Anatomy of the Axilla

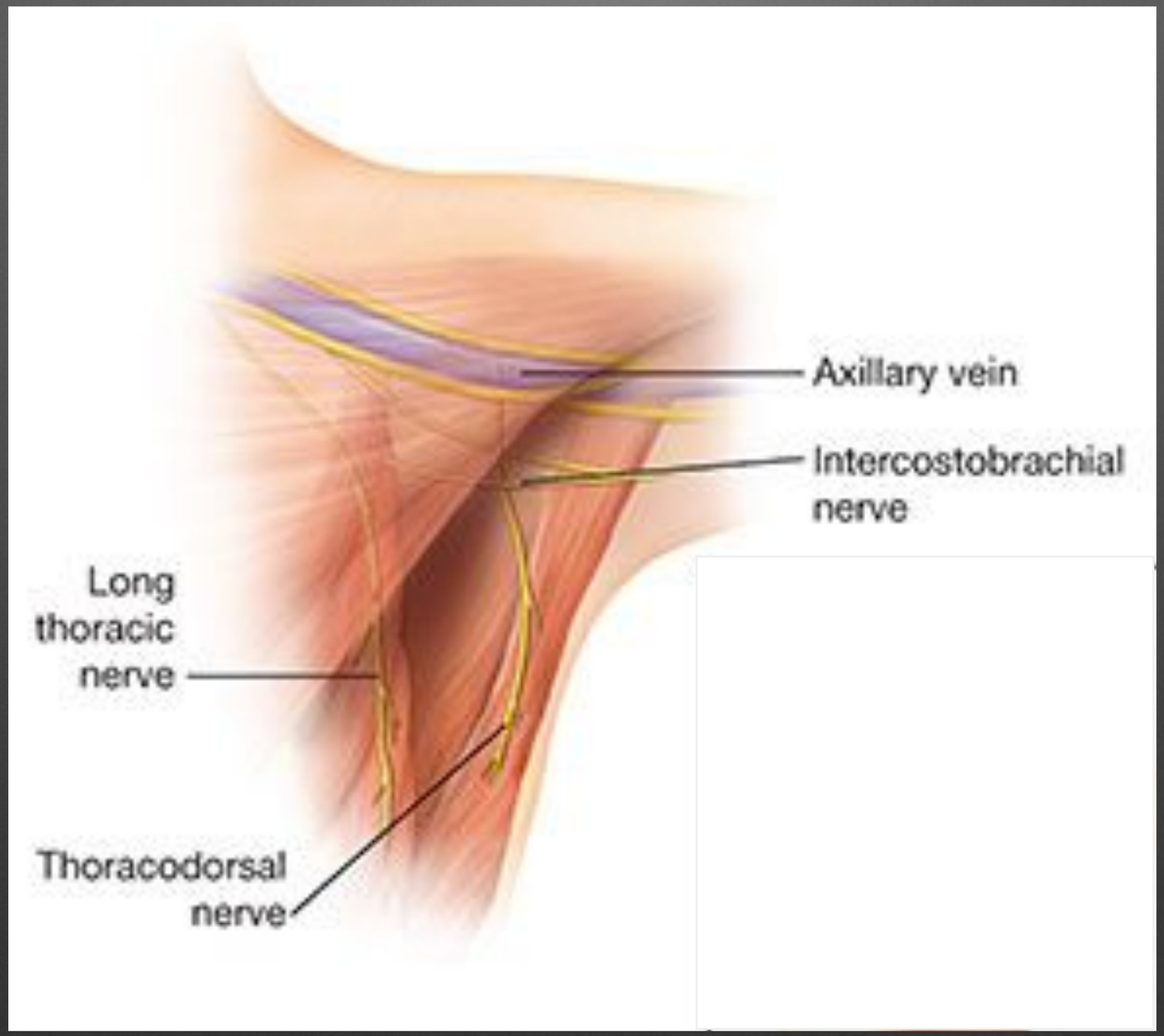
Technical Considerations in Breast Surgery

