

Pleural Effusions

Pericardial effusions

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Case 1

- 25 year old man with progressive shortness of breath over 3 months

HR 100 RR 24 BP 90/60

Decreased breath sounds on Right

Systolic murmur radiating to the back

Case 2

- 68 year old male, 30 pack-year smoker
cough and fever for 1 week
pleuritic chest pain x 4 days

HR 110 RR 30 BP 90/60

Crackles and Decreased breath sounds on Right

Case 3

- 55 year old male, heavy alcohol drinker, progressive bipedal edema and ascites over 6 months

HR 110 RR 30 BP 90/60

Crackles and Decreased breath sounds bilaterally

Pleural Effusions

- **Transudative**
 - Heart failure
 - Liver cirrhosis
 - Kidney failure edema
- **Exudative**
 - Infectious
 - Malignant

Pleural Effusions

- **Normal physiology**

Production

PARIETAL PLEURA

Resorption

PARIETAL PLEURA STOMA
VISCERAL PLEURA LYMPH

Pleural Effusions

- **Light's Criteria**

Exudative pleural effusion

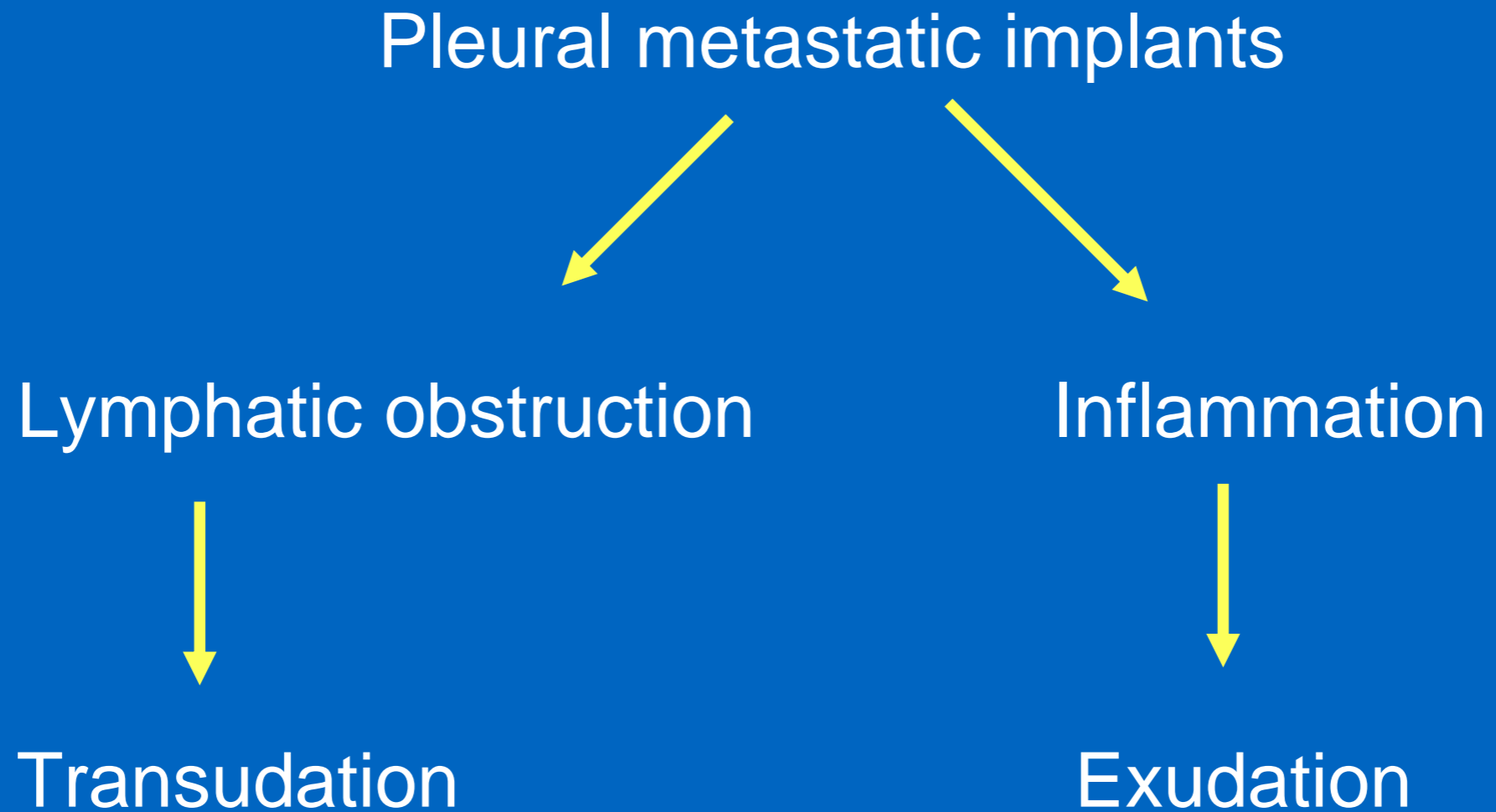
AT LEAST ONE CRITERIA

effusion Protein: serum Protein ratio > 0.5

effusion LDH: serum LDH > 0.6

effusion LDF $> 2/3$ upper normal limit serum LDH

- **Malignant pleural effusions (MPE)**



- **Surgical Management**

Indwelling pleural catheter

- **Surgical Management**

Chest tube insertion

Steps:

Local anesthesia (Lidocaine 2%)

4th ICS mid-axillary to anterior axillary

Test thoracentesis

Incise skin below 4th ICS (skin tunnel)

Post-insertion chest X-ray

Pleural catheters

Pigtail catheter

Jackson-Pratt drain

Pleural catheters

- **Water Seal**
- **Modification: 2-way Bottle System**
- **3-way System Drainage kits**

Pleural catheters

- **Tips & Tricks**

1. **No Clamps**

- Never leave a chest drain clamped

AVOID TENSION PNEUMOTHORAX

Pleural catheters

- **Tips & Tricks**

- 2. **Drain by gravity**

- Keep drainage bottles below patient
 - Avoid backwash into chest

Pleural catheters

- **Tips & Tricks**

3. **Clear the tube of fluid**

- “milk” the tube PRN

AVOID FIBRIN CLOGGING

Pleural catheters

- **Pleural Jackson Pratt Drains**

No water seal: built-in one-way valve

Less Pain

Improved patient mobility

Pleural catheters

- **Tips & Tricks**

- 4. **Dress tube wound PRN only**

- frequent dressing causes contamination
