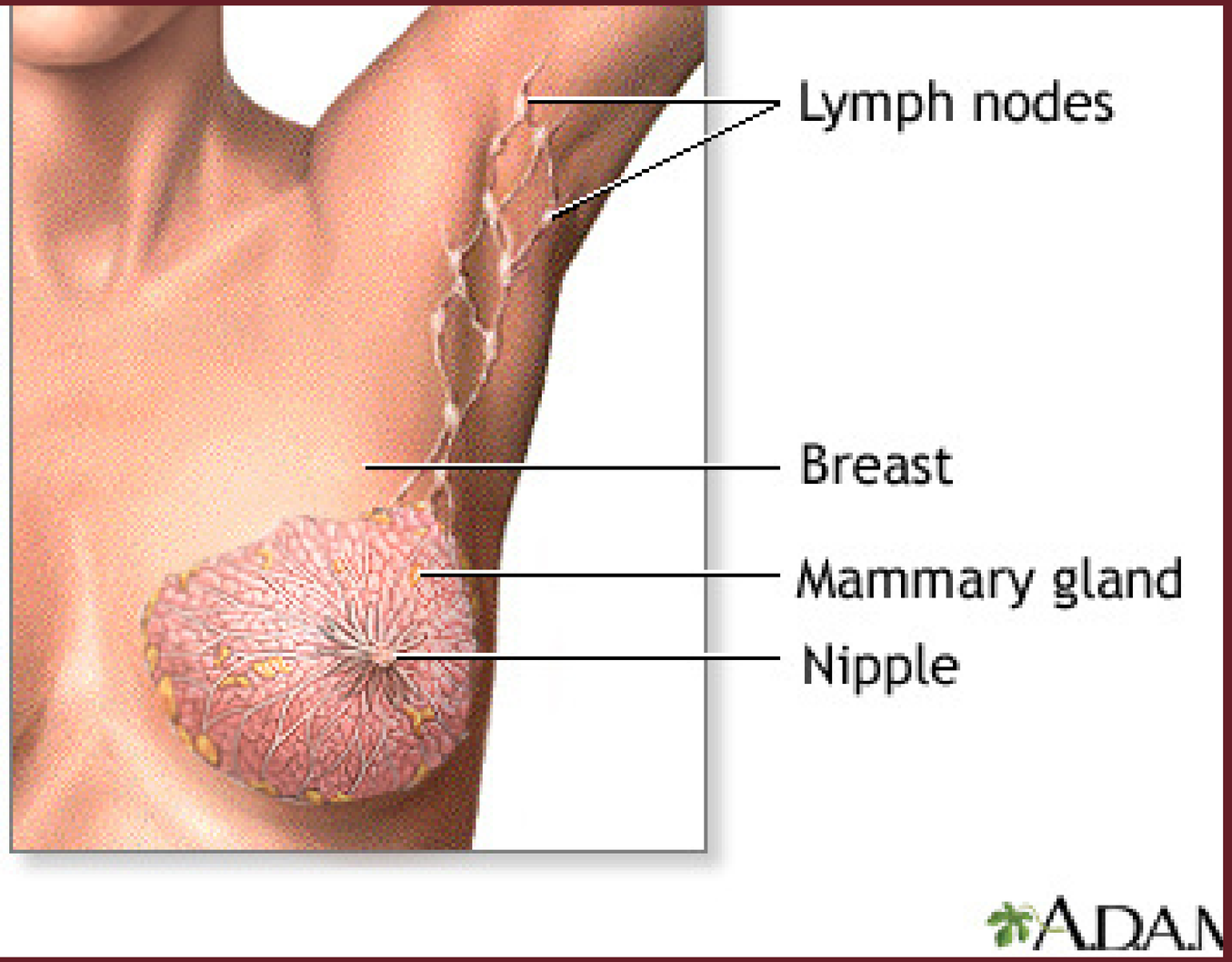
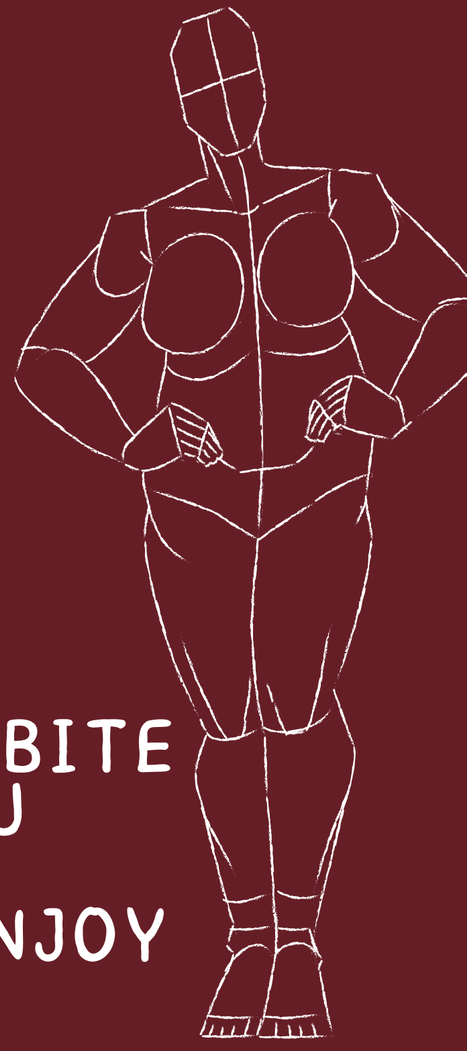
BEHIND THE INCISION: ANATOMY THAT GUIDES MASTECTOMY

