Case Conference

Presenter : R1周光緯
Supervisor : F 吳亮廷
2011.01.17

Discussion

Pericardial Effusion

Pericardial Effusion

- Acute pericarditis or in association with a variety of systemic disorders
- Nearly every pericardial disease can develop effusion

Etiology

- Acute idiopathic or viral pericarditis
- Purulent pericarditis
- Tuberculous pericarditis
- Post-MI or cardiac surgery
- Sharp or blunt chest trauma
- HIV infection
- Malignancy
- Autoimmune disease
- Selected drugs

Cause of Pericardial Disease

Idiopathic
Infections
A. Viral - Coxsackievirus, echovirus, adenovirus, EBV, influenza, varicella, rubella, HIV, hepatitis B, mumps, parvovirus B19, vaccina (smallpox vaccination)
B. Bacterial - Staphylococcus,Streptococcus, Haemophilus, Neisseria, Chlamydia, Legionella, tuberculosis, Salmonella, Lyme disease
C. Mycoplasma
D. Fungal - Histoplasmosis, aspergillosis...
E. Parasitic - Echinococcus, amebiasis, toxoplasmosis...
F. Infective endocarditis with valve ring abscess

Con't

Radiation
Neoplasm
A. Metastatic
B. Primary
Cardiac
Autoimmune
A. Rheumatic diseases - lupus, rheumatoid arthritis, vasculitis, scleroderma, mixed connective disease
B. Other - Wegener's granulomatosis, polyarteritis nodosa, sarcoidosis ...

Con't

Drugs
A. Procainamide, isoniazid, or hydralazine
B. Other - cromolyn sodium, dantrolene, methysergide, anticoagulants, thrombolytics, phenytoin, penicillin, phenylbutazone, doxorubicin
Metabolic
A. Hypothyroidism - primarily pericardial effusion
B. Uremia
C. Ovarian hyperstimulation syndrome (OHSS)

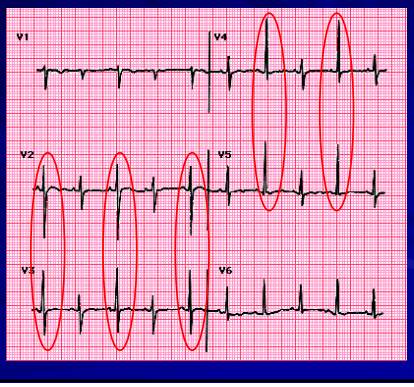
Approach

- Suspected from the history, ECG, and CXR
- All cases of acute pericarditis
- Unexplained persistent fever
- Hemodynamic change, especially post cardiac intervention

1. The Presence of Effusion

- Physical : insensitive and nonspecific
- Heart echo : effusions exceeding 25 to 50 mL
- EKG :
  - Low QRS voltage : ≤5 mm (0.5 mV) in all of the limb leads
  - Electrical alternans
- Cardiac markers : may be elevated

Electrical Alternans

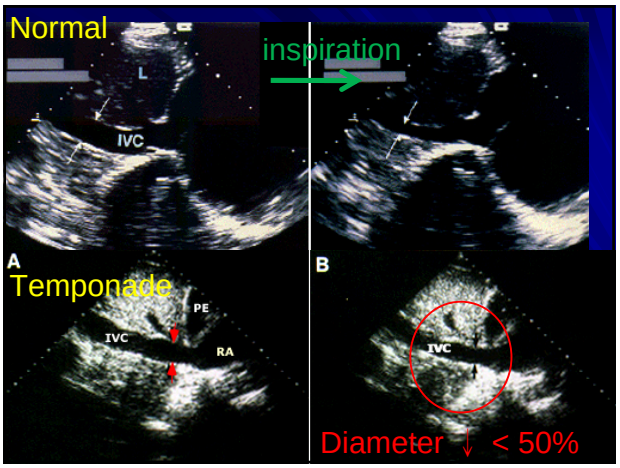


2. The Hemodynamic Impact

- The persence of cardiac tamponade ?
- Acute
  - Beck's triad : 1.JVE
    2.Hypotension
    3.Muffled heart sound
- Subacute
  - May be asymptomatic
  - Hypotension with a narrow pulse pressure, reflecting the limited stroke volume

Heart Echo

- Collapse of the right atrium at end-diastole and the right ventricle in early diastole
- Reciprocal changes in left and right ventricular volumes with respiration
- Dilation of the inferior vena cava and less than a 50 percent reduction in its diameter during inspiration, reflecting systemic congestion



3. Find the Cause

- Base upon history and clinical findings
- The size of the effusion
- The presence or absence of tamponade
- Inflammatory signs
  - Characteristic chest pain
  - Pericardial friction rub
  - Fever >37ºC
  - Diffuse ST segment elevation

Pericardiocentesis and Biopsy

- Culture
- Cytology
- Adenosine deaminase (for TB pericarditis)
- PCR
- Low sensitivity of WBC and Glu, Total protein and LDH

Treatment

- Treat underlying disease first unless hemodynamic unstable
- Volume resuscitation
- Pericardial fluid drainage for temponade

Surgical Pericardiectomy

- Indication :
  - Fluid has reaccumulated
  - The effusion is loculated
  - Biopsy material is desired
  - The patient has a coagulopathy

TB Pericarditis

Incidence

- Tuberculous pericarditis occurs in 1 to 2 percent of patients with pulmonary TB, US
- 7 percent of cases of cardiac tamponade in one study of Spain
- 6 percent of cases of constrictive pericarditis

Pathogenesis

- Reactivation disease
- Extension of infection from the lung or tracheobronchial tree, adjacent lymph nodes, spine, or sternum, or via miliary spread
- 50 percent of patients : symptoms resolve without treatment over a two to four week period

4 Stages

- The dry stage
- The effusive stage
- The absorptive phase
- The constrictive phase

Clinical Manifestations

- Cough — 94 percent
- Dyspnea — 88 percent
- Chest pain —76 percent
- Night sweats — 56 percent
- Orthopnea — 53 percent
- Weight loss — 48 percent

Physical Findings

- Fever
- Tachycardia
- Pleural dullness
- Increased jugular venous pressure
- Hepatomegaly
- Ascites
- Peripheral edema

CXR

- Concurrent pulmonary TB is an inconsistent but potentially important finding in patients with tuberculous pericarditis
- 72 percent of 198 cases in one report
- 32 percent of 19 cases in another

EKG

- Low voltage QRS
- Inverted T
- Eelectrical alternans

25/52

Diagnosis

- Tuberculin test : PPD skin test
- Pericardiocentesis
  - WBC : 700 to 54000/mL (average 7800/mL)
  - Acid-Fast stain and culture
  - TB-PCR
  - Adenosine deaminase (ADA) levels > 40 U/L
- Biopsy
- Cytology

26/52

Treatment

- Four combine therapy for 8 weeks
  - Isoniazid
  - Rifampin
  - Pyrazinamide
  - Ethambutol
- Then INH + Rifampin for at least 18 weeks

27/52