 - use clear adhesive dressings (Tegaderm, Opsite)

Case 4

- 25 year old man undergoing treatment for PTB

progressive difficulty breathing & orthopnea over 2 weeks

HR 120 RR 30 BP 90/60

engorged neck veins

decreased breath sounds on Right

heart sounds soft but regular

Pericardial effusion & tamponade

- 12 Lead ECG

sinus tachycardia

low-voltage QRS complexes

- 2D Echocardiogram

Pericardial effusion & tamponade

- **Pathophysiology**

Progressive fluid accumulation in limited pericardial space

Equalization of **diastolic pressure & intrapericardial pressure**

Diastolic filling abnormality

Myocardial ischemia

Circulatory collapse



Pericardial effusion & tamponade

- Beck's Triad
 - Hypotension
 - Distended neck veins
 - Muffled heart sounds

Pericardial effusion & tamponade

- **Emergency treatment**

Needle Pericardiocentesis (ultrasound)

Pericardial effusion & tamponade

- **Emergency treatment**

Open tube pericardiostomy (subxiphoid)

Pericardial effusion & tamponade

- **Secondary treatment**

Etiology

- Tuberculous pericarditis >> may progress to *constrictive physiology*
- Malignant pericardial effusion
- Viral pericarditis

Peripheral Arterial Disease: Emergency treatment

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Peripheral Arterial Disease (PAD)

- *aka. Peripheral arterio-occlusive disease (PAOD)*
- Etiology
 - **Atherosclerotic**
 - Inflammatory

Peripheral Arterial Disease (PAD)

- Risk factors
 - Advanced age >60yrs
 - Smoking
 - Hypertension
 - Dyslipidemia
 - Diabetes

Peripheral Arterial Disease (PAD)

- **Clinical Progression**

- Asymptomatic
- Claudication
- Critical Limb ischemia
- Acute limb ischemia



Peripheral Arterial Disease (PAD)

- Claudication
 - calf pain or fatigue on exertion
- Critical Limb ischemia
 - chronic ischemic rest pain
 - recumbent rest pain
 - ulcers or gangrene



Peripheral Arterial Disease (PAD)

- Critical Limb ischemia
ulcers or gangrene

Peripheral Arterial Disease (PAD)

- Acute limb ischemia
 - sudden unremitting pain and pulselessness

“6 Ps”

pain

no pulse

pallor

poikilothermic

paresthesia

paralysis

Peripheral Arterial Disease (PAD)

- **Clinical Progression**

- Asymptomatic
- Claudication
- Critical Limb ischemia
- Acute limb ischemia



LIMB LOSS