Schecter Conference
August 11th, 2016

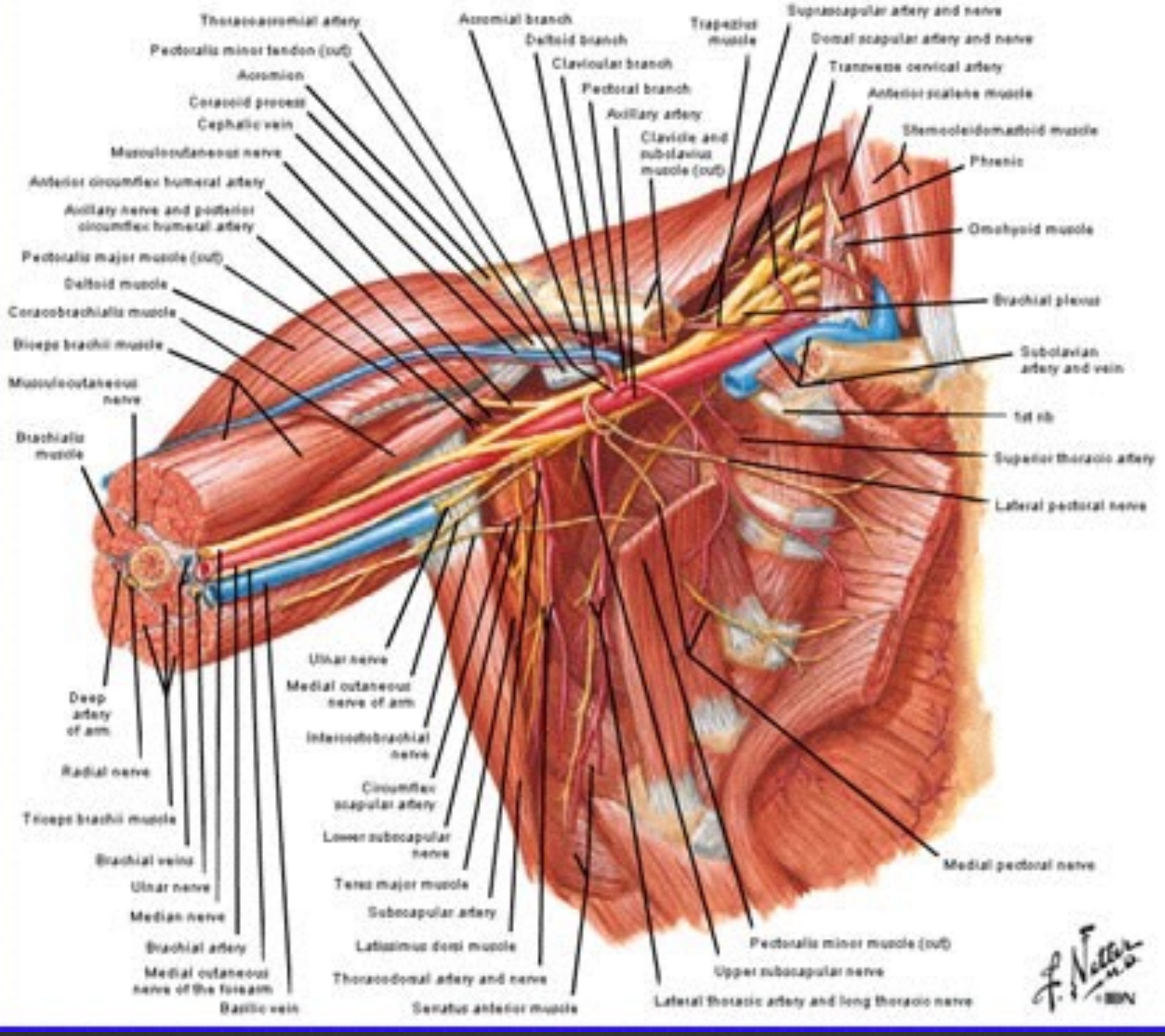
Anatomy of the Axilla

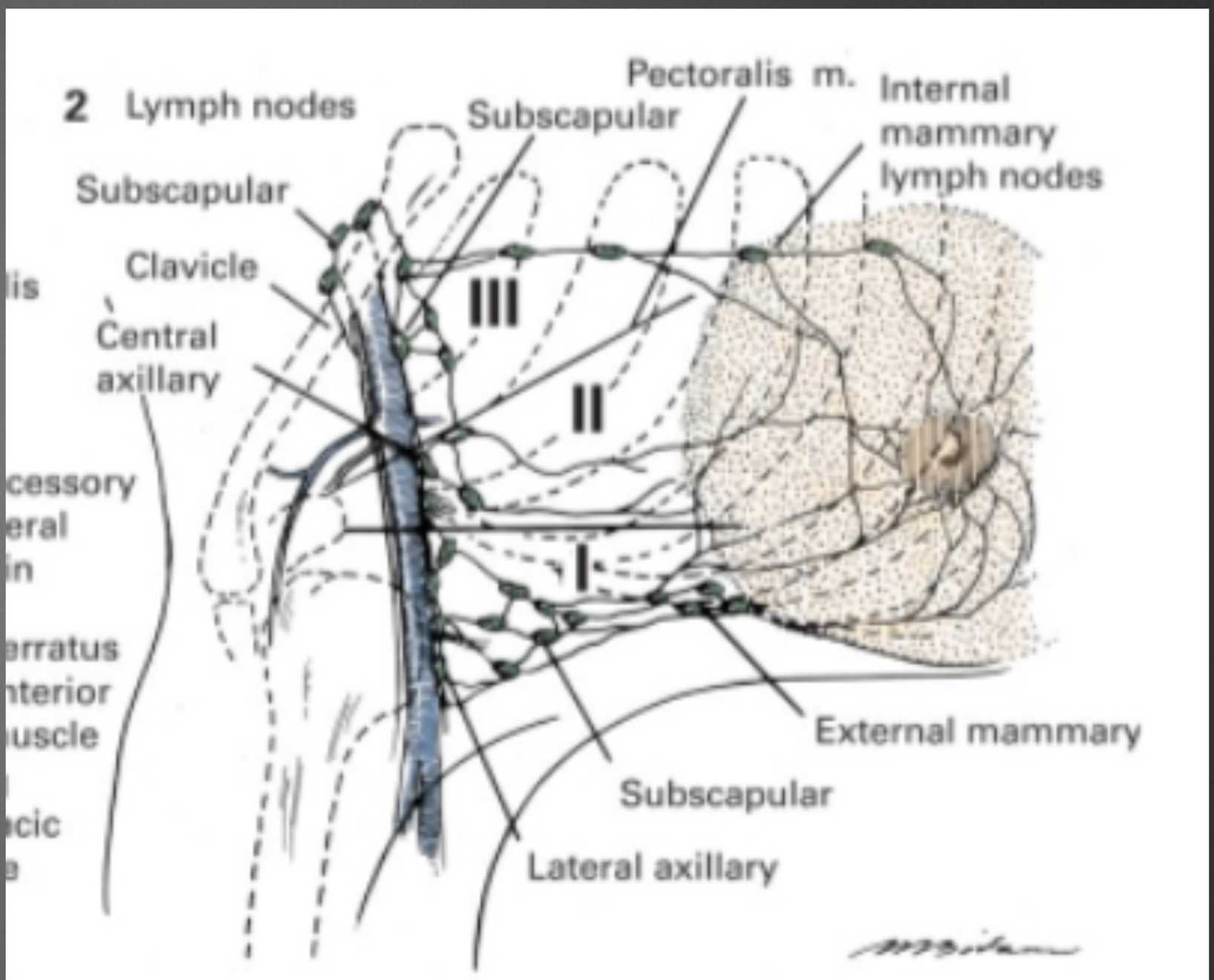
Anatomy of the Axilla

- Axilla Boundaries:
  - Superior- Axillary Vein
  - Inferior- 4th-5th Rib
  - Medial- Serratus Anterior Muscle
  - Posterolateral- Latissimus Dorsi Muscle
  - Anterior- Pectoralis Muscle
- Axillary lymph nodes receive 85% of lymphatic drainage from all quadrants of the breast. Remaining 15% of lymph drains to internal mammary, infraclavicular, and supraclavicular lymph nodes.