-Exploring the breast's anatomical landmarks and their surgical implications





PRESENTERS:
ADEDOLAPO ADEGBITE
FAVOUR OBIKWELU

LECTURER: DR SANJOY SANYAL

CLINICAL IMPORTANCE OF BREAST ANATOMY

Breast cancer is the most common cancer in women globally, some risk factors include genetic and enviromental factors.

[1] Mastectomy can be life-saving

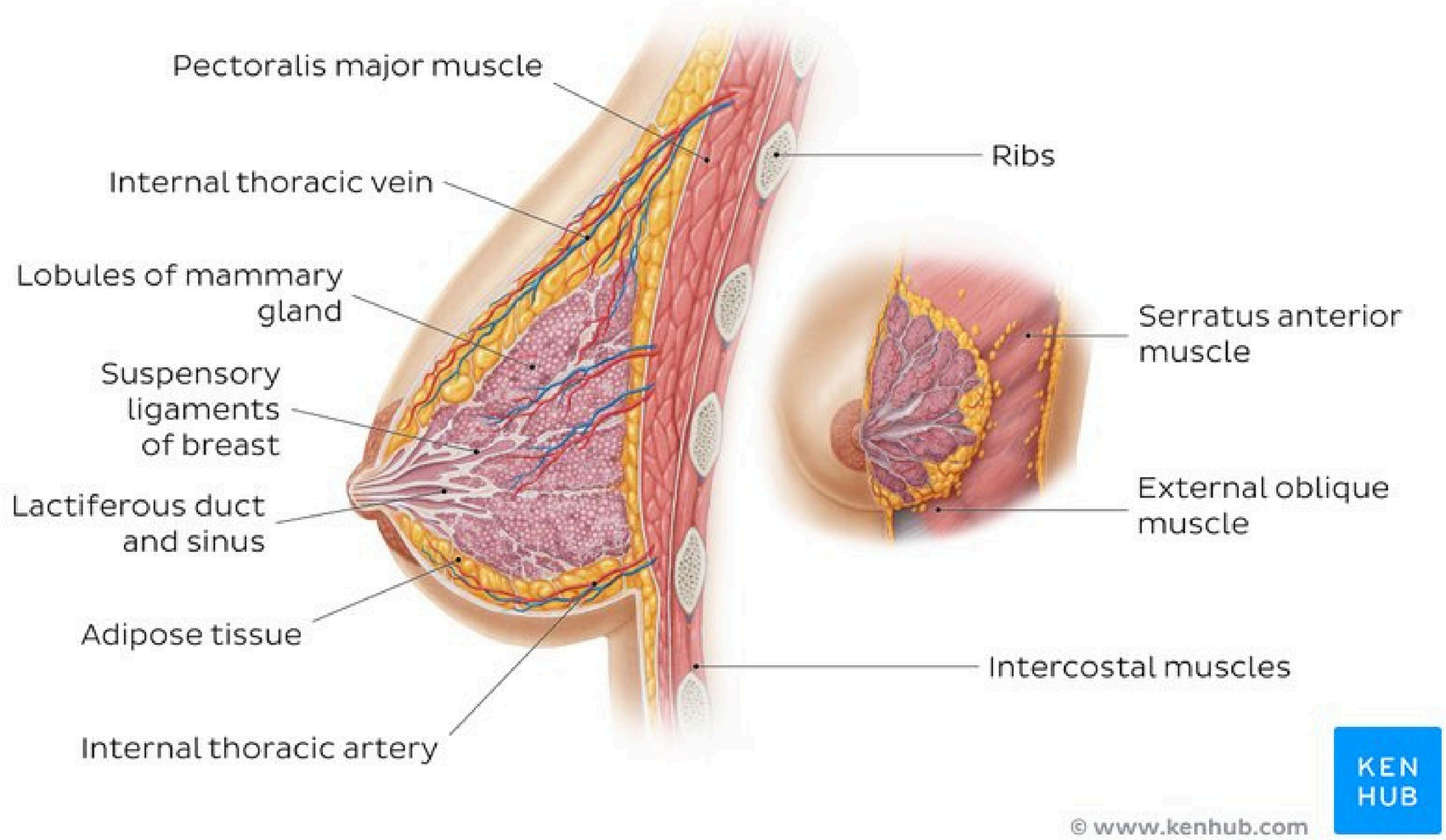
While mastectomy – the surgical removal of breast tissue – is often life-saving, it's not as simple as "cutting and removing."

