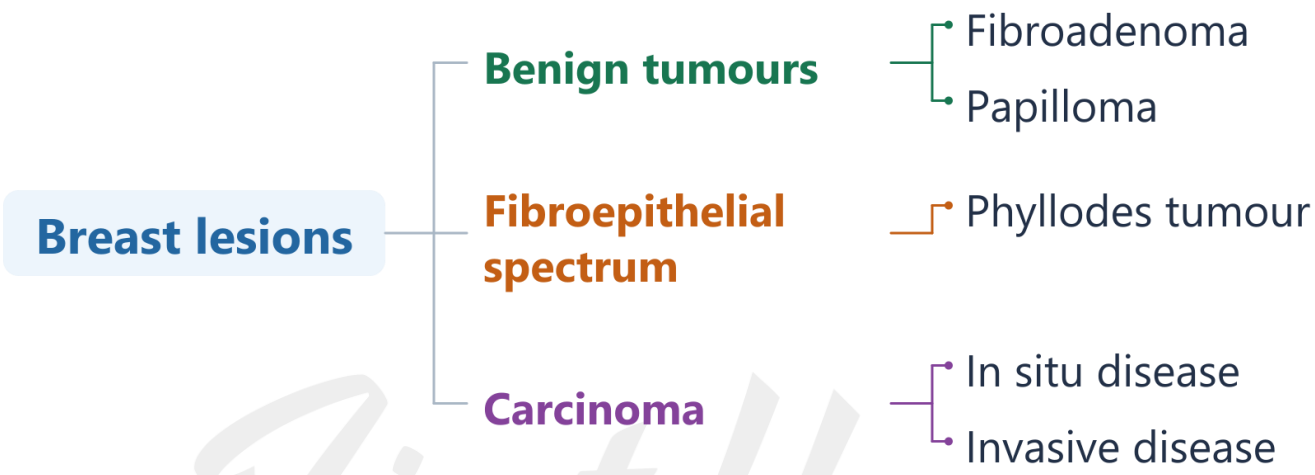
- Ultrasound-guided core biopsy provides tissue architecture and is commonly used for a solid suspicious lesion.
- Core biopsy also allows assessment of invasive cancer and receptor status when suitable tissue is obtained.
- Needle aspiration has roles in selected cysts, abscesses and lymph nodes but does not replace adequate tissue assessment in every solid lesion.
- Suspicious nodes can undergo ultrasound-guided sampling.

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Selected Staging and Concordance

- MRI is reserved for selected questions such as uncertain disease extent, certain high-risk settings or problem solving rather than ordered routinely for every cancer.
- Distant staging tests are chosen according to symptoms, stage and recurrence risk rather than automatically performed for every small early tumour.
- Record clinical, imaging and pathology concordance before deciding on reassurance, surveillance or definitive treatment.

Overview of Breast Lesions



Benign Breast Disease and Infection

ANDI Classification of Benign Breast Disorders

- **ANDI** means aberrations of normal development and involution.
- It relates benign breast problems to physiological development, reproductive activity and later involution.
- The horizontal spectrum runs from **normal change** through a **mild disorder** to **clinically important disease**.
- The life periods overlap, and the framework does not mean that every mild change inevitably progresses to disease.

1. Early Reproductive Development

- During approximately 15–25 years, lobular development may be associated with a fibroadenoma; a giant fibroadenoma represents a more marked abnormality.
- Stromal development can produce adolescent hypertrophy, with severe enlargement termed gigantomastia.
- Abnormal nipple development may produce nipple inversion; associated duct obstruction can contribute to a subareolar abscess or mammary duct fistula.

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