Axillary vein
Intercostobrachial nerve
Long thoracic nerve
Thoracodorsal nerve

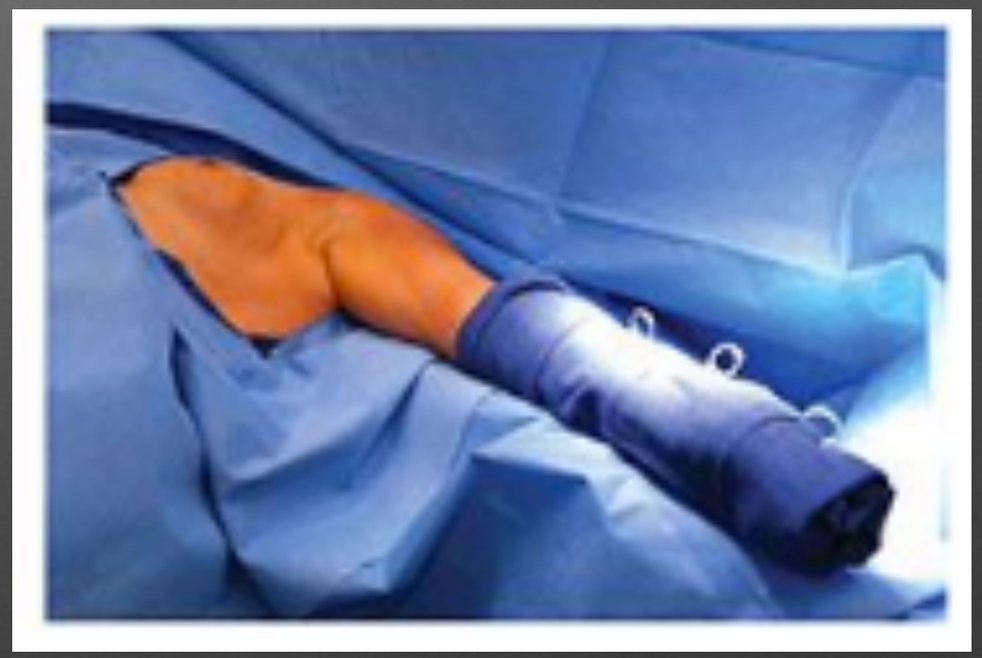
Axilla (Dissection): Anterior View




2 Lymph nodes
Subscapular
Clavicle
Central axillary
Pectoralis m.
Subscapular
Internal mammary lymph nodes
III
II
I
External mammary
Subscapular
Lateral axillary

Technical Considerations

Patient Positioning



Sentinel Lymph Node Biopsy

- What do you want to achieve?

- What do you want to avoid?

Sentinel Lymph Node Biopsy

- Radioactive Tracer and/or Blue Dye
  - Surgeon Preference
  - Use of both has been shown to be associated with higher identification and lower false negative rates
