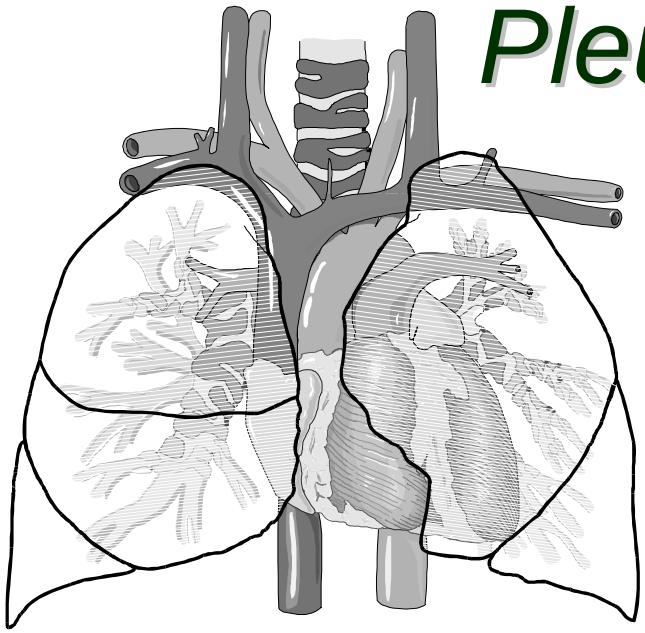
Clinical Anatomy of the Pleural Cavity & Mediastinum



Handout download:
http://www.oucom.ohiou.edu/dbms-witmer/gs-rpac.htm

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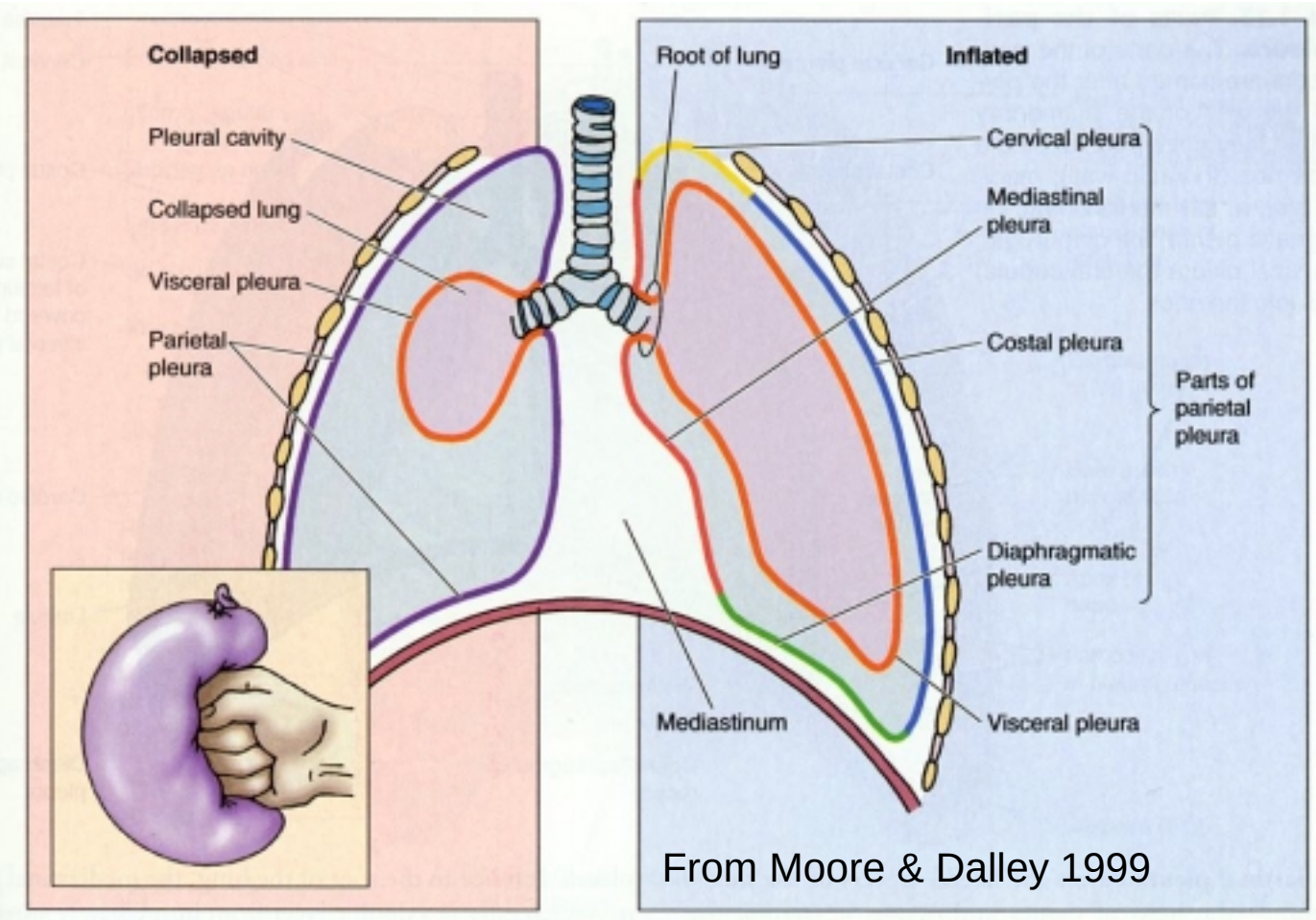
CORE
CENTERS FOR OSTEOPATHIC RESEARCH & EDUCATION

Pleura and Pleural Cavity



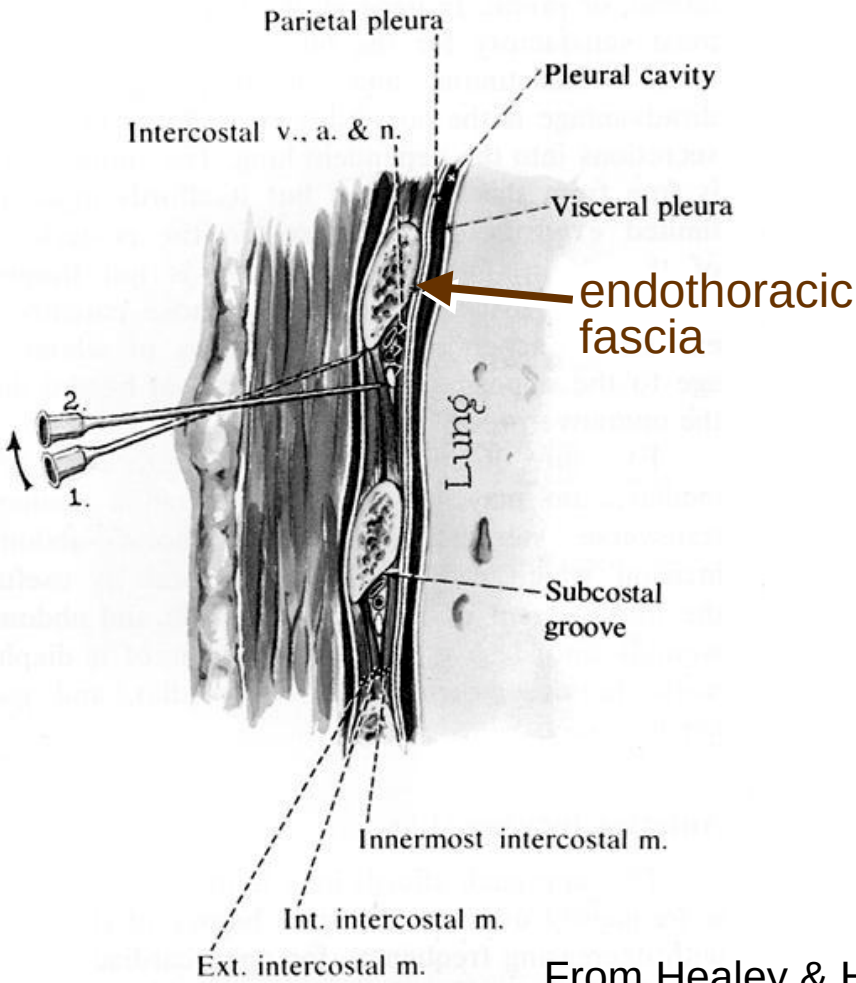
Pleura

- Mesothelial lining of each hemithorax
- Derived from embryonic coelomic lining
- Visceral pleura: lung
- Parietal pleura: wall
  - Costal
  - Diaphragmatic
  - Mediastinal
  - Cervical

