

acute pericarditis
[created by Paul Young 02/10/07]

defn
- inflammation of the pericardium characterised by chest pain, pericardial friction rub & ECG changes

symptoms
1. chest pain
- sharp, dull, aching, burning or pressing
- intensity varies from barely perceptible to severe
- pain is usually precordial with referral to the trapezius ridge
- worse with inspiration, lying flat, with swallowing & movement
2. dyspnoea
- may be present (especially with tamponade)
3. fever may be present
4. abdominal pain occurs infrequently in children

signs
1. pericardial friction rub
- pathognomonic of acute pericarditis
- may only be detected transiently
- more than 50% are triphasic composed of:
(i) atrial systolic rub preceding S1
(ii) ventricular systolic rub (between S1 & S2)
(iii) early diastolic rub (after S2)
2. tachypnoea may be present
3. tachycardia may be present
4. patient may have fever
look for signs of tamponade:
1. Beck's triad of elevated JVP, hypotension & muffled heart sounds
2. pulsus paradoxus is defined as 10mmHg decrease in arterial systolic pressure with inspiration

aetiology
1. Congenital
- familial mediterranean fever
2. infectious
- viruses including coxsackie B, echo virus, adenovirus, influenza, enterovirus, mumps virus, HSV, VSV, RSV. Viral pericarditis is usually short & self limiting after 1-2 weeks
- bacterial develops from direct pulmonary extension, haematogenous, myocardial abscess or endocarditis, penetrating chest injury or subdiaphragmatic collections. Commonly leads to constrictive pericarditis
- Tb should be considered in all subacute cases. It has a mortality of 50%.
- other infectious causes include fungal & parasitic
3. non-infectious
- RA is associated with pericardial effusion in 50% with nodules and only 15% without. Symptomatic disease tends to occur in those with other extra-articular manifestations
- SLE flare-ups may be associated with pericarditis
- scleroderma causes constrictive pericarditis
- sarcoidosis, Sjogrens, Reiter, ankylosing spondylitis, inflammatory bowel disease, Wegeners, vasculitis, polymyositis, Bechets, Whipple disease & serum sickness.
- after myocardial infarction fibrinous pericardial exudate appears within 24hrs & may lead to a rub within 24hrs or as late as 10 days. Pericardial pain occurs less frequently than the rub. Dressler's syndrome is usually observed 2-3 weeks after a myocardial infarction & may occur after pulmonary embolism - it may be autoimmune in nature.
4. post-infectious
- rheumatic fever (consider in all children with pericarditis). Pericarditis usually appears 7-10 days after the onset of fever & arthritis
5. neoplastic
- most commonly metastatic (lung>breast>leukaemia & lymphoma>melanoma)
6. metabolic
- renal failure leads to uraemic pericarditis
- effusion occurs in severe pericarditis
7. drugs, poisons, toxins
- penicillin hypersensitivity
- doxorubicin & cyclophosphamide have direct cardiac toxicity
- drug-induced SLE caused by procainamide, hydralazine, methyldopa, isoniazid & reserpine can cause pericarditis
- radiotherapy can cause pericarditis
8. iatrogenic:
- similar to Dressler syndrome except that it occurs after cardiac surgery
9. idiopathic:
- common but difficult to distinguish from viral

investigation
1. Bloods:
- FBE, ESR & CRP, Cr
- cardiac enzymes are elevated in 32% with viral pericarditis & are related to extent of myocardial inflammation
- in selected patients ASO titres, rheumatoid factor, ANA, anti-dsDNA, thyroid function
2. imaging
- CXR
- echocardiography is performed if tamponade is suspected on radiological grounds or if the illness lasts for >one week; it is also useful to look for regionality where there is diagnostic doubt
3. ECG
(i) stage 1:
- accompanies onset of acute pain
- is characterised by diffuse concave upward ST elevation except in aVR & V1 which are usually depressed
- T waves are upright in all leads with ST elevation & PR segment deviates opposite to P-wave polarity
(ii) stage 2:
- occurs several days later
- STs return to baseline & there is flattening of T waves
(iii) stage 3:
- T waves become inverted
(iv) stage 4:
- ECG returns to baseline weeks after onset

treatment
1. oxygen & cardiac monitoring
2. rule out other life-threatening causes of chest pain
3. treat pain with NSAIDs
4. emergency treatment of tamponade (under USS guidance if required)
5. antibiotics or antiTb therapy if appropriate

disposition
mortality varies depending on the aetiology - it is near 100% in untreated purulent pericarditis & virtually zero in viral or idiopathic pericarditis
- many patients can be managed as an outpatient
- echo is needed if symptoms persist longer than one week
- the following risk factors indicate poor prognosis & suggest inpatient management should be considered:
(i) fever >38
(ii) immunosuppression
(iii) trauma
(iv) oral anticoagulants
(v) myocarditis
(vi) pericardial effusion or tamponade
- refer patients with viral pericarditis to cardiologist
- complicated causes such as Tb, purulent & uraemic aetiologies require multidisciplinary involvement