

## Definition

### ► Etiology

Variety of causes: Infectious • Autoimmune • Metabolic • Toxic • Neoplastic • Traumatic • Idiopathic • Idiopathic and infectious causes are responsible for approximately 80% of cases.

### ► Pathophysiology, pathogenesis

Pericardial thickening and fibrous exudation during the acute phase (audible “pericardial rub,” pericarditis sicca) • Often accompanied by pericardial effusion (exudative pericarditis) • Myocardial involvement may occur (perimyocarditis) • Over time, pericarditis may lead to fibrous adhesion of the pericardial layers with regional constriction of the heart • Late sequelae may include calcifications (constrictive pericarditis).

## Imaging Signs

### ► Modality of choice

Echocardiography • MRI provides the highest sensitivity in equivocal cases.

### ► Chest radiograph and CT findings

Often normal findings • May show signs of pericardial effusion • Pulmonary infiltrates and lymphomas in the setting of infection • CT may demonstrate pericardial thickening.

### ► Echocardiographic findings

Pericardial effusion • Diastolic dysfunction due to constriction • Limited ability to evaluate pericardial morphology.

### ► MRI findings

Same as Echocardiographic findings • Better visualization of the pericardium • Pericardial thickening and effusion • Contrast-enhanced imaging in acute inflammation (fat-saturated dark-blood T1-weighted TSE or IR GE sequence).

### ► Invasive testing

May be appropriate in selected cases to exclude an acute coronary syndrome (see also Postinfarction Pericarditis and Dressler Syndrome).

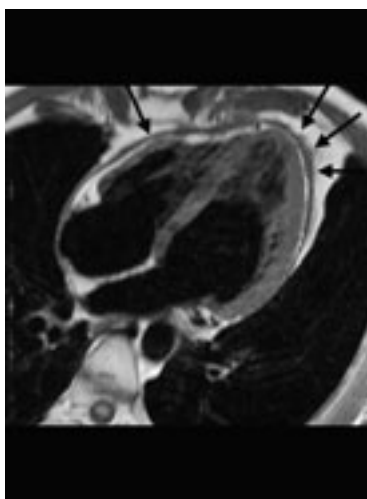
## Clinical Aspects

### ► Typical presentation

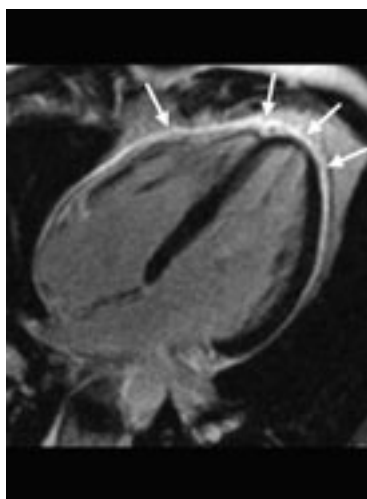
Systemic inflammatory signs (fever, cough) • Retrosternal chest pain that improves on sitting up and leaning forward • ECG changes in 90% of patients • May take an asymptomatic course (e.g., in collagen diseases or uremia).

### ► Treatment options

Steroidal and nonsteroidal anti-inflammatory agents • Aspirin • Antibiotics • Pericardial drainage for hemodynamically significant effusion or pericardial tamponade.

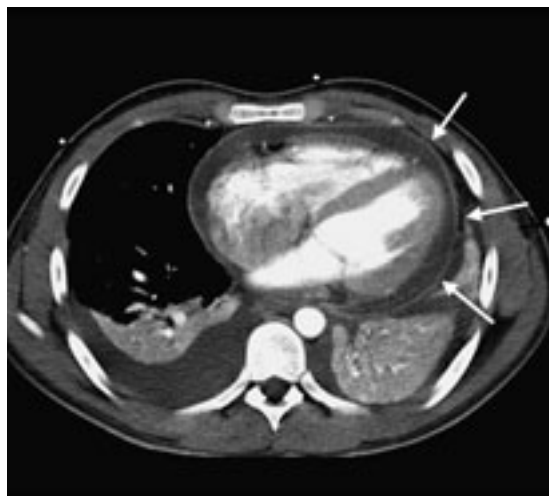


**Fig. 5.3** Acute pericarditis in a 37-year-old man. T1-weighted dark-blood TSE sequence in the four-chamber plane shows marked thickening and ill-defined margins of the pericardium (arrows). There is no pericardial effusion!



**Fig. 5.4** Contrast-enhanced IR GE sequence 15 min after administration of 0.2 mmol gadolinium-DTPA/kg. Four-chamber view shows marked enhancement of the pericardium (arrows).

**Fig. 5.5** Severe pericarditis secondary to a tonsillar abscess in a 20-year-old woman. Post-contrast CT shows pericardial effusion, marked pericardial enhancement (arrows), pleural effusions, and bilateral basal dystelectasis due to acute heart failure.



► **Course and prognosis**

Usually has a good prognosis • Recurrent pericarditis in 10–15% of cases • Pericardial tamponade with acute heart failure is a rare but life-threatening complication.

► **What does the clinician want to know?**

Pericardial effusion and thickening • Inflammatory pericardial changes (MRI) • Impairment of cardiac function.

### **Differential Diagnosis**

<i>Cardiac causes</i>	<ul style="list-style-type: none"> <li>– Acute coronary syndrome</li> <li>– Myocardial infarction</li> <li>– Myocarditis</li> </ul>
<i>Extracardiac causes</i>	<ul style="list-style-type: none"> <li>– Aortic dissection</li> <li>– Pulmonary embolism</li> <li>– Thoracic trauma</li> </ul>
<i>Chronic stage</i>	<ul style="list-style-type: none"> <li>– Constrictive pericarditis</li> <li>– RCM</li> </ul>

### **Tips and Pitfalls**

Consider pericarditis in the DD of acute chest pain in patients who have a possibly corresponding history. The diagnosis should be established early by the clinical and laboratory findings and ECG. The initial workup should include echocardiography (pericardial effusion).

### **Selected References**

- Oyama N et al. Computed tomography and magnetic resonance imaging of the pericardium: anatomy and pathology. *Magn Reson Med Sci.* 2004; 3: 145–152
- Taylor AM, Dymarkowski S, Verbeke EK, Bogaert J. Detection of pericardial inflammation with late-enhancement cardiac magnetic resonance imaging: initial results. *Eur Radiol.* 2006; 16: 569–574