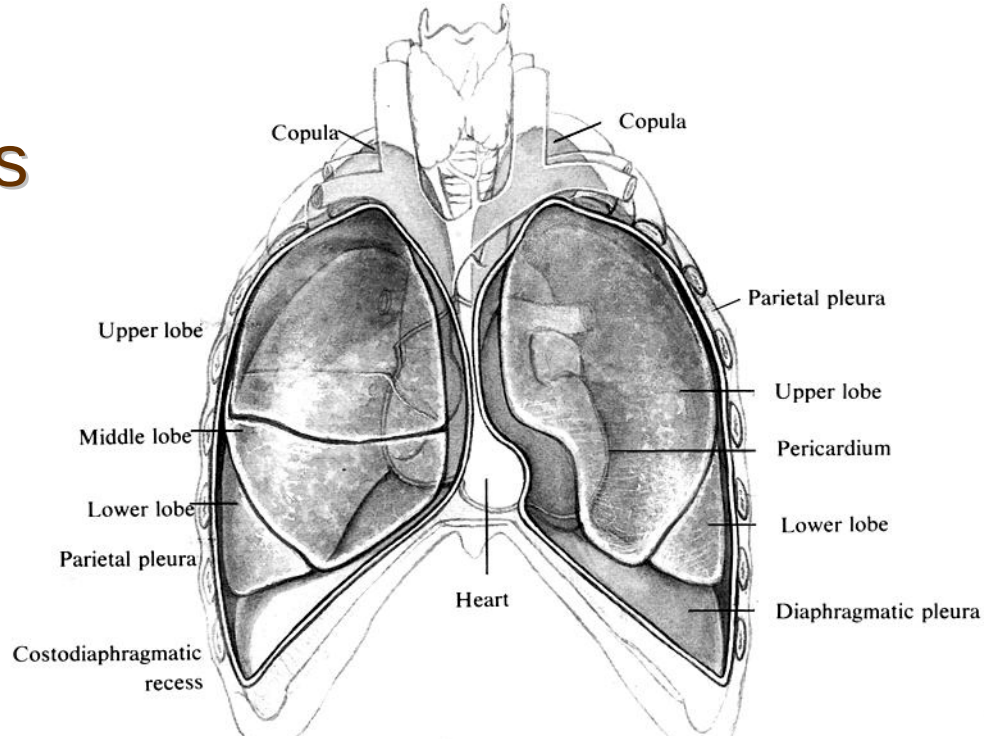
Pleural Cavity

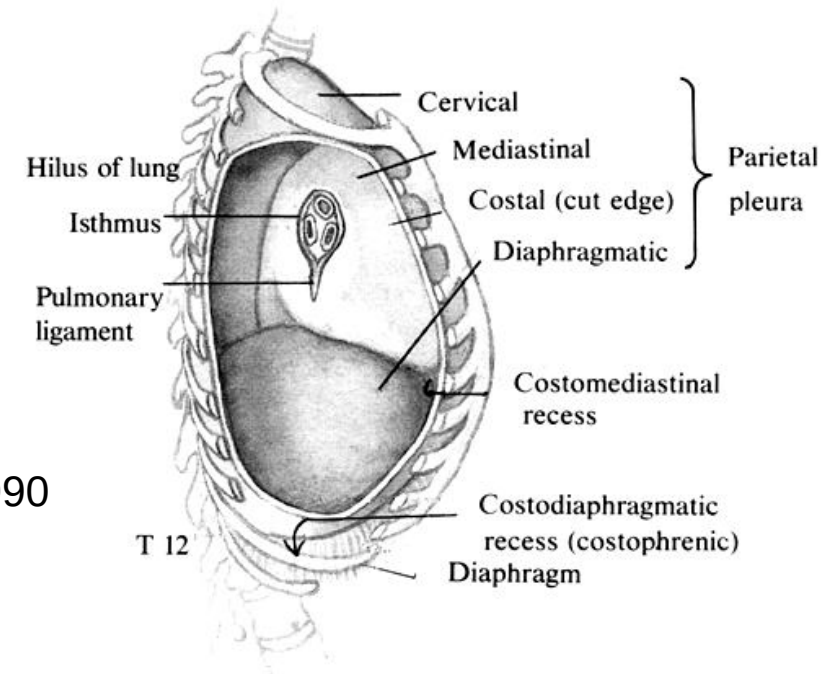
- Potential space between visceral & parietal pleura
- Capillary layer of serous fluid produced by mesothelium
  - Reduces friction
  - Surface tension provides cohesion between lung and thoracic wall

