A 64-year-old man with rheumatoid arthritis presented with progressive abdominal and leg swelling, anorexia, and dyspnea for several years. Physical examination was notable for a pericardial knock, pulsatile hepatomegaly, and lower extremity edema. The jugular vein was distended past the angle of the jaw and did not decrease with inspiration (Kussmaul’s sign). Transthoracic echocardiography demonstrated normal left ventricular function, a thickened pericardium, and a large pericardial effusion. Computed tomography showed the pericardium to measure 8 mm (normal, <3 mm).

To clarify a diagnosis of symptomatic pericardial effusion versus constrictive pericarditis, the patient was referred for left and right heart catheterization and pericardiocentesis.

Left and right ventricular pressures were transduced simultaneously with right atrial pressure (RAP) at baseline; interventricular dependence of left and right ventricular filling was noted (Figure 1A, arrowheads, scales optimized), along with a dip-and-plateau pattern of ventricular filling. RAP was severely elevated and failed to decrease with inspiration (Figure 1B, asterisk). The preserved y descent in RAP was not consistent with tamponade. Intrapericardial pressure was measured with RAP at baseline (Figure 1C) and after complete drainage of pericardial fluid (Figure 1D). RAP was dissociated from intrapericardial pressure, remaining elevated at 25 mm Hg despite normalization of intrapericardial pressure to 0 mm Hg. The typical, exaggerated y descent of pericardial constriction was more apparent following pericardiocentesis as the holodiastolic 4-chamber impediment to filling associated with tamponade was eliminated, leaving only the limitation to filling in mid- and end-diastole characteristic of constrictive pericarditis. Thus, the findings demonstrated that the patient’s elevated filling pressures were related to constrictive pericarditis. Despite adjustment of the patient’s immunosuppressive regimen, severe congestive symptoms persisted. The patient underwent successful pericardectomy, at which time the diagnosis was confirmed. Pericardial involvement is noted in 50% of patients with rheumatoid arthritis, though ≥90% are asymptomatic (1).

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**FIGURE 1** Hemodynamic Findings in Effusive-Constrictive Pericarditis

(A) Simultaneous left ventricular and right ventricular pressure tracings show ventricular interdependence and dip-and-plateau filling pattern during diastole. (B) Right atrial pressure (RAP) rises with inspiration, demonstrating Kussmaul’s sign; prominent y descents are noted. (C) Prior to pericardiocentesis, intrapericardial (IP) pressure and RAP are superimposed. (D) Following pericardiocentesis, IP pressure is normalized, but remains unchanged in the right atrium, demonstrating the visceral pericardial contribution to constriction.


**KEY WORDS** cardiorheumatology, constrictive pericarditis, effusive-constrictive pericarditis, right heart catheterization