

Pericardial disease

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(1) Acute Pericarditis

- **Etiology =**
 - a) idiopathic pericarditis (most common)
 - b) infectious pericarditis (mostly viral (always preceded by flulike illness), bacterial, fungal, tuberculous etc)
 - c) metabolic disorders (uremic pericarditis, hypothyroidism etc)
 - d) neoplastic pericardial disease
 - e) pericardial disease in vasculitis/connective tissue disease (due to inflammation of blood vessels by immune complex eg. Rheumatoid arthritis, SLE)
 - f) myocardial infarction – associated pericarditis (usually larger infarct, with new pleuritic chest pain, pericardial rub etc.)
 - g) traumatic pericardial disease

Symptoms = mostly 1-3 weeks after upper respiratory or gastrointestinal syndrome.

- chest pain exacerbated by inspiration, cough, recumbency (patient sit up for relief) and exertion, tenderness, dyspnea, dysphagia
- fever, chill, weakness, anxiety
- “pericardial rub”, pleural effusion
- electrocardiogram =
 - Stage I : diffuse J-point ST elevation and PR segment depression
 - Stage II : return to baseline
 - Stage III : T wave inversion
 - Stage IV : return to prepericarditis stage (EKG evolve over hours, days or weeks)
- elevated acute-phase reactants (leukocytosis, ESR, CRP)
- elevated myocardial enzymes (CKMB, troponin)

- **Treatment**= nonsteroidal antiinflammatory drugs (NSAID), corticosteroid, colchicine, immunosuppression (azathioprine), immunoglobulins

(2) Pericardial effusion

- **Etiology**= secondary to pericarditis eg. due to tumor, tuberculosis, cholesterol pericarditis, myxedema, vasculitis/connective tissue disease, uremic pericarditis etc.
- Transudate or exudate. Large effusion usually follow venous or lymphatic obstruction in epicardium.
- **“Ewart sign”** = dullness and bronchial breathing between left scapula and spine, if very large pericardial effusion
- X-ray = “water bottle” silhouette
- **Treatment** = pericardiocentesis, pericardial drainage

(3) Cardiac tamponade

- Due to pericardial disease of almost any etiology → severe cardiac compression
- Symptoms = chest discomfort, tachypnea, dyspnea, air hunger, conscious change, weakness
- Distant heart sound, hypotension
- Ewart sign
- Kussmaul sign (=inspiratory jugular venous distention)
- Beck's triad = hypotension, muffled heart sounds, elevated jugular pressure

- Reduced cardiac output → tachypnea, shock, diaphoresis, cyanosis
- Pulsus paradoxus = drop in systolic arterial pressure (≥ 10 mmHg) upon inspiration
- Electrocardiograph = reduced voltage; electrical alternation (= QRS alternation, pathognomonic of tamponade)
- Treatment = If tamponade not threatened: NSAID, colchicine, steroid, pericardiocentesis if no response.
If tamponade threatened: pericardiocentesis, hydration, inotropic

Suspect cardiac tamponade if:

- **unexplained shock and elevated systemic venous pressure**
- **unexplained low or falling blood pressure**
- **pulsus paradoxus, electrical alternation**
- **unexplained tachycardia, dyspnea or tachypnea**
- **recent or concurrent pericarditis and unexplained “cardiac” enlargement**
- **diastolic pressure equilibration of atrium and ventricle**

(4) Constrictive pericarditis

- = endstage pericarditis with dense fibrosis, calcification and adhesions.
- **Etiology** = antecedent pericarditis such as : idiopathic (majority), infectious, neoplasia, uremia, vasculitis/connective tissue disease, myocardial infarct-related, trauma, drugs (procainamide, methysergide, hydralazine)
 - **Pathophysiology** = markedly restricted filling of heart → elevation and equilibration of filling pressures in all heart chambers, systemic and pulmonary veins → right heart failure, reduced cardiac output

- Chest X ray = pericardial calcification
- **Catherterization** = 1. equilibration of diastolic pressures. 2. square-root configuration or dip-plateau of left ventricular and right ventricular diastolic pressures. Characteristic right atrial curve with y descent > x descent
- **Symptoms** = jugular distention, Kussmaul sign, right heart failure
- **Treatment** = antiinflammatory drugs. Surgery is definitive (removal of pericardium)

(5) effusive-constrictive pericarditis

= pericardial effusion/tamponade and
constriction

Etiology = idiopathic (mostly)
malignancy
radiation
TB