Pleural sac and recesses



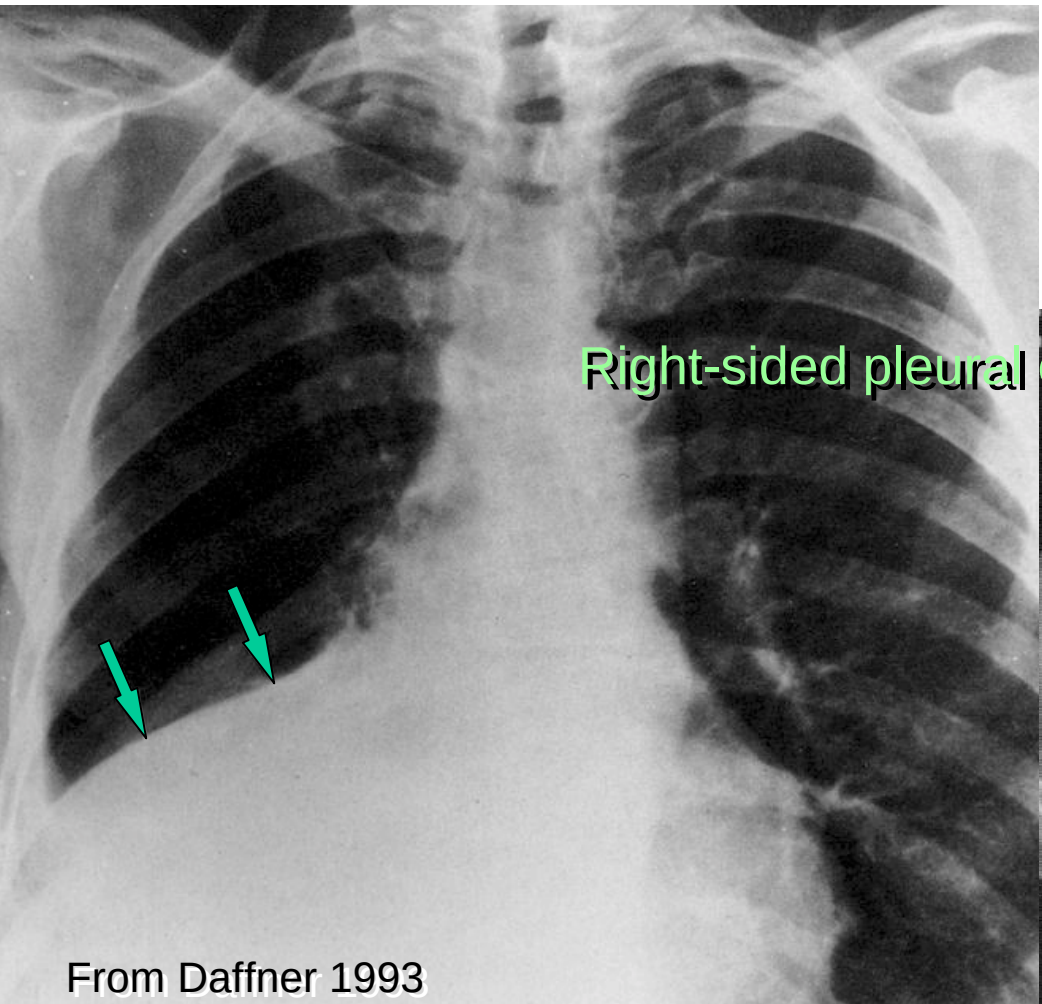
From Healey & Hodge 1990





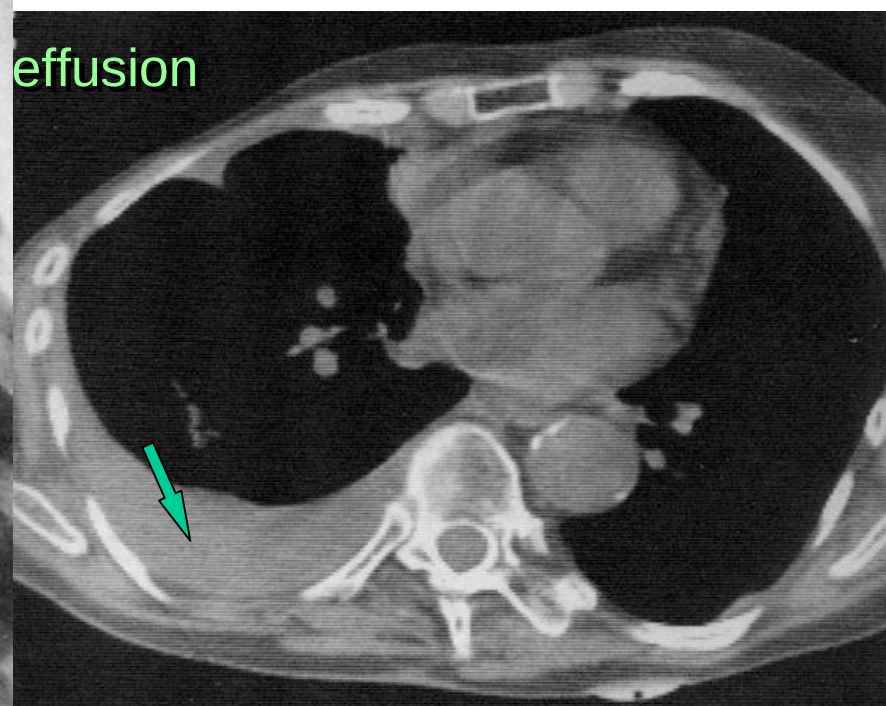
Pleural Diseases & Signs 1: Pleural Effusion

- Accumulation of fluid in the pleural space
- Transudative vs. exudative effusion
- Empyema as potential sequelae to exudative effusion