[2] Surgical success depends on anatomy

Focus: lymphatics, ligaments, nerves

The surgeon must work with – not against – key anatomical structures like lymphatic drainage pathways, Cooper's ligaments, and nearby nerves. We'll show how these structures guide safe, effective surgery.

BREAST ANATOMY



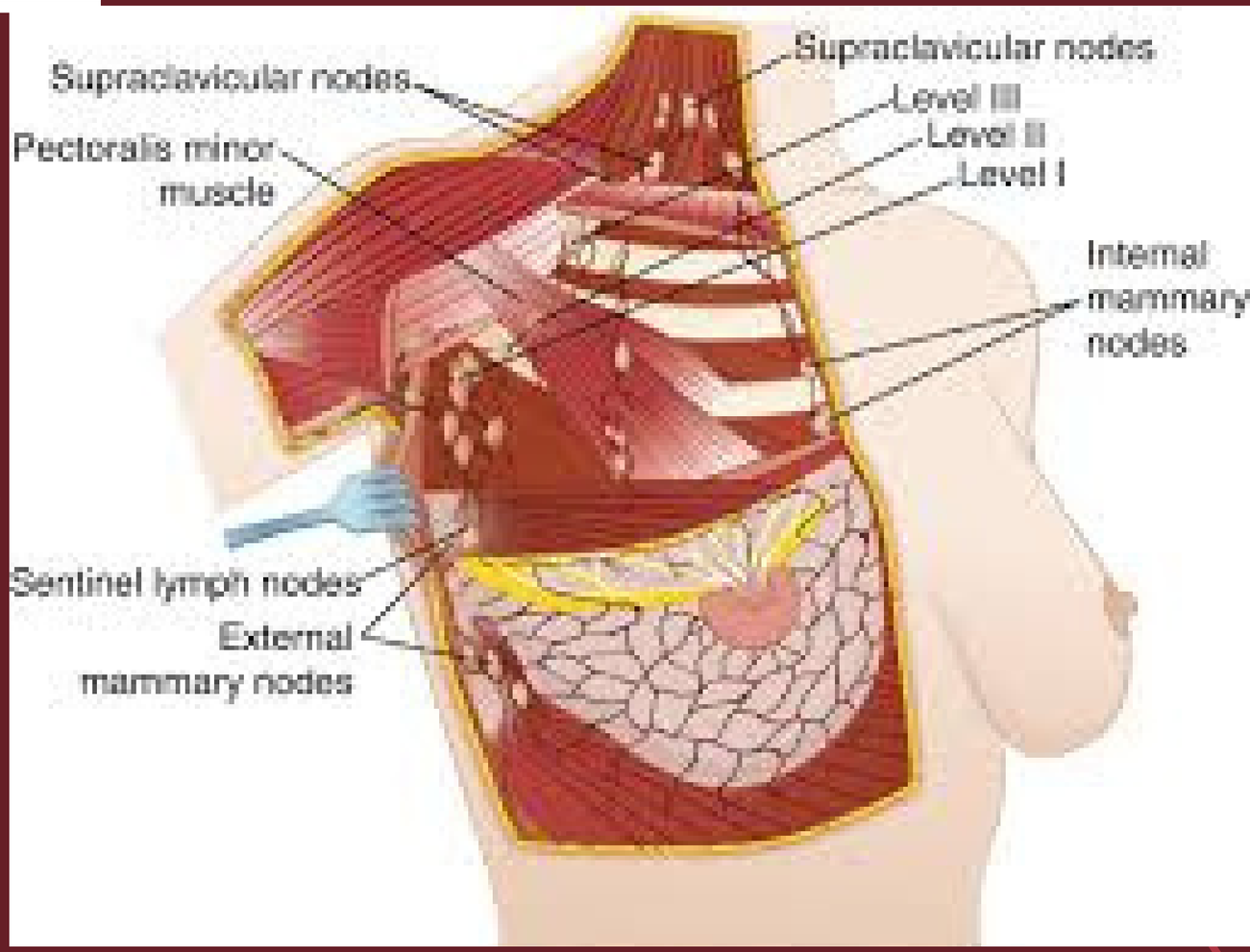
The breast is more than soft tissue – it's an organized system.
Lobules produce milk, which flows through lactiferous ducts to the nipple.
Cooper's ligaments are fibrous bands that suspend the breast and maintain shape – surgeons try to preserve or respect these during reconstruction.
The breast sits over the pectoralis major muscle and receives blood from the internal and lateral thoracic arteries.