    - However, in skin sparing mastectomy dye can make it more difficult to evaluate for skin ischemia/necrosis
- Role of Lymphoscintigraphy
  - Draining lymph patterns of breast are less variable than melanoma
  - May be helpful in recurrent or new primary disease.

Sentinel Lymph Node Biopsy

- When do you inject tracer and dye?
    - Radiology, Preop, or OR
- Where do you inject tracer and dye?
    - Tracer: Peritumor, Intradermal, Periareolar
    - Dye: Peritumor, Subareolar
- What do you inject?
    - Tracer: Technetium Tc 99m sulfur colloid
    - Dye: Isosulfan Blue or Methylene Blue
        - What are potential side effects?

Incision

Identification of Sentinel Lymph Nodes

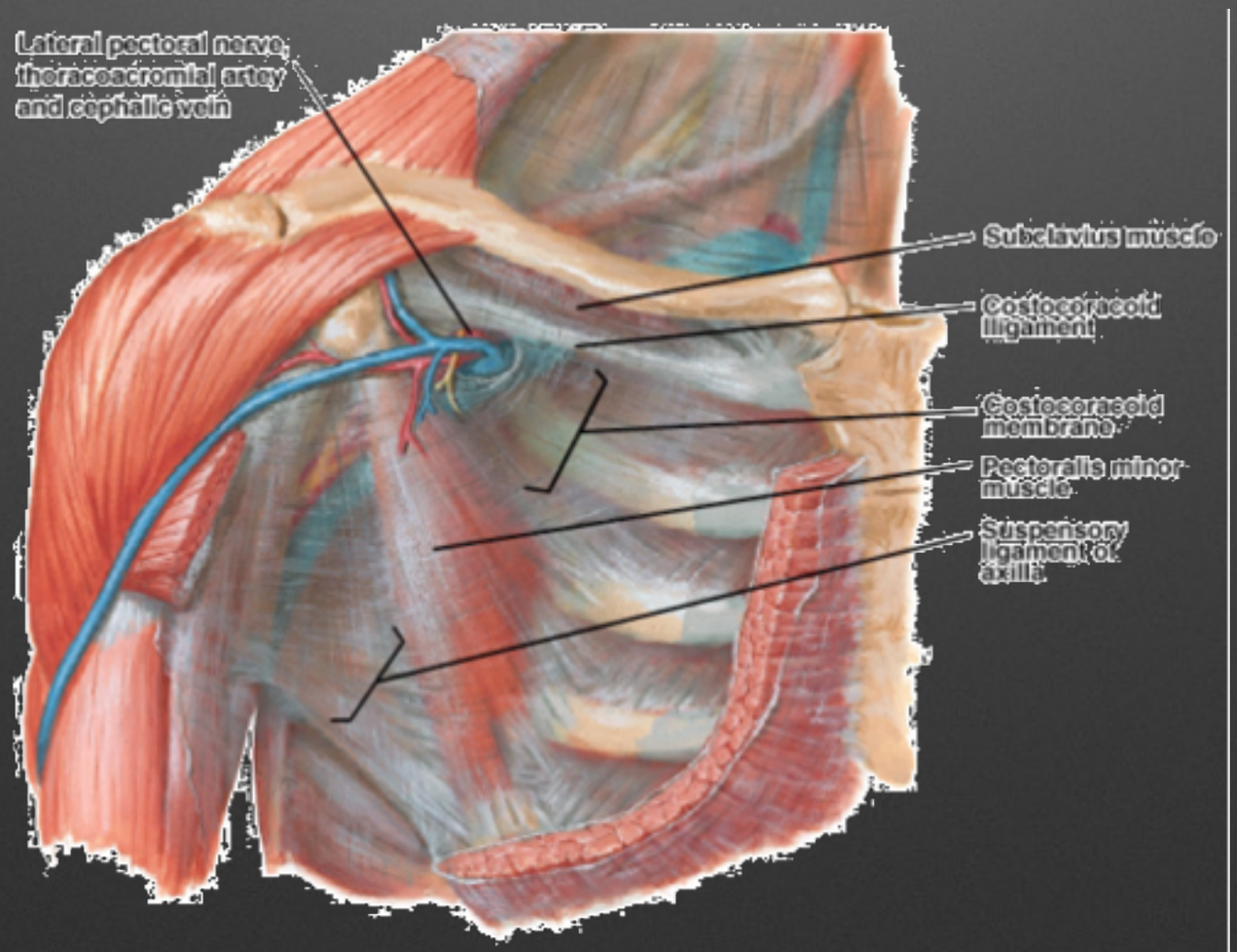
- What is a sentinel lymph node?