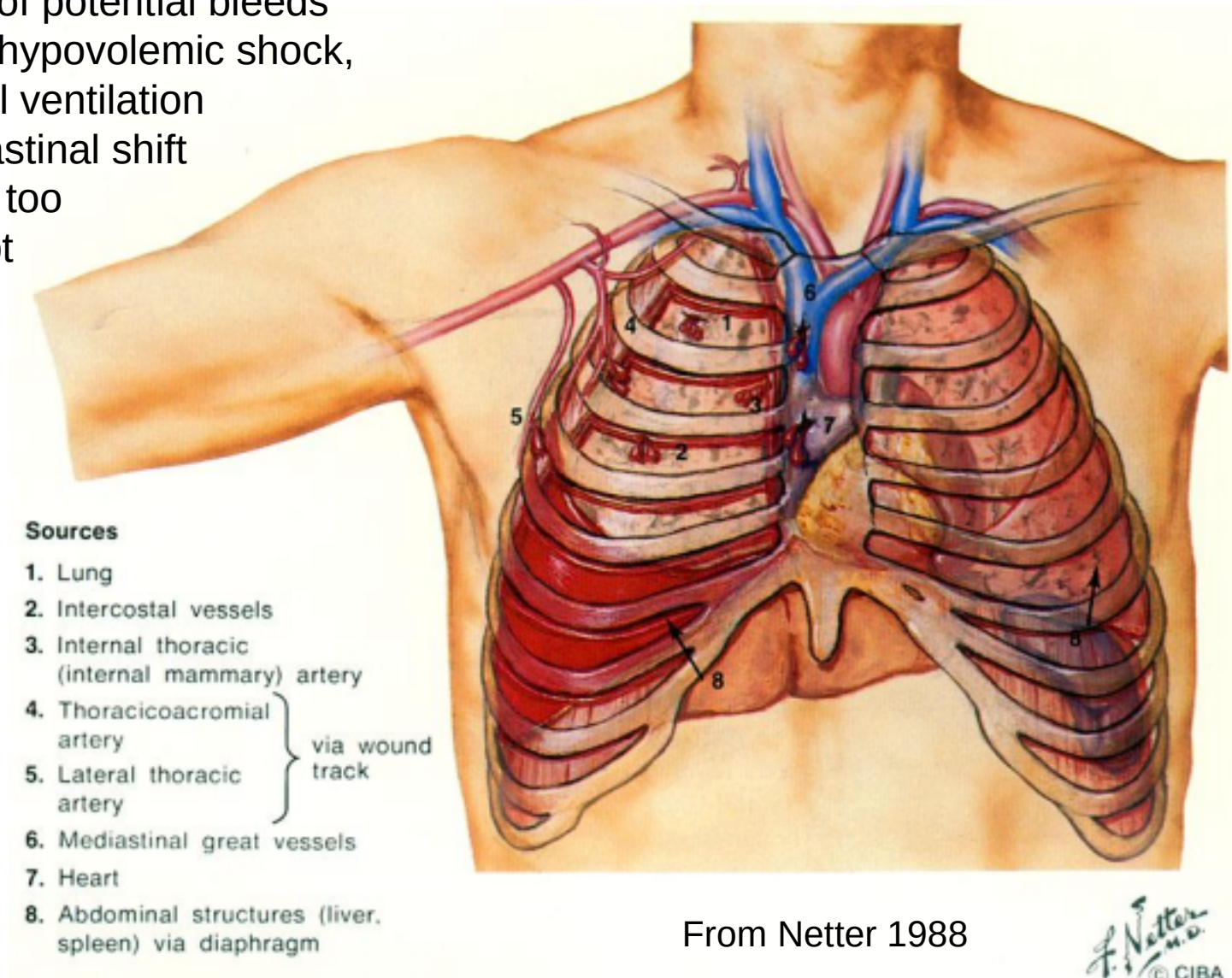
Right-sided pleural effusion

From Daffner 1993



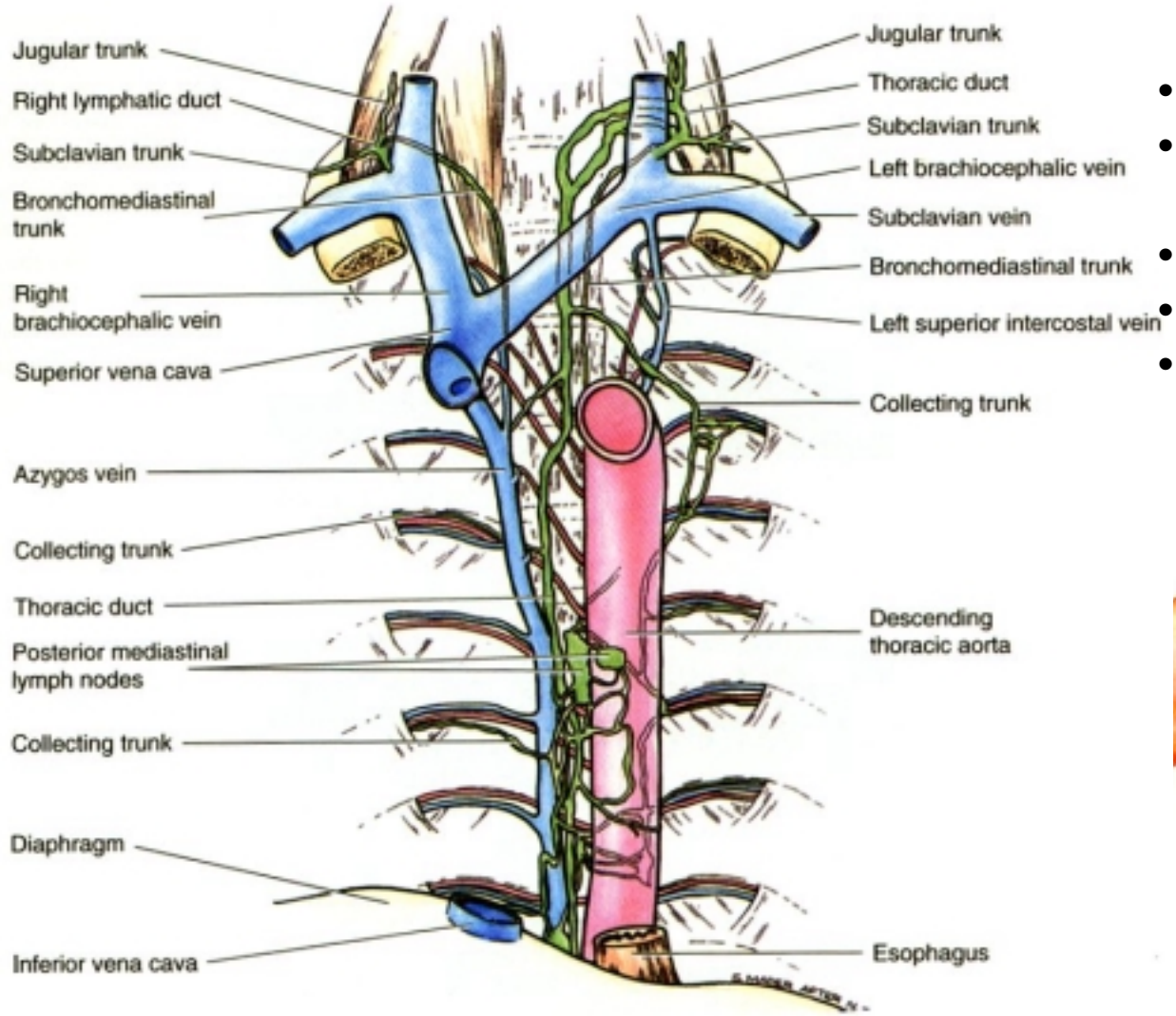
Pleural Diseases & Signs 2: Hemothorax

- Intrathoracic bleeding (e.g., trauma)
- Numerous sources of potential bleeds
- Large hemothorax: hypovolemic shock,
  restricted ipsilateral ventilation
  contralateral mediastinal shift
- Clotting may not be too
  problematic (except
  for catheters)