LYMPHATIC DRAINAGE (SURGICAL RELEVANCE)

Breast lymphatics play a huge role in cancer spread. Most lymph drains to the axillary lymph nodes, categorized into Levels I, II, and III based on location. During surgery, these levels guide how much of the axilla is cleared — especially if the cancer has spread.

Internal mammary nodes are deeper and harder to access surgically.

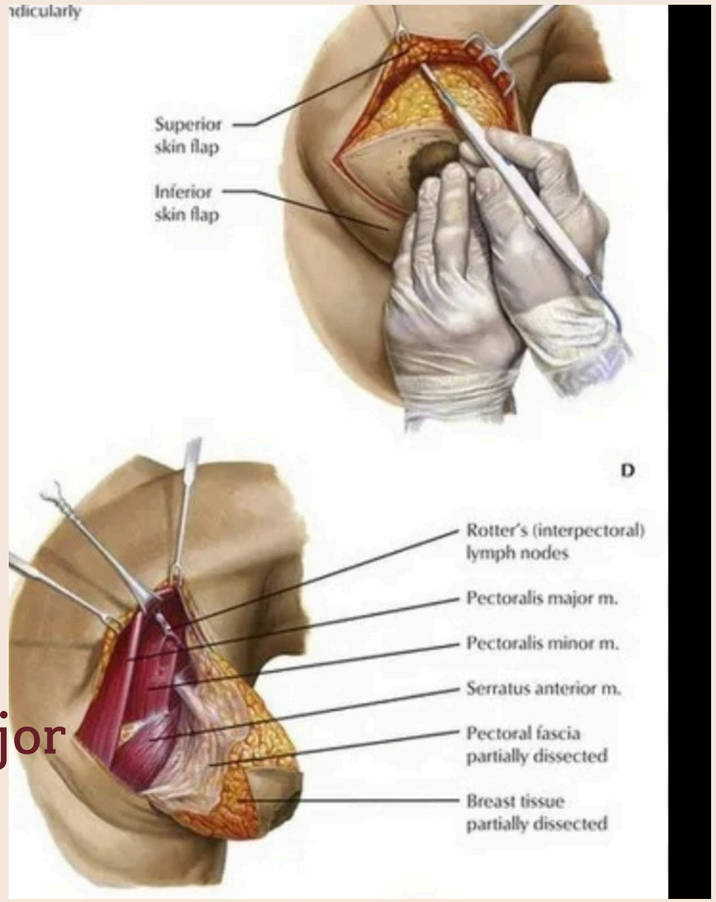
These nodes are important because of their role in the metastasis of cancer cells. Most lymph (> 75%),especially from the lateral breast quadrants, drains to the axillary lymph nodes, initially to the pectoral nodes for the most part. Most of the remaining lymph particularly from the medial breast quadrants, drain to the parasternal lymph nodes or to opposite breast



