Acute Pericarditis ,causes, signs and symptoms, diagnosis and treatment

Acute pericarditis is defined as an inflammatory process of the pericardial sac that develops over a period of **less than 2 weeks** . It may be caused by infections, systemic inflammatory disorders, trauma, or other non-infectious causes.

Etiology

Infectious Causes

- **Viral (most common):** Coxsackievirus B, Echovirus, Influenza, HIV, CMV, EBV
- **Bacterial:** Tuberculosis, Pneumococcus, Staphylococcus, Streptococcus
- **Fungal:** Histoplasma, Aspergillus (rare)
- **Parasitic:** Toxoplasmosis, Amebiasis

Non-Infectious Causes

- **Autoimmune disorders:**
  - *Systemic lupus erythematosus (SLE)*
  - *Rheumatoid arthritis*
  - *Scleroderma*
  - *Mixed connective tissue disease*
- **Post-myocardial infarction:**
  - *Early:* Peri-infarction pericarditis (1–3 days post-MI)
  - *Late:* Dressler syndrome (autoimmune, weeks post-MI)
- **Uremia**
- **Post-cardiac surgery**
- **Malignancy:** Lung, breast, lymphoma, leukemia
- **Radiation-induced**
- **Trauma or iatrogenic injury**
- **Medications:** e.g., procainamide, hydralazine, isoniazid, phenytoin

Pathophysiology

- Inflammation leads to **increased capillary permeability** .
- Leakage of **plasma proteins (e.g., fibrinogen)** into the pericardial space ? **Exudate formation** .
- Commonly forms a **fibrinous (dry)** or **serofibrinous pericarditis** , which may:
  - Resolve with treatment
  - Progress to **chronic pericarditis** , **adhesions** , or **constrictive pericarditis**

Clinical Features

Classic Triad of Acute Pericarditis

1. **Pleuritic chest pain**
2. **Pericardial friction rub**
3. **ECG changes**

Chest Pain

- **Sharp and pleuritic** , worse on inspiration, coughing, swallowing
- **Improves with sitting up and leaning forward**
- **Worsens when lying supine**
- May radiate to neck, shoulders, or back (phrenic nerve irritation)

Pericardial Friction Rub

- High-pitched, scratchy/squeaky sound
- Best heard at **left lower sternal border**
- Varies with position and respiration

Electrocardiogram (ECG) Findings

- **Diffuse ST-segment elevation** (concave, "saddle-shaped")
- **PR-segment depression**
- No reciprocal changes (unlike MI)
- May progress through 4 stages:
    1. ST elevation & PR depression
    2. ST returns to baseline
    3. T wave inversion
    4. Normalization

Diagnosis

Diagnosis is clinical but supported by tests.

Diagnostic Criteria **(At least 2 of 4 required):**

1. Pleuritic chest pain
2. Pericardial friction rub
3. Typical ECG changes
4. Pericardial effusion (seen on echocardiography)

Supporting Investigations

- **ECG** : as above
- **Echocardiography** : for effusion or tamponade
- **Chest X-ray** : often normal; may show enlarged cardiac silhouette
- **Inflammatory markers** : ? ESR, CRP, leukocytosis
- **Troponin** : may be elevated if myocardium involved (myopericarditis)
- **Pericardial fluid analysis** : if large effusion or tamponade

- **Autoimmune/viral serologies** : if indicated

Treatment

General Management

- **Rest** : Limit physical activity until symptom resolution and normalization of CRP

First-Line Therapy

- **NSAIDs** (e.g., ibuprofen 600–800 mg TID or aspirin 650–1000 mg TID)
- **Colchicine** : 0.5–1 mg/day for 3 months (? recurrence)

Second-Line or Adjunct

- **Corticosteroids** (e.g., prednisone): Reserved for NSAID-resistant cases or autoimmune causes

Etiology-Specific Management

- **Bacterial pericarditis** : IV antibiotics + drainage if needed
- **Tuberculous pericarditis** : Anti-TB therapy ± steroids
- **Uremic pericarditis** : Urgent dialysis
- **Neoplastic pericarditis** : Pericardiocentesis + oncologic management

Complications

- **Pericardial effusion**
- **Cardiac tamponade** : Life-threatening; requires emergency **pericardiocentesis**
- **Constrictive pericarditis** : Chronic fibrosis causing diastolic dysfunction
- **Recurrent pericarditis**

Recurrent Pericarditis

- Occurs in ~15–30% of patients
- More common after viral pericarditis or autoimmune pericarditis
- **Treatment:**
  - NSAIDs + colchicine (first-line)
  - Corticosteroids (for autoimmune/NSAID-refractory)
  - Immunomodulators in refractory cases: *anakinra* , *azathioprine*

Prognosis

- Generally favorable with appropriate treatment
- Recurrence occurs in a subset, especially if colchicine not used
- Poor prognosis with **malignant, purulent, or tuberculous pericarditis**

Mnemonic: "PERICARD" for Pericarditis

- **P** ain that's pleuritic and positional
- **E** levated ST segments (diffuse)
- **R** ub (pericardial)
- **I** nflammation (?CRP/ESR)
- **C** olchine + NSAIDs
- **A** utoimmune or viral causes
- **R** ecurrence possible
- **D** iagnosis: clinical + echo/ECG