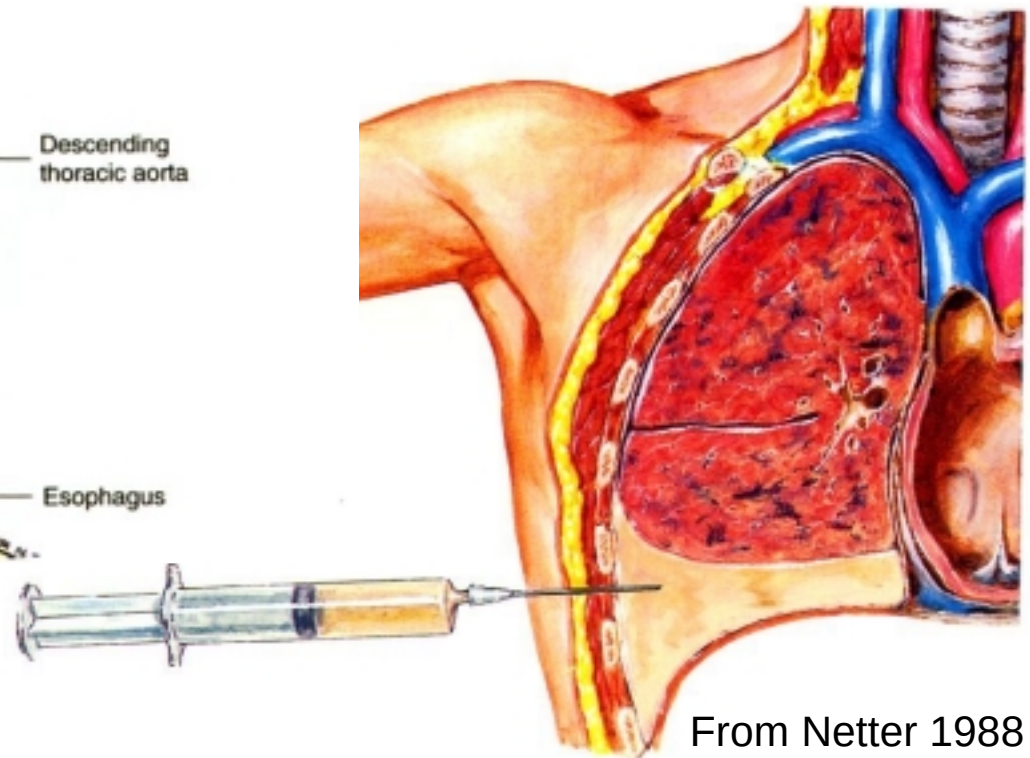
From Netter 1988

Pleural Diseases & Signs 3: Chylothorax



From Moore & Dalley 1999

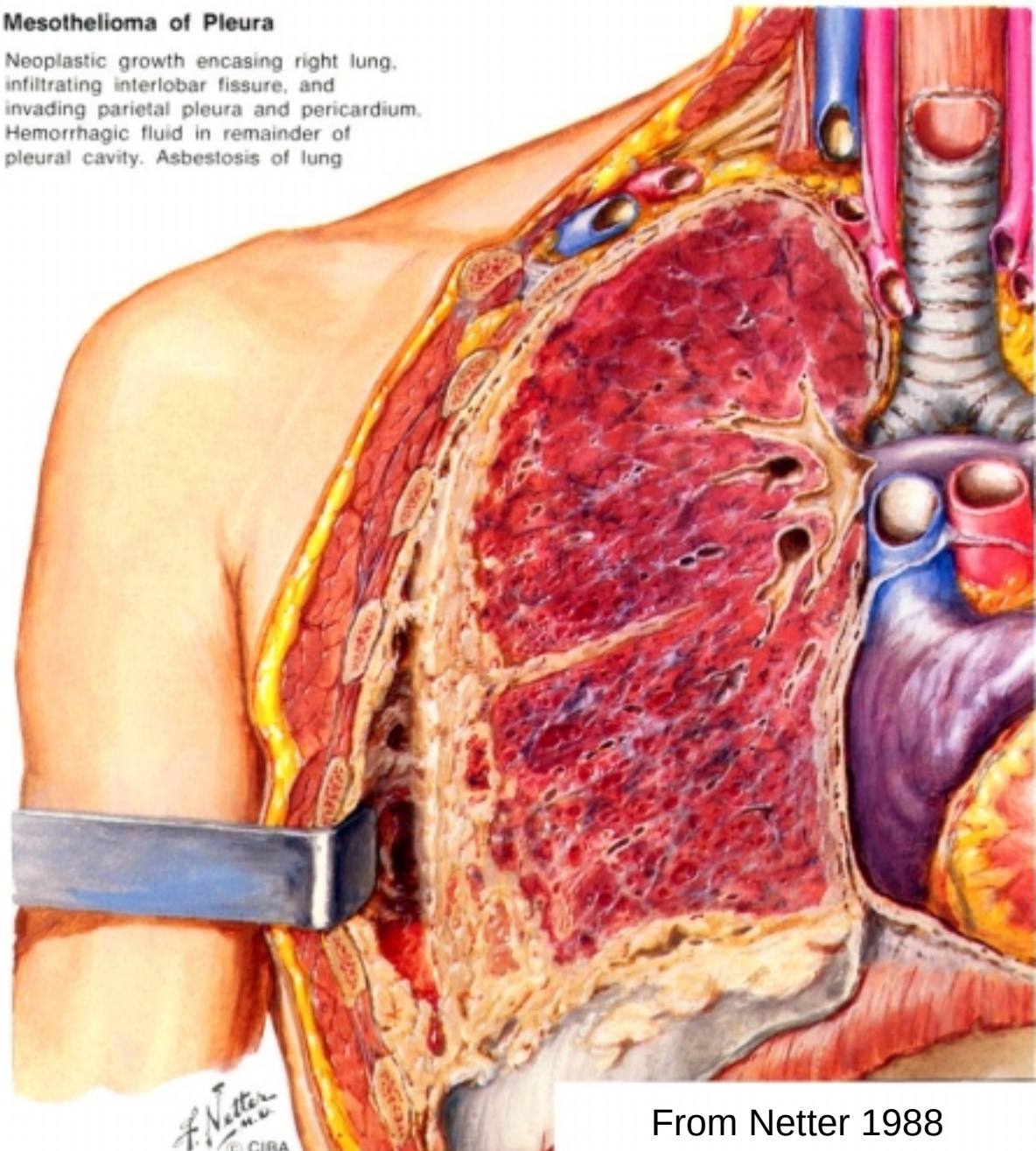
- Leakage of lymph
- Usually a result of surgical trauma during mediast. proc.
- Traumatic vs nontraumatic
- Traumatic: 2/3, unilateral
- Nontraumatic: 1/3, bilateral, assoc. with SVC thrombosis



From Netter 1988

Pleural Diseases & Signs 4: Malignant Mesothelioma

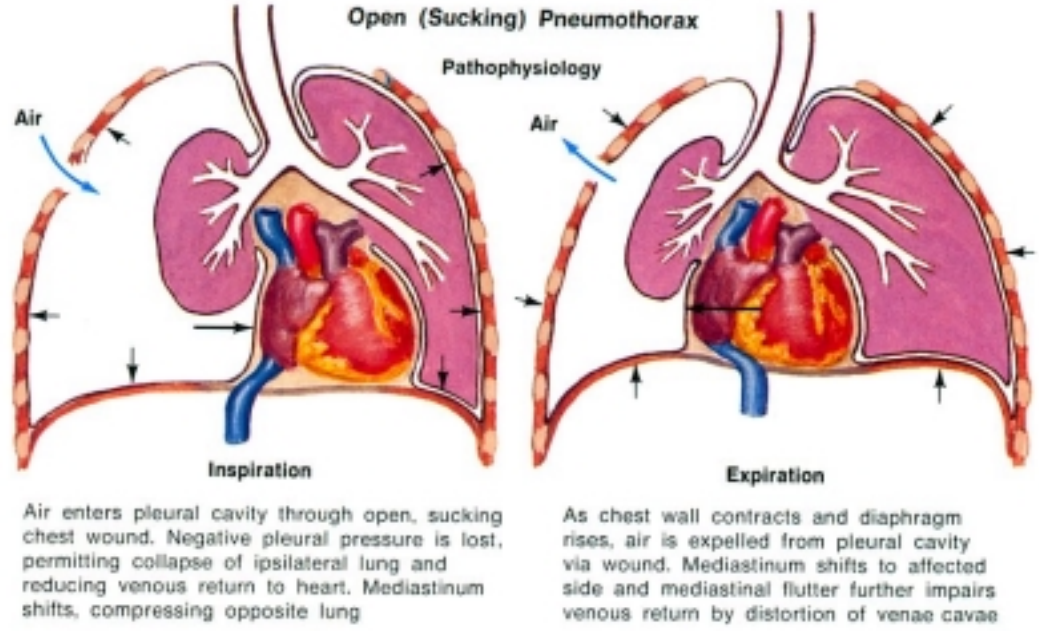
- Neoplasm of pleural serosa
- Linked to asbestos exposure
- Coalescence of pleural plaques
- May be restricted to parietal pleura but can involve visceral pleura
- Can lead to contracture of all structures in affected hemithorax

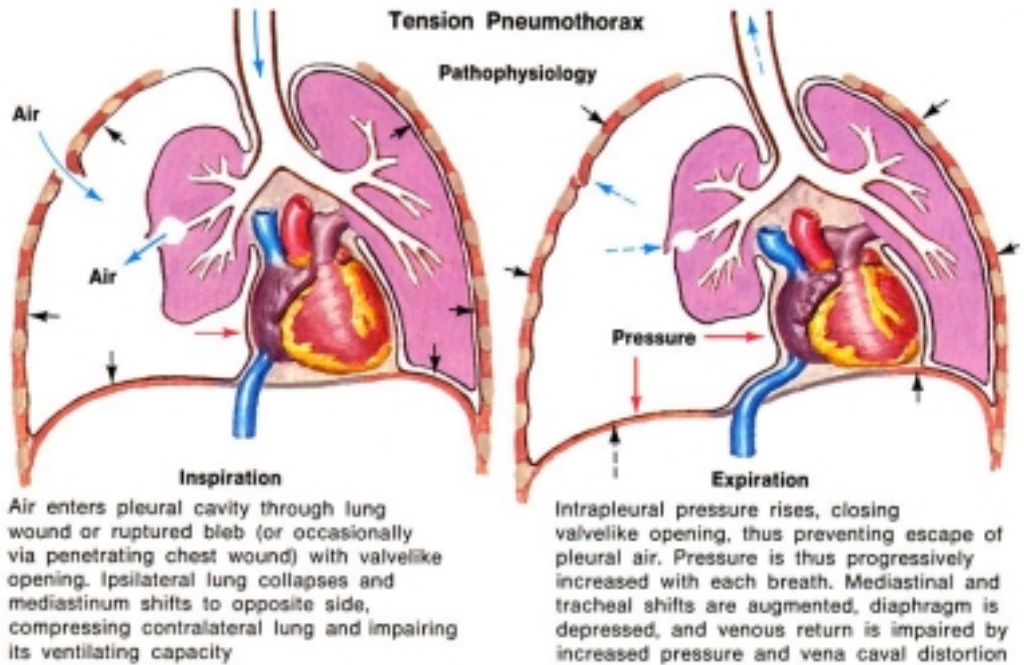


From Netter 1988

Pleural Diseases & Signs 5: Pneumothorax

- Presence of free air or gas in the pleural cavity
- Types of pneumothorax
  - Open pneumothorax
  - Spontaneous pneumothorax
  - Tension pneumothorax
- Collapse of ipsilateral lung due to pressure change & disruption of surface tension
- Potential for mediastinal shifts