Axillary Lymph Node Dissection

- What do you want to achieve?
- What do you want to avoid?

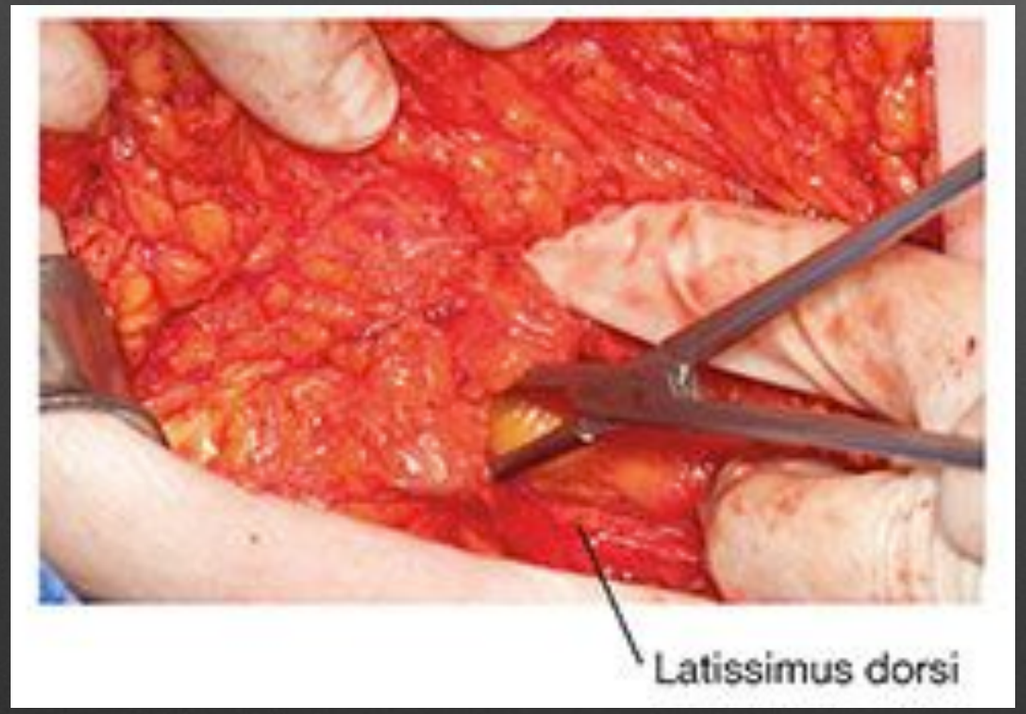
Axillary Lymph Node Dissection

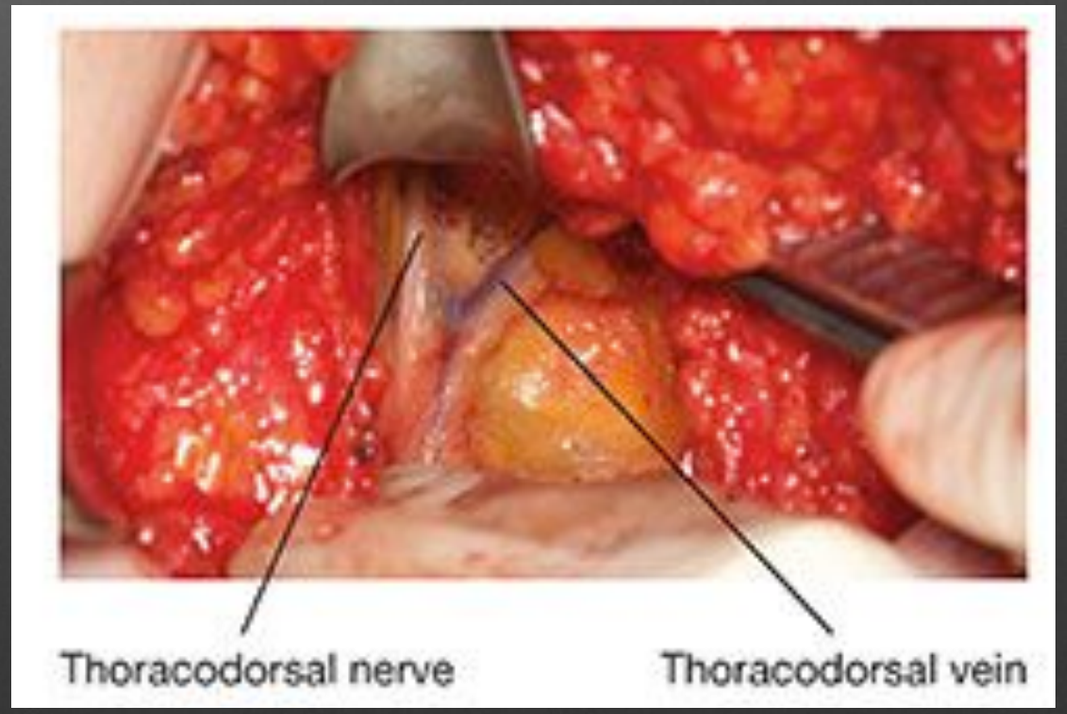
- To enter the axilla, incise the clavipectoral fascia along the edge of the pectoralis major muscle.



Axillary Lymph Node Dissection

- Identify the thoracodorsal neuromuscular bundle by dissecting the latissimus dorsi towards axillary vein





