

Uremic Pericarditis

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KEY WORDS: renal failure, dialysis-associated pericarditis, uremic pericarditis, tamponade

IMAJ 2011; 13: 256–257

A 31 year old man who developed end-stage renal disease as a result of medullary cystic kidney disease was admitted to our department due to recurrent pleuritic chest pain. He was put on hemodialysis several weeks prior to this admission; however, due to poor compliance his dialysis sessions were short and insufficient. On admission he had subfebrile temperature (37.7°C); his pain was worse with deep inspiration and in the recumbent position. His physical examination was normal and no peri-

cardial rub sounds were detected, nor was there evidence of right heart failure. However, a pulsus paradoxus of 16 mmHg was recorded. An erythrocyte sedimentation rate of 50 mm/minute was also noted.

Chest X-ray demonstrated an enlarged heart silhouette, and a complementary echocardiography showed a large pericardial effusion with signs of hemodynamic impairment manifesting as a tamponade with systolic right atrial collapse [Figure 1]. A computed tomography scan of the chest was performed and was consistent with the echo findings of an enlarged and thick pericardium [Figure 2].

Pericardial drainage was performed ("pericardial window") initially draining 950 ml of serosanguineous fluid. Pathological examination of the pericardium revealed fibrinous pericarditis.

COMMENT

Renal failure is a common cause of pericardial disease, including pericarditis and pericardial effusions. The clinical and laboratory manifestations of acute pericarditis, pericardial effusion, cardiac tamponade, and constrictive pericarditis in patients with chronic renal failure are similar to those observed in non-uremic patients with similar pericardial involvement, except that chest pain occurs less frequently in those with end-stage renal disease [1]. In renal failure patients, two forms of pericarditis have been described: The first is uremic pericarditis, observed in 6–10% of patients with advanced renal failure (acute or chronic) before dialysis is instituted or shortly thereafter [2]. Although the pathogenesis of uremic pericarditis is poorly understood, a



Figure 1. An apical four-chamber echocardiographic view of the heart. A large pericardial effusion surrounding the heart (arrows) is demonstrated. The pericardium is slightly thickened (broken arrow) and the free right atrial (RA) wall is collapsed during systole.



Figure 2. CT scan with contrast material injection, lower chest level axial slice. A large bilateral pericardial pleural fluid collection is demonstrated (arrows).

correlation with the degree of azotemia has been reported. Excluding the case of systemic immune disorders (such as systemic lupus erythematosus or scleroderma), there is no relationship with the underlying cause of renal failure. The second type is dialysis-associated pericarditis, which occurs in approximately 13% of patients on maintenance hemodialysis and may occasionally be seen with chronic peritoneal dialysis [3]. Two factors may contribute to this problem: inadequate dialysis and fluid overload [1-4].

Imaging techniques such as computed tomography and cardiovascular magnetic resonance are not necessary if two-dimen-

sional Doppler echocardiography is available and informative. However, pericardial effusion is often associated with cardiac tamponade, distension of the venae cavae and