Massive bloody pericardial effusion as an initial manifestation of chronic kidney disease

Poorya Fazel, MD, Ravi C. Vallabhan, MD, and William C. Roberts, MD

We describe a 35-year-old man with a massive bloody pericardial effusion, which was his initial manifestation of chronic kidney disease. Pericardiocentesis and hemodialysis restored cardiac function and relieved the associated massive anasarca.

A 35-year-old Latin American immigrant man, a known alcohol, cocaine, and tobacco abuser, presented with a 2-week history of progressive dyspnea, dark stools, and epigastric discomfort. He was anasarcous and oliguric. On precordial examination, the cardiac sounds were faint and no murmurs were noted. There was evidence of a large quantity of fluid in the abdominal, pericardial, and pleural cavities. Chest radiograph confirmed the large pleural effusions and the enlarged cardiac silhouette (*Figure 1*). Electrocardiogram showed low voltage and an ectopic atrial tachycardia (*Figure 2*). An echocardiogram confirmed the massive pericardial effusion (*Figure 3*). Results of pertinent laboratory values are shown in the *Table*. Pericardiocentesis yielded 1300 mL of bloody fluid having a hematocrit of 11%. Cultures for bacteria, fungi, and acid-fast organisms were negative. No neoplastic cells were identified by cytology examina-

Figure 1. Chest radiograph revealing a large pleural effusion and a large “cardiac” silhouette.

Table. Laboratory values

Variable	Hospital day		
	1	5	10
Blood hematocrit (%)	20	26.6	30.4
Aspartate aminotransferase (U/L)	156	41	21
Alanine aminotransferase (U/L)	245	152	33
Sodium (mEq/L)	129	139	137
Potassium (mEq/L)	5.6	3.6	4.6
Chloride (mEq/L)	86	106	101
Bicarbonate (mEq/L)	15	24	27
Blood urea nitrogen (mg/dL)	229	51	42
Creatinine (mg/dL)	25.8	7.5	6.6
Anion gap (mEq/dL)	28	9	9
Body weight (kg)	82.1	74.3	71.2

tion. Another 525 mL was drained from the pericardial sac over the next 48 hours. Renal sonogram confirmed small echogenic kidneys with kidney length equal to 6.3 cm and 6.8 cm (normal 10–12 cm), respectively. This finding was consistent with chronic kidney disease. The patient received hemodialysis, and repeat echocardiogram afterwards showed only a small residual pericardial effusion (*Figure 3c, 3d*). He was discharged in stable condition to return to Mexico and establish outpatient care.

Pericardial effusion is a known clinical manifestation of chronic kidney disease. With the advent of advanced renal replacement therapy, the incidence of hemodynamically significant effusions has decreased (1–3). The above described patient presented with symptoms related to a massive pericardial effusion (with pretamponade) as the initial indication of chronic renal failure. The presentation of an effusion as the initial indication of underlying undiagnosed chronic kidney disease is unique. By volume, his pericardial effusion is one of the largest reported and probably the largest of recent memory at Baylor University Medical Center at Dallas.

From the Division of Cardiology, Department of Internal Medicine, Baylor University Medical Center at Dallas and the Baylor Heart and Vascular Institute.

Corresponding author: Poorya Fazel, MD, Division of Cardiology, Department of Internal Medicine, Baylor University Medical Center at Dallas, 3500 Gaston Avenue, Dallas, TX 75246 (e-mail: poorya.fazel@gmail.com).

Figure 2. Electrocardiogram demonstrating low voltage and an ectopic atrial tachycardia with a nonspecific intraventricular conduction delay.

Figure 3. Echocardiographic images demonstrating a large pericardial effusion (asterisk) in (a) a parasternal short-axis view and (b) an apical four-chamber view. (c and d) Confirmation of small residual pericardial effusion immediately after pericardiocentesis (arrow) in the same echocardiographic views.

1. Alpert MA, Ravenscraft MD. Pericardial involvement in end-stage renal disease. *Am J Med Sci* 2003;325(4):228–236.
2. Colombo A, Olson HG, Egan J, Gardin JM. Etiology and prognostic implications of a large pericardial effusion in men. *Clin Cardiol*

1988;11(6):389–394.

3. Kabukcu M, Demircioglu F, Yanik E, Basarici I, Ersel F. Pericardial tamponade and large pericardial effusions: causal factors and efficacy of percutaneous catheter drainage in 50 patients. *Tex Heart Inst J* 2004;31(4):398–403.