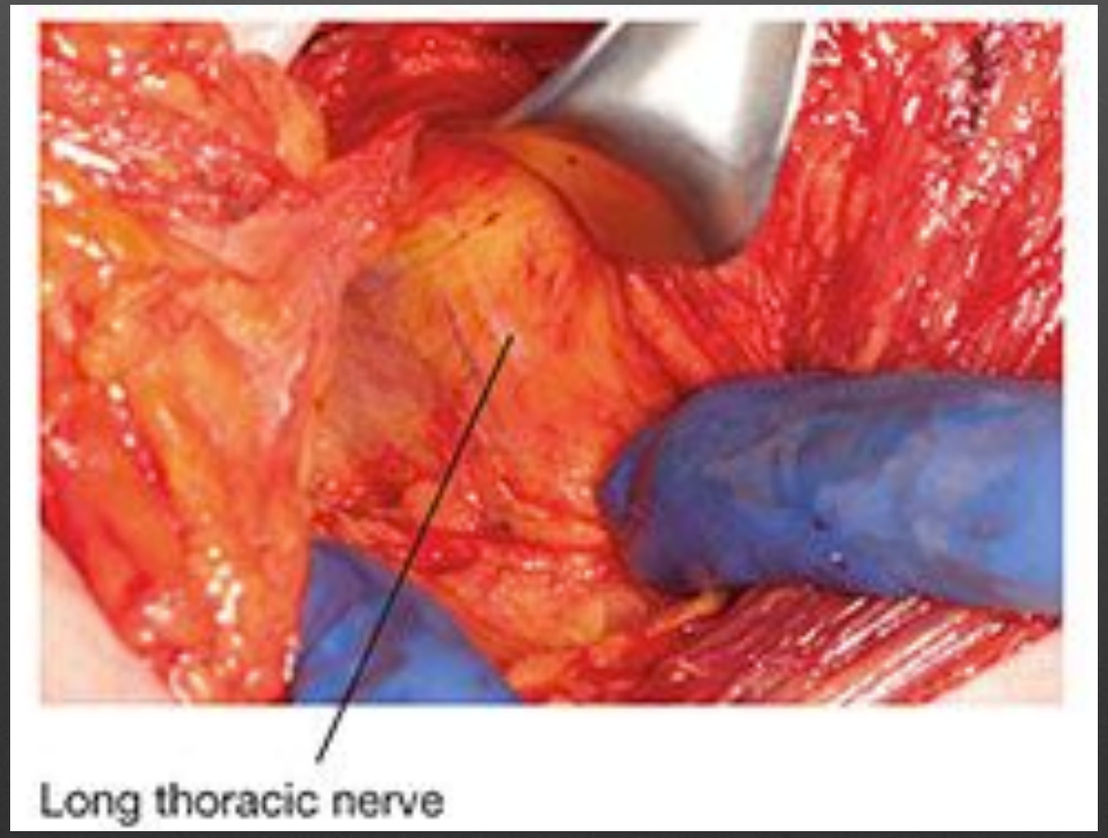
Axillary Lymph Node Dissection

- Identify the axillary vein, then dissect level I nodes

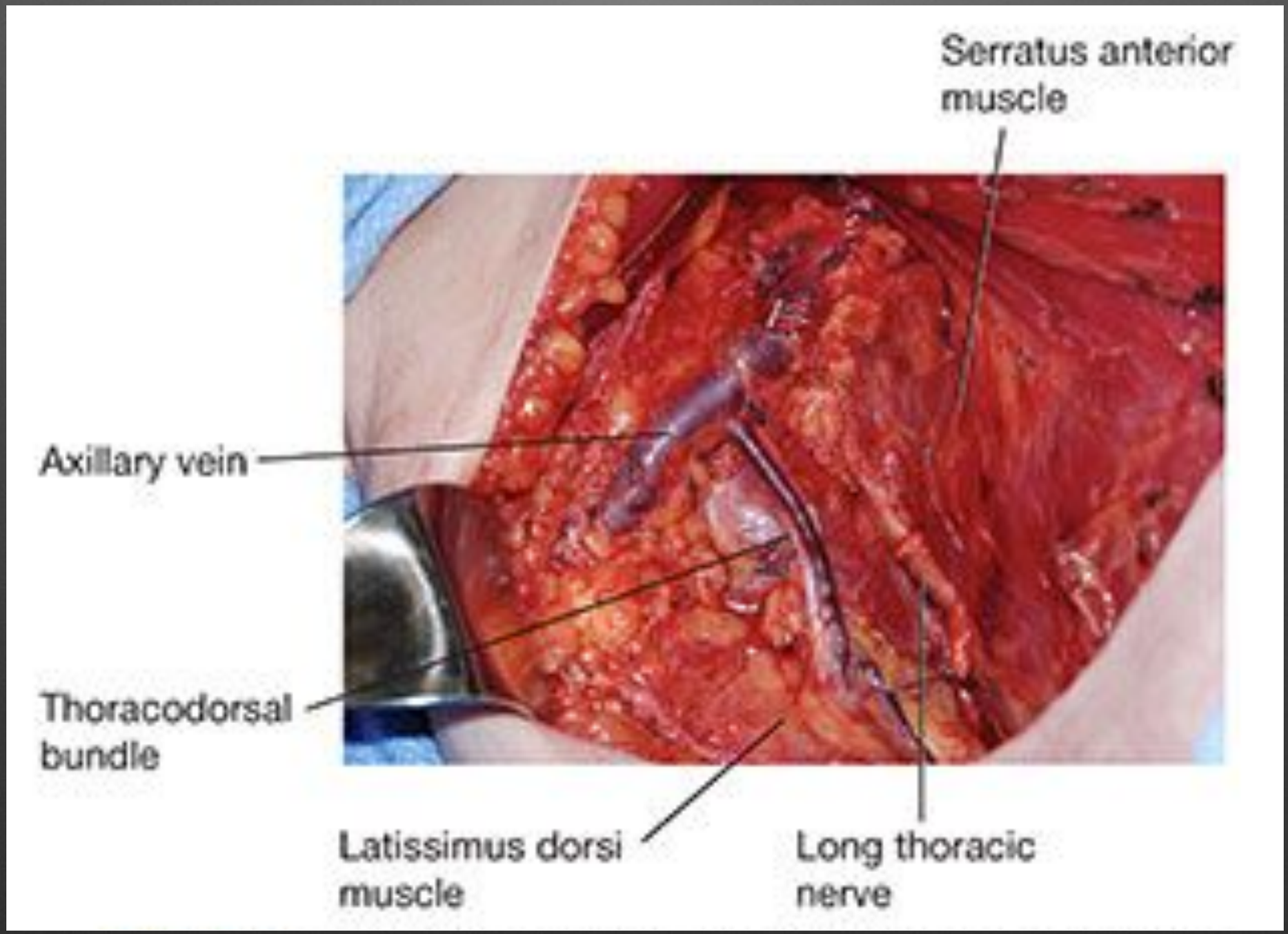
Axillary Lymph Node Dissection

- Gain access to level II nodes by retracting pectorals muscles medially
- Identity the long thoracic nerve

If injured, what is the resultant defect?