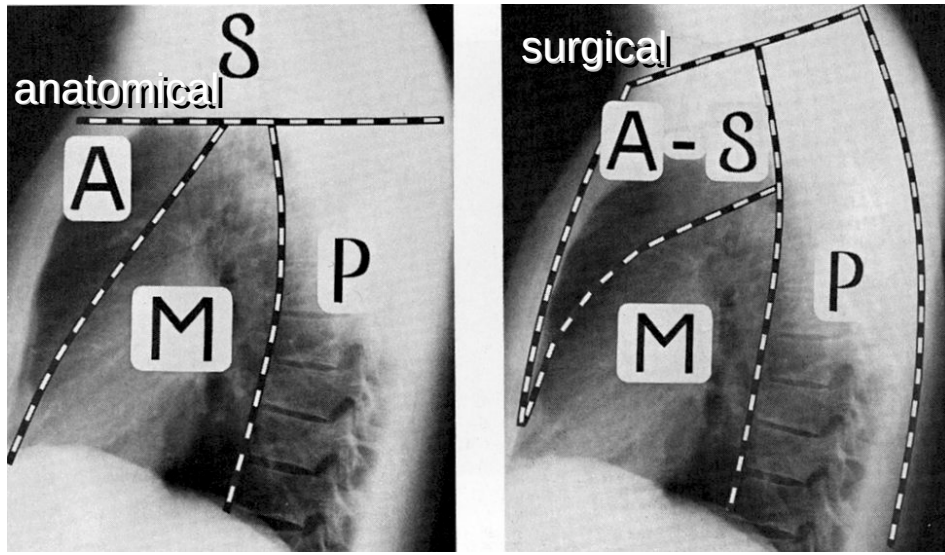


From Netter 1988

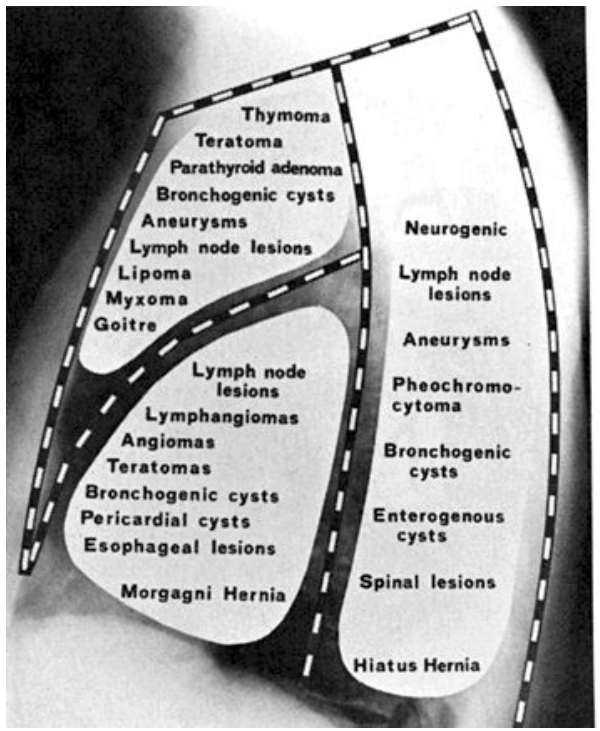
Mediastinum

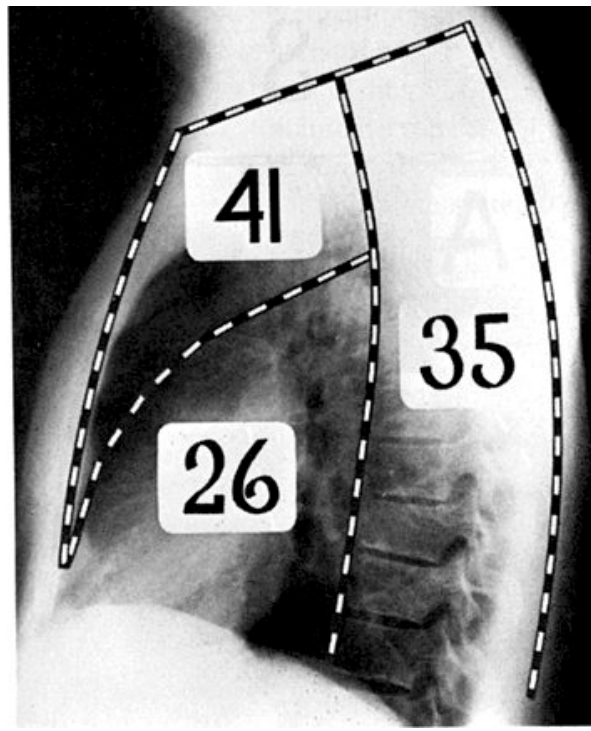
- Anterior mediastinum
  - thymus, fat, lymphatics
- Posterior mediastinum
  - descending aorta, esophagus, azygos veins, autonomics, thoracic duct
- Middle mediastinum
  - heart, pericardium, aorta, trachea, main bronchi, lymph nodes

Divisions of the Mediastinum

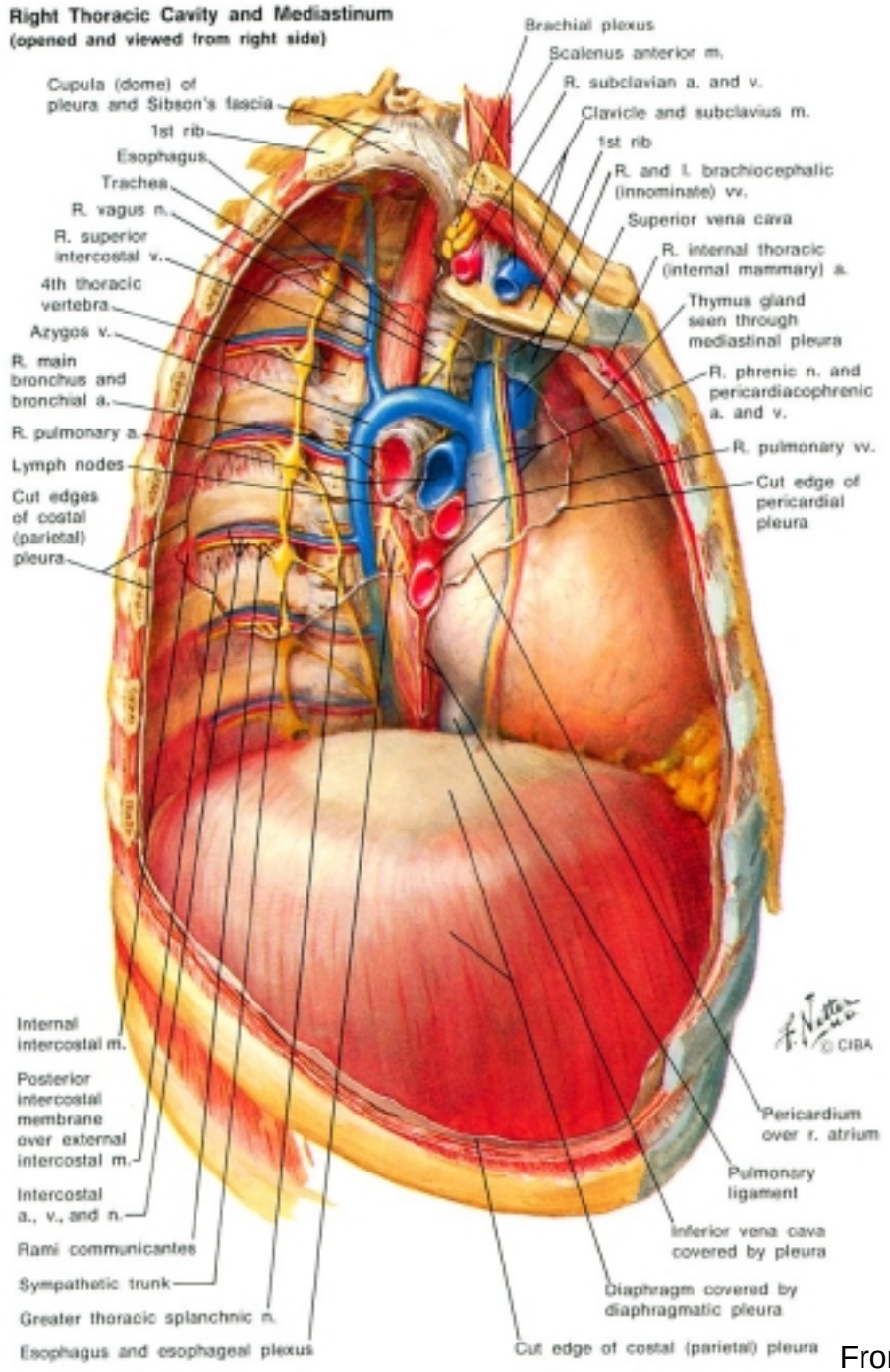


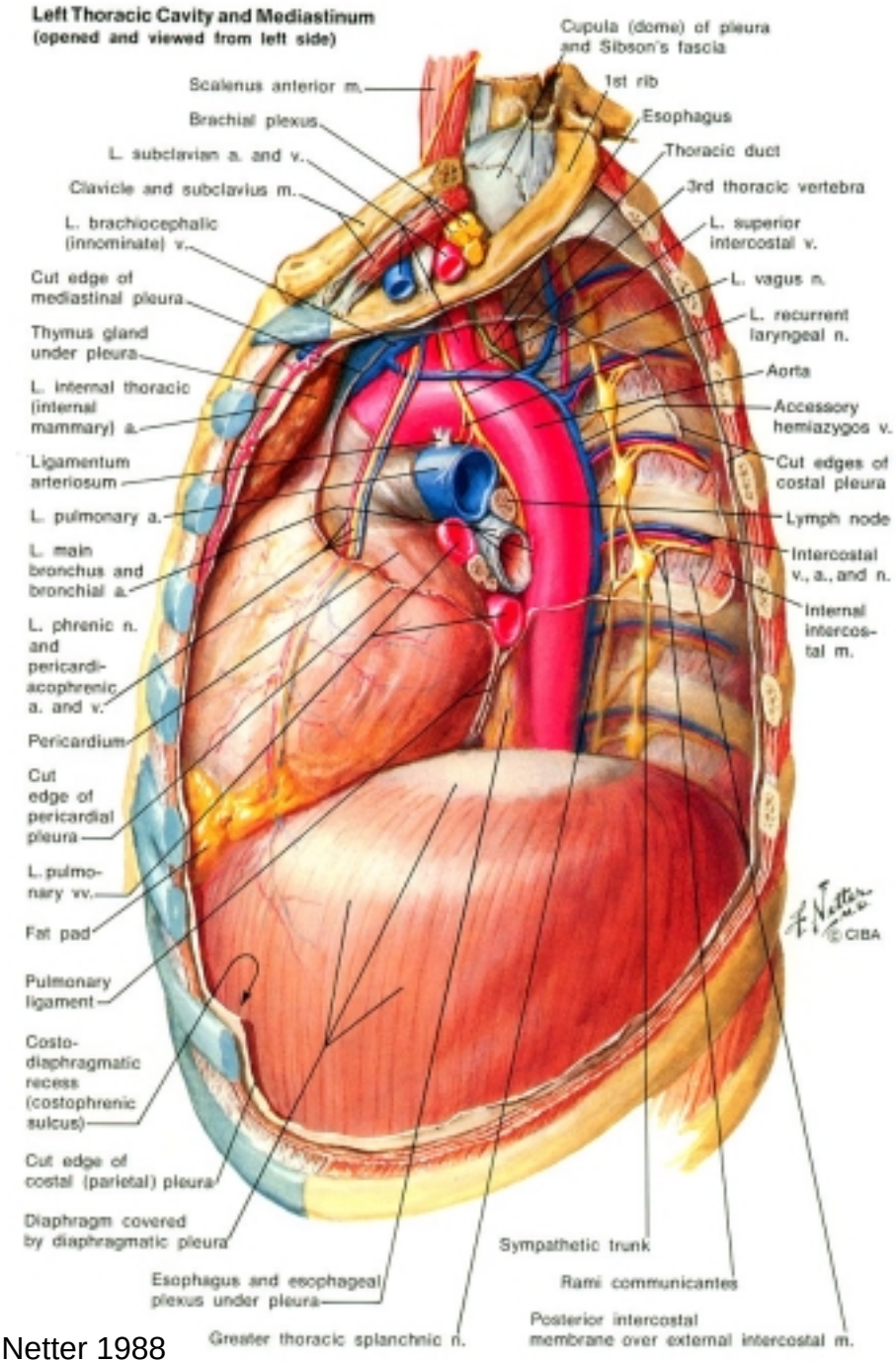
Mediastinal lesions and their distribution in 102 patients





from Schwartz et al., 1999





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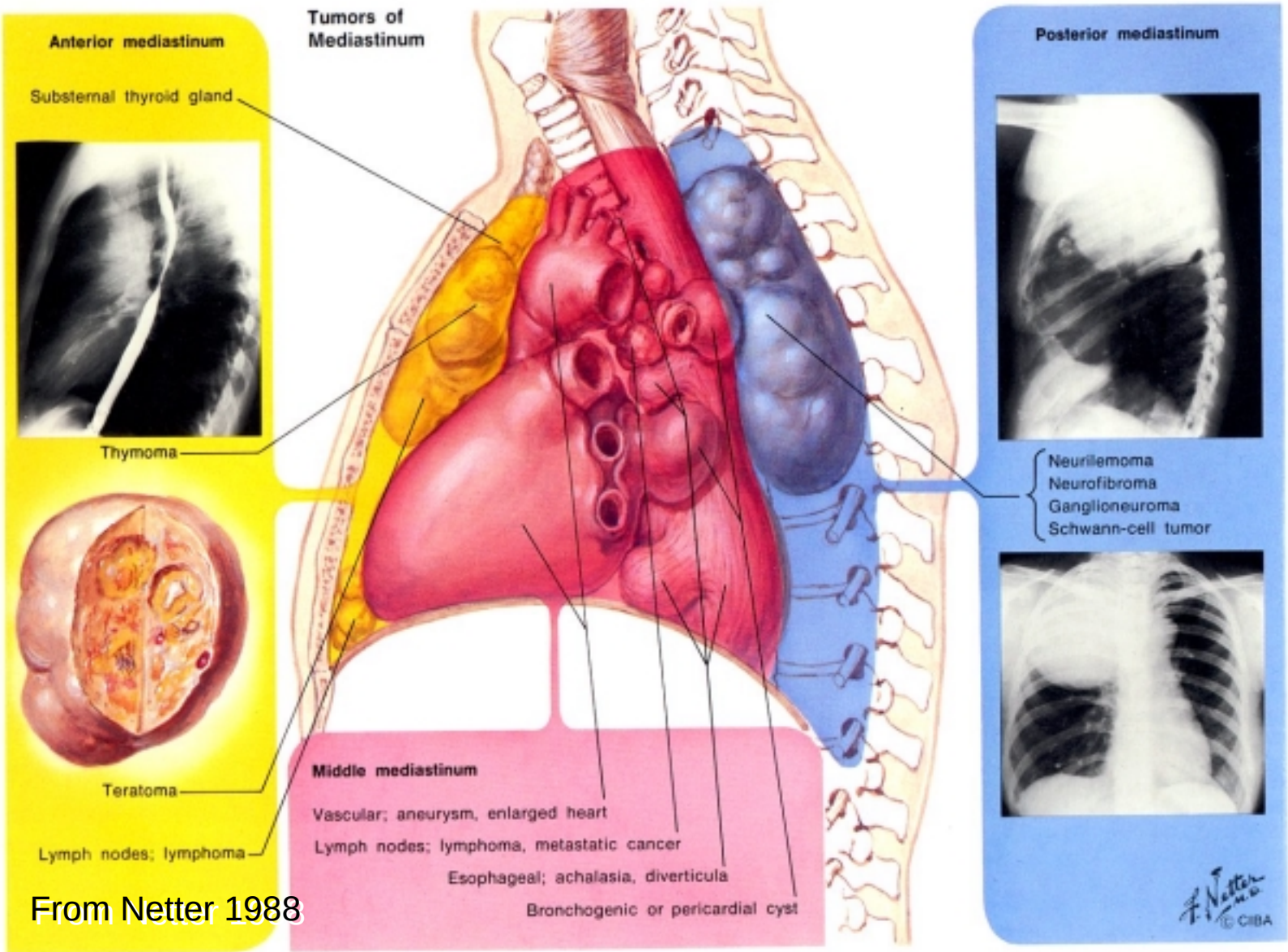
Mediastinal Masses



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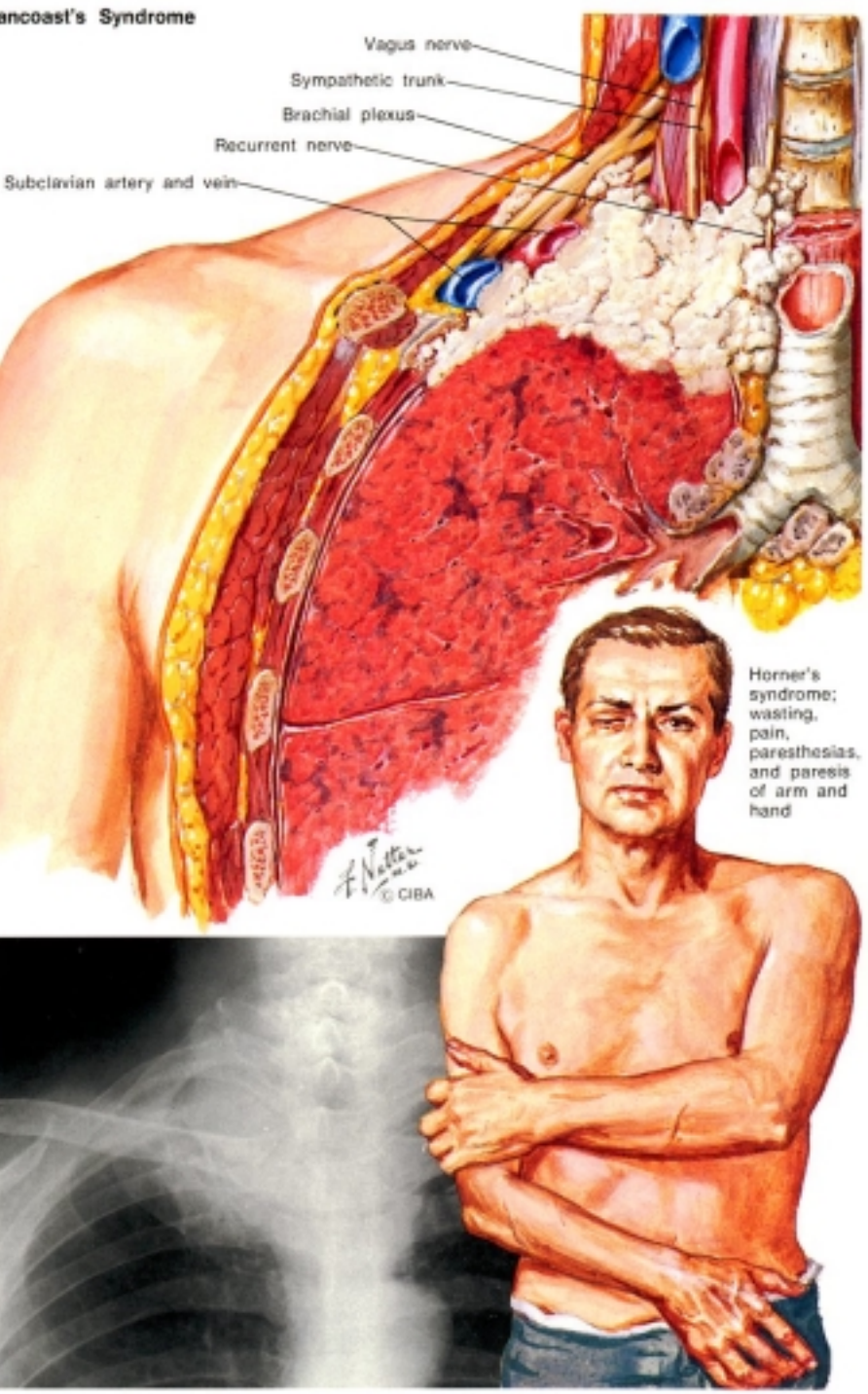
Anterior mediastinum: “four Ts”— **T**hymoma, **T**hyroid tumor, **T**errible lymphoma, **T**eratoma



Pancoast's Syndrome

- Bronchogenic carcinoma in the apex of the lung
- Horner's Syndrome: miosis, ptosis, enophthalmos, anhidrosis
- Lower brachial plexus injury (C8-T1): Klumpke's palsy
- Paresthesia of the upper extremity due to compression of subclavian a. & v.
- Shoulder pain: due to involvement of upper ribs and intercostal nerves
- Respiratory effects

From Netter 1988

References

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Healey, J. E. Jr., and J. Hodge. 1990. *Surgical Anatomy, 2nd Ed.* Decker, Philadelphia.

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Netter, F. H. 1988. The CIBA Collection of Medical Illustrations, Volume 7: Respiratory System. CIBA-Geigy, Summit.

Schwartz et al. (eds.), *Principles of Surgery, 7th Ed.,* McGraw Hill, New York.