PERICARDIAL DISEASE

1. Diagnosing pericarditis is by two of three features: pleuritic chest pain, friction rub, diffuse concordant ST elevation ± PR depression.
2. 60% of patients with pericarditis have an effusion; absence of an effusion on echo does not rule out the diagnosis.
3. Steroids in pericarditis refractory to or with contraindications to use of ASA, NSAIDs, & colchicine; in inflammatory disease & uremia.
4. Colchicine is the treatment of choice for recurrent pericarditis.
5. Pericardiectomy does not prevent recurrent pericarditis.
6. Anticoagulation increases risk of hemopericardium in pericarditis.
7. Pericardiocentesis is indicated when bacterial, TB, or inflammatory disease is suspected; or if effusion persists for > 3 months.
8. Tamponade causes dyspnea, tachycardia, JVD, hypotension & pulsus paradoxus > 10 mmHg; exacerbated by mechanical ventilation.
9. In subacute tamponade, serial hemodynamic monitoring and echo, volume resuscitation, & treatment of causative illness may be done.
10. Constrictive pericarditis causes dyspnea, fatigue, JVD, peripheral edema, hepatomegaly, & ascites; pulmonary congestion is absent.
11. Constrictive pericarditis results from cardiac surgery, viral infection or acute pericarditis; mediastinal irradiation, RA or other CTD.
12. With a transient cause of constrictive pericarditis, 2- to 3-month conservative management is warranted before pericardiectomy.

Causes of Acute Pericarditis and Pericardial Effusion

Cause	Notes
Idiopathic	40% of all causes when only conventional diagnostic testing employed; specialized testing can lower frequency of apparently idiopathic cases to less than 5%
Viral infection	20% of all causes; diagnostic testing (cultures and titers) generally not recommended; obtain HIV studies in individuals with risk factors
Bacterial infection	About 7% of all causes; suspect in patients with bacteremia, endocarditis, and contiguous infection; pericardiocentesis and culture mandatory
Fungal infection	Most commonly in immunocompromised patients with evidence of disseminated disease; pericardiocentesis and culture mandatory
Tuberculosis	Although infrequent in developed countries, missing the diagnosis of tuberculous pericarditis has serious consequences and makes its consideration appropriate in all cases; tuberculin skin test recommended for patients at risk
Uremia	6% of causes; obtain creatinine and blood urea nitrogen to confirm
Autoimmune disorders	Most autoimmune diseases are potential causes; during the course of systemic lupus erythematosus, 20% to 40% of patients will have pericarditis
Acute myocardial infarction	Less frequent in reperfusion era; pericardial friction rub is transient and typically occurs for ≤3 days after infarction; course usually benign
Post–myocardial infarction	Patients typically have severe malaise; tamponade and constrictive pericarditis are rare complications
Postpericardiotomy	Occurs >1 week after cardiac surgery; typical course is self-limited but often prolonged; tamponade may occur
Neoplasm	7% of causes; common malignancies include lung, breast, lymphoma, and leukemia; factors suggesting neoplasia: history of malignancy, large pericardial effusion, inadequate response to NSAIDs
Medications	Culprit drugs include hydralazine, procainamide, warfarin, heparin, methysergide, doxorubicin, penicillins
Chest irradiation	Radiation pericarditis occurs in 20% of patients if entire pericardium is in the field, but in <3% if heart is shielded; acute pericarditis may occur immediately or months after radiation; pericarditis occurring during radiation usually does not preclude completion of radiation treatment; constrictive pericarditis may occur up to 15 years after radiation but is not predicted by development of pericarditis during treatment
Blunt or penetrating chest trauma	Uncomplicated traumatic pericarditis usually resolves; most significant complications are hemopericardium and cardiac tamponade, which require surgery
Aortic dissection– leak into pericardial cavity	Leads to cardiac tamponade; life-threatening, requiring immediate surgery; percutaneous pericardiocentesis may exacerbate condition

Pharmacologic Treatment of Acute Pericarditis

Treatment Phase	Conventional First-Line Agents		Alternative First-Line Agent[a]	Third-Line Agent (for Refractory Cases)
	Aspirin	NSAID	Colchicine	Corticosteroid[b]
Initiation	650 mg every 4-6 h	Ibuprofen 400-800 mg every 6-8 h	Body weight <70 kg: 0.6 mg every 12 h (use for 1 day only if combined with aspirin or NSAID) Body weight ≥70 kg: 0.6 mg every 8 h (use for 1 day only if combined with aspirin or NSAID)	Prednisone 60 mg/d until improved
Taper	↓ 650 to 975 mg weekly until off	After 2 weeks begin taper to maintenance dose	NA	↓ 5 mg every 3 days until 20 mg/d dose reached
Maintenance	NA	Variable (200-300 mg TID)	Body weight <70 kg: 0.6 mg/d Body weight ≥70 kg: 0.6 mg BID	Taper slowly after reaching 20 mg/d dose
Duration	3-4 weeks	3-4 weeks	3 months	Months

[a]When ASA & NSAID contraindicated or used as adjunctive therapy to conventional first-line agent when therapeutic response to conventional therapy is suboptimal.
[b]Contraindicated in acute MI. Preferred in systemic inflammatory diseases or uremia.

Pharmacologic Treatment of Recurrent Pericarditis

Treatment Phase	Colchicine	NSAID (Added to Colchicine)	Third-Line Agents (for Refractory Cases)
Initiation	Body weight <70 kg: 0.6 mg every 12 h Body weight ≥70 kg: 0.6 mg every 8 h	Ibuprofen 800 mg every 6 h	Prednisone 1 to 1.5 mg/kg daily for 1 month
Taper	NA	After 2 weeks begin 600 mg QID At 4 weeks begin 400 mg QID	Taper over 3 months; for recurrent symptoms during taper, return to prior dose for 2-3 weeks and thereafter taper
Maintenance	Body weight <70 kg: 0.6 mg/d Body weight ≥70 kg: 0.6 mg twice daily	400 mg QID	Add aspirin, NSAID, or azathioprine near end of taper and continue this agent for additional 3 months
Duration	6 months	3 months	≥4 months

Differentiation of Constrictive Pericarditis from Restrictive Cardiomyopathy

Finding	Constrictive	Restrictive
Electrocardiography		
Presence of left or right bundle branch block	Not supportive	Supportive
Presence of left or right ventricular hypertrophy	Not supportive	Supportive
Chest Radiography		
Pericardial calcification	May be present	Absent
Echocardiography		
Presence of left ventricular hypertrophy	Absent	Present
Accentuated drop in peak left ventricular filling during inspiration	Present	Absent
Reduced tissue Doppler velocities	Absent	Present
To-and-fro diastolic motion of ventricular septum	Present	Absent
MRI/CT		
Increased pericardial thickness	Present in 80%	Absent
Hemodynamic Right and Left Heart Catheterization		
Elevated and equalized diastolic left and right ventricular pressures (within 5 mm Hg)	Present	Absent
Left and right ventricular systolic pressure changes with respiratory cycle	Discordant	Concordant