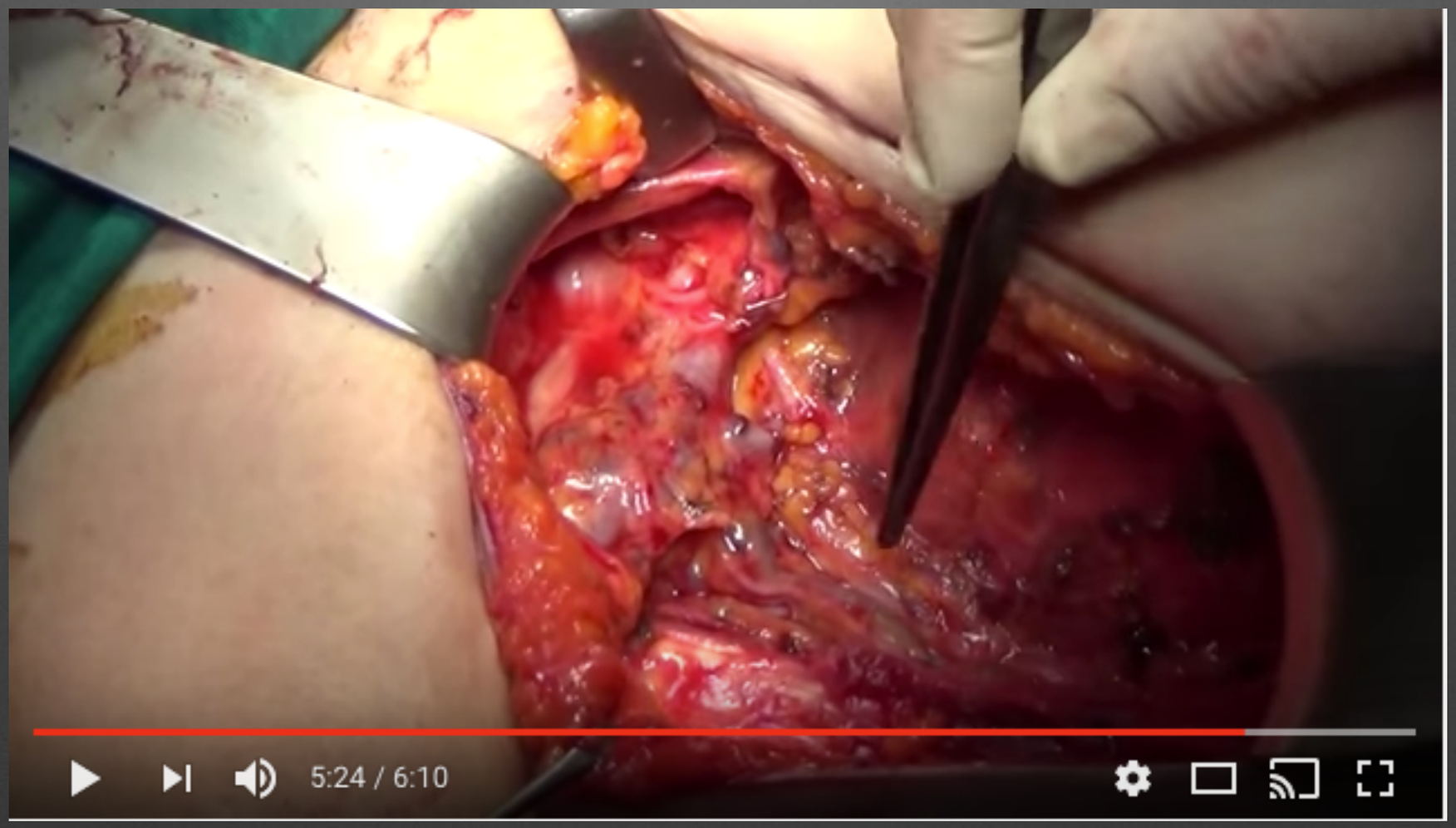
Axillary Lymph Node Dissection



Axillary Lymph Node Dissection

- Closure
  - Place drains deep and superficial to pectorals muscles to prevent serum formation
- Postop Complications
  - Seroma
  - Lymphedema
  - Nerve Injury
  - Axillary Vein Thrombosis

ALND Video



https://www.youtube.com/watch?v=708ShuXlDcM