

Introduction

The etiologies of all pericardial diseases are the same. We could memorize 50+ causes of pericardial disease, but it's better to simply learn categories and keep a reference nearby to obtain the specifics. **Infections**, **autoimmune diseases**, **trauma**, and **proximate cancers** (lung, breast, esophagus, and mediastinum) cause pericardial disease. If **acute**, they cause an **inflammatory condition** (pericarditis). If they happen to **make fluid** they cause an **effusion**, or in its worst form, **tamponade**. If **chronic**, the inflammatory condition can be around long enough to cause **fibrosis**, which leads to **constrictive pericarditis**. Focus on identification and treatment rather than etiology.

1) Pericarditis

Pericarditis is an inflammatory disease with an inflammatory treatment. It presents as **pleuritic** and **positional** (better when leaning forward) chest pain that will have a **multiphasic friction rub**. Caused by an inflammation of the sac around the heart, every heart beat causes irritation, producing constant pain. An **ECG** will show **diffuse ST segment elevation** (caution MI), but what is pathognomonic is **PR segment Depression**. An Echo will show an effusion but not the inflammation.... Echo is the wrong answer. Theoretically, MRI is the best radiographic test, but is often not needed. The treatment is **NSAIDs + Colchicine**. There may be times where either NSAIDs or Colchicine can't be used; in that case monotherapy is used. Steroids are used in refractory cases, but associated with recurrence; they're usually the **wrong answer**.

2) Pericardial Effusion / Tamponade

When fluid accumulates in the pericardial space there's **pericardial effusion**. If that effusion is slowly developing or small in size, it may just be an incidental finding on echo. If it progresses quickly or gets large, there may be symptoms. These symptoms will be those of CHF: dyspnea on exertion, orthopnea, and PND. Diagnose the effusion with an **echocardiogram**. Pericardial effusions are secondary to an underlying cause. **Treat the effusion by treating the cause**. Most often an effusion develops in the setting of pericarditis; treating the pericarditis treats it. But if the effusion is large, refractory, or recurrent a **pericardial window** (literally a hole in the pericardium) can be made so that the fluid drains into the chest rather than into the pericardial space.

If the effusion is **rapid** (or there's ventricular hemorrhage) the pericardium fills without time to compensate. This produces **tamponade**. Beck's triad (**JVD**, **Hypotension**, **Distant Heart Sounds**), clear lungs, and **pulsus paradoxus** >10mmHg make the clinical diagnosis. **Do EMERGENT pericardiocentesis**. An echo facilitates the diagnosis but is neither necessary nor sufficient.

3) Constrictive Pericarditis

If an inflammatory process is left untreated long enough, **fibrosis** will set in. The loose membrane of the pericardium becomes **fixed and rigid**. It causes no trouble with contractility, but the heart relaxes into a **rigid box**, limiting filling. As the heart expands into too-small-a-space, it strikes the walls of the box and causes a pericardial **knock**. Diagnosis is made with an **echocardiogram**. Treat by removing the rigid pericardium with a **pericardiectomy**.

Etiology Categories

Infections	Viral (coxsackie) Bacterial (Strep/Staph) TB Fungus
Autoimmune	Lupus, Rheumatoid, Scleroderma Procainamide, Hydralazine, Uremia
Trauma	Blunt, Penetrating
Cancers	Lung, Breast, Esophagus, Lymphoma
Others	Many...

Disease	Treatment
Pericarditis	NSAIDs + Colchicine
Pericardial effusion	Pericarditis
Recurrent Effusion	Pericardial Window
Tamponade	Pericardiocentesis
Constrictive Pericarditis	Pericardiectomy

