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## **DIAGNOSTIC TESTS OF CHRONIC CONSTRICTIVE PERICARDITIS**

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### **Annotation**

Chronic pericarditis is inflammation of the pericardium (the flexible 2-layered sac that envelops the heart) that begins gradually, is long-lasting, and results in fluid accumulation in the pericardial space or thickening of the pericardium. Sharp pain in your chest and back of the shoulders that feel better when you sit up and lean forward, and chest pain with breathing are two major clues that you may have pericarditis and not a heart attack.

**Keywords:** weakness, fatigue, CT, MRT.

Weakness, fatigue, weight gain, increased abdominal girth, abdominal discomfort, a protuberant abdomen, and edema are common. The patient often appears chronically ill, and in advanced cases there are anasarca, skeletal muscle wasting, and cachexia. Exertional dyspnea is common, and orthopnea may occur, although it is usually not severe. Acute left ventricular failure (acute pulmonary edema) is very uncommon. The cervical veins are distended and may remain so even after intensive diuretic treatment, and venous pressure may fail to decline during inspiration (Kussmaul's sign). The latter is frequent in chronic pericarditis but may also occur in tricuspid stenosis, right ventricular infarction, and restrictive cardiomyopathy. The pulse pressure is normal or reduced. In about one-third of cases, a paradoxical pulse can be detected. Congestive hepatomegaly is pronounced and may impair hepatic function and cause jaundice; ascites is common and is usually more prominent than dependent edema. The apical pulse is reduced and may retract in systole (Broadbent's sign). The heart sounds may be distant; an early third heart sound, i.e., a pericardial knock, occurring 0.09–0.12 s after aortic valve closure at the cardiac apex, is often conspicuous; it occurs with the abrupt cessation of ventricular filling. A systolic murmur of tricuspid regurgitation may be present. The ECG frequently displays low



voltage of the QRS complexes and diffuse flattening or inversion of the T waves. Atrial fibrillation is present in about one-third of patients. The chest roentgenogram shows a normal or slightly enlarged heart; pericardial calcification is most common in tuberculous pericarditis. Inasmuch as the usual physical signs of cardiac disease (murmurs, cardiac enlargement) may be inconspicuous or absent in chronic constrictive pericarditis, hepatic enlargement and dysfunction associated with jaundice and intractable ascites may lead to a mistaken diagnosis of hepatic cirrhosis. This error can be avoided if the neck veins are inspected carefully in patients with ascites and hepatomegaly. Given a clinical picture resembling hepatic cirrhosis, but with the added feature of distended neck veins, careful search for thickening of the pericardium by CT or MRI should be carried out and may disclose this curable or remediable form of heart disease. The two-dimensional transthoracic echocardiogram typically shows pericardial thickening, dilatation of the inferior vena cava and hepatic veins, and a sharp halt in ventricular filling in early diastole, with normal ventricular systolic function and flattening of the left ventricular posterior wall. Atrial enlargement may be seen, especially in patients with long-standing constrictive physiology. There is a distinctive pattern of transvalvular flow velocity on Doppler flow-velocity echocardiography. During inspiration there is an exaggerated reduction in blood flow velocity in the pulmonary veins and across the mitral valve and a leftward shift of the ventricular septum; the opposite occurs during expiration. Diastolic flow velocity in the vena cava into the right atrium and across the tricuspid valve increases in an exaggerated manner during inspiration and declines during expiration. However, echocardiography cannot definitively exclude the diagnosis of constrictive pericarditis. MRI and CT scanning are more accurate than echocardiography in establishing or excluding the presence of a thickened pericardium. Pericardial thickening and even pericardial calcification, however, are not synonymous with constrictive pericarditis since they may occur with constrictive pericarditis since they may occur without seriously impairing ventricular filling. All in all, doctors use a variety of ways to check for pericarditis and any complications, such as pericardial effusion or constrictive pericarditis. You may need one or more tests, such as: Chest X-ray to see the size of your heart and any fluid in your lungs. Echocardiogram (echo) to see how well your heart is working



and check for fluid (a pericardial effusion) around your heart. An echo will show the classic signs of constrictive pericarditis, including a stiff or thick pericardium that constricts your heart's normal movement. Cardiac MRI to check for extra fluid in your pericardium, pericardial inflammation or thickening, or compression of your heart. Your provider will give you a contrast agent called gadolinium during this highly specialized test. CT scan to look for calcium in the pericardium, fluid, inflammation, tumors and disease of the areas around your heart. Your provider uses iodine dye during the test to get more information about the inflammation. This is an important test for patients who may need surgery for constrictive pericarditis.

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