

# Pleural Fluid analysis

- First step is to determine transudate versus exudate
  - Pleural fluid/serum protein ratio indication of capillary permeability
  - Pleural fluid/serum LDH ratio indication of inflammation in pleural space

Light's Criteria:

- Pleural fluid/serum protein ratio > 0.5
- Pleural fluid/serum LDH ratio > 0.6
- Pleural fluid LDH > 2/3 upper limit of normal serum LDH
- ❖ Any of the above meets the criteria of exudate
- ❖ Falsely classify about 25% of transudates as exudates usually related to diuretics

Transudates	Exudates
Heart failure (> 90% of cases)	Pneumonia (parapneumonic effusion)
Cirrhosis with ascites	Cancer
Nephrotic syndrome	Pulmonary embolism
Peritoneal dialysis	Bacterial infection
Myxedema	Tuberculosis
Atelectasis (acute)	Connective tissue disease
Constrictive pericarditis	Viral infection
Superior vena cava obstruction	Fungal infection
Pulmonary embolism	Rickettsial infection
	Parasitic infection
	Asbestos
	Meigs syndrome
	Pancreatic disease
	Uremia
	Chronic atelectasis
	Trapped lung
	Chylothorax
	Sarcoidosis
	Drug reaction
	Post-myocardial injury syndrome

## Mesothelioma

- Arises from mesothelial surfaces of pleural, peritoneal cavities & pericardium
- Inhalational exposure to asbestos clearly established as predominant cause of malignant mesothelioma – first etiologic connection 1960
- 70% of cases associated with documented asbestos exposure
- Asbestos miners, workers, plumbers/pipefitters, mechanical engineers, ship/boat building & repairing – high risk occupations
- Lifetime risk of mesothelioma among asbestos workers 8 – 13%
- Latency period about 30 – 40 years
- Unclear whether dose-response relationship

## Mesothelioma

- Progressive growth = partial or complete encasement of lung with rinds of pleural tumor
- Minimal lung parenchyma penetration
- Spreads along interlobar fissures, diaphragm, mediastinum, pericardium
- **4 major histologic subtypes**
  - Epithelioid – most common
  - Sarcomatoid – fibroblastic-like spindle cells; may mimic fibrosarcoma
  - Desmoplastic – densely collagenized tissue with atypical cells arranged in “patternless” pattern (Bland tumor so differentiating from fibrous pleuritis difficult)
  - Biphasic – both epithelioid & sarcomatoid components (Each at least 10% of tumor)