LAYERS TRAVERSED DURING MASTECTOMY

LAYERS CUT THROUGH IN MASTECTOMY

Skin + subcutaneous fat
Breast tissue (lobules, ducts)
Cooper's ligaments
Retromammary space
Pectoral fascia ± pectoralis major
Tail of Spence → axilla



SURGICAL PITFALL

Incomplete removal of axillary tail leads to residual disease

CLINICAL INSIGHT:

: Precise dissection minimizes damage to pectoralis major and preserves chest wall contour.

NERVES AT RISK DURING SURGERY

Nerves to Protect in Breast Surgery

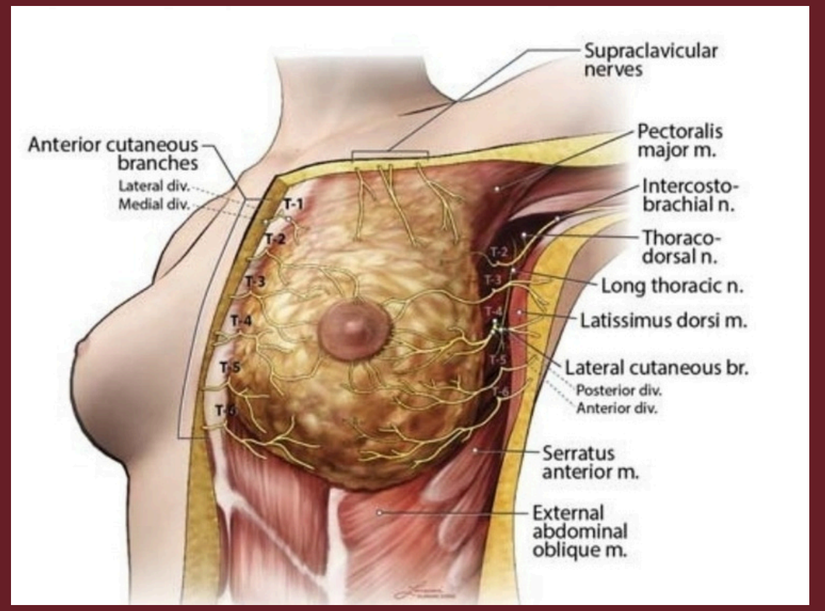
Long thoracic → Serratus anterior (damage leads to winged scapula)
Thoracodorsal → Latissimus dorsi (needs to be preserved for flap surgery)
Intercostobrachial → Loss of sensation to upper medial arm

CLINICAL INSIGHT:

: IDENTIFY NERVES BEFORE NODE DISSECTION TO PRESERVE FUNCTION

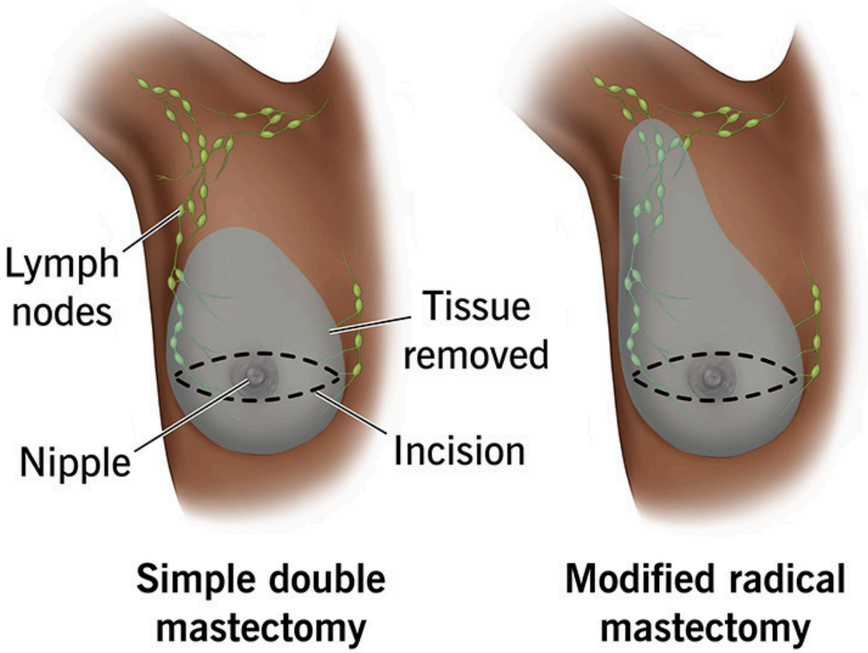
SURGICAL PITFALL

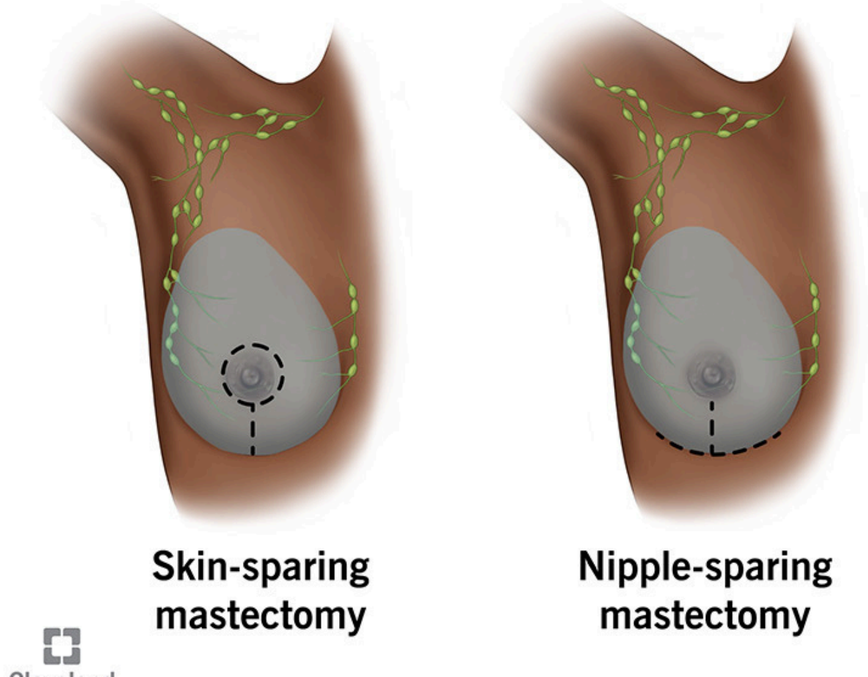
AGGRESSIVE DISSECTION WITHOUT MAPPING CAUSES CHRONIC NEUROPATHIC PAIN.



TYPES OF MASTECTOMY

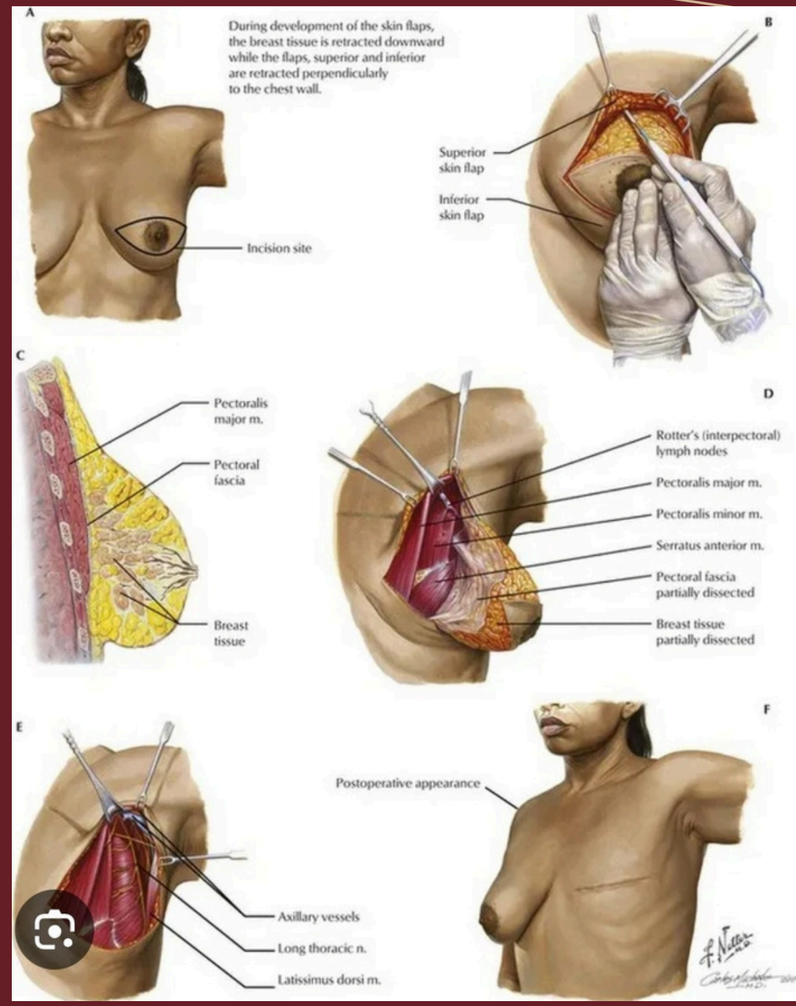
Simple/Total – Breast only
Modified Radical – Breast + axillary nodes
Radical – Breast + pectoral muscles + nodes
Skin-Sparing – Preserves skin
Nipple-Sparing – Preserves skin + nipple





STEP-BY-STEP MASTECTOMY SEQUENCE

1. Mark incision lines (oncologic + cosmetic planning)
2. Skin + subcutaneous dissection
3. Identify & preserve critical nerves
4. Remove breast tissue ± axillary tail
5. Achieve hemostasis & check margins
6. Closure & reconstruction planning



ANATOMY IN ACTION: SUMMARY

TAKEAWAY:
-PLAN INCISIONS PRECISELY
-PROTECT CRITICAL NERVES
-MINIMIZE COMPLICATIONS
-IMPROVE FUNCTIONAL & COSMETIC RESULTS

KEY TAKEAWAYS FOR SURGEONS

-USE ANATOMY TO GUIDE PRECISE INCISIONS
-PRESERVE NERVES TO MAINTAIN FUNCTION
-ENSURE CLEAR MARGINS TO AVOID REOPERATION
-OPTIMIZE COSMETIC AND ONCOLOGIC OUTCOMES

Clinical Scenario – Anatomy in Surgery

CASE:

A 47-YEAR-OLD WOMAN UNDERGOES A MODIFIED RADICAL MASTECTOMY FOR INVASIVE DUCTAL CARCINOMA IN THE RIGHT BREAST. POST-OPERATIVELY, SHE REPORTS NUMBNESS ALONG THE UPPER MEDIAL ASPECT OF HER RIGHT ARM AND GRADUALLY DEVELOPS SWELLING OF THAT ARM.

QUESTIONS:

1. WHICH NERVE WAS LIKELY INJURED?
2. WHAT ANATOMICAL STRUCTURE EXPLAINS THE ARM SWELLING?

THANK YOU

ANY QUESTIONS?

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