CHEST

A 47-Year-Old Man With Recurrent Unilateral Pleural Effusion

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CASE PRESENTATION: A 47-year-old man with a medical history of hypertension, diabetes, hyperlipidemia, and OSA presented with a 7- to 10-day history of progressively worsening dyspnea on exertion, with a walking distance of 60 feet. He had bilateral lower-extremity swelling and was prescribed furosemide without clinical improvement. At baseline, he used three pillows for sleeping. The patient was noncompliant with his CPAP treatment. He had no smoking history and was retired from working in technology sales. On review of systems, he denied cough, chest pain, hemoptysis, fevers, chills, or weight loss.

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Physical Examination Findings

Examination revealed an obese man in no acute distress. Vital signs included a heart rate of 104 beats/min, BP of 128/92, temperature of 97.4°F, and oxygen saturation of 96% on room air. The chest physical examination was notable for decreased breath sounds over the lower three-quarters of the left lung, with associated tactile fremitus. The cardiac examination showed regular rhythm with no murmurs, rubs, or gallops on auscultation, and no jugular venous distention was appreciated, but the patient's large neck precluded proper assessment of jugular venous distension. Examination of the extremities revealed 2+ pitting edema of the lower extremities bilaterally. The rest of the physical examination was unremarkable.

Diagnostic Studies

A suboptimal (due to an obese habitus) echocardiogram was performed and revealed an enlarged right ventricle with right ventricular hypertrophy, concentric left ventricular hypertrophy with a normal ejection fraction, a large left pleural effusion, and no evidence of pericardial disease. Due to an absence of tricuspid regurgitation, an estimate of pulmonary artery systolic pressure was incalculable. A chest radiograph confirmed a large left pleural effusion, and thoracentesis revealed an exudative effusion with negative cytologic features (Fig 1). Furthermore, a CT scan of the thorax demonstrated a small pericardial effusion in addition to the left-sided pleural effusion.

Due to rapid reaccumulation of pleural effusion, the patient underwent two additional thoracenteses, and a chest tube was placed. A video-assisted thoracoscopic pleural biopsy procedure demonstrated chronic pleuritis with fibrosis and calcification. Given that there was evidence of an enlarged right ventricle and left ventricular hypertrophy in combination with peripheral edema, cardiac catheterization was performed to further assess his hemodynamic status (Fig 2). This revealed a dip and plateau of right ventricular pressures, equalization of ventricular diastolic pressures, and ventricular discordance. Cardiac MRI showed impaired diastolic filling, an enlarged thickened pericardium, and marked smooth delayed pericardial enhancement.

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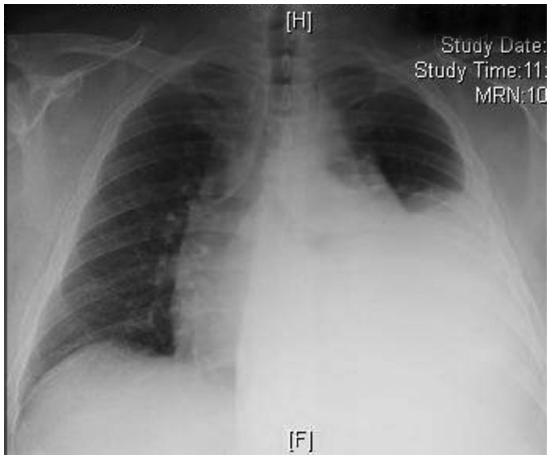

Figure 1 – *Chest radiograph showing large left-sided pleural effusion.*

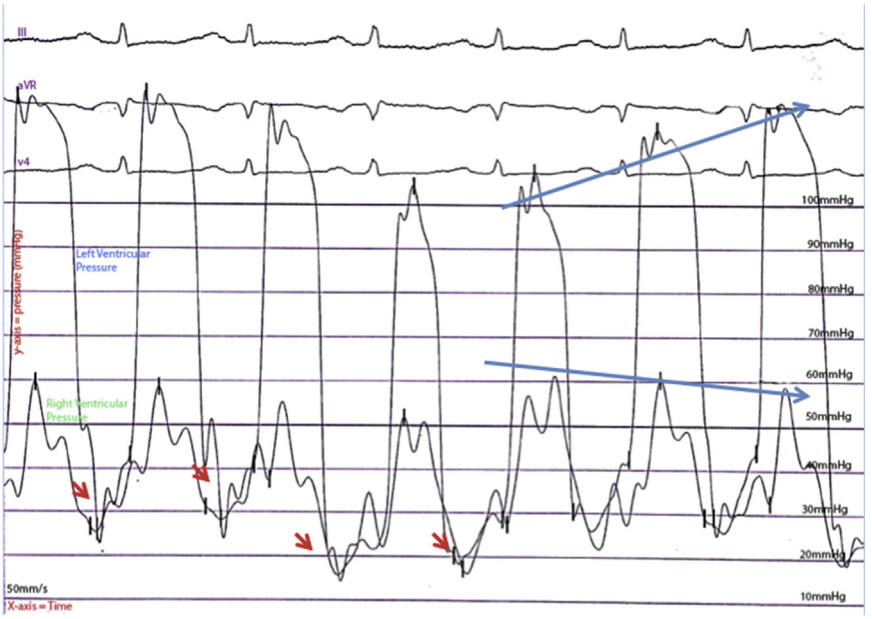

Figure 2 – *Heart catheterization pressure tracings. Left and right ventricular pressure tracings demonstrating discordance as indicated by the diverging long arrows. The short arrows indicate the classic dip and plateau or "square root" sign in constrictive pericarditis. The figure also shows equalization of the left and right ventricular diastolic pressures, where the two pressure tracings align near the bottom of the graph.*

What is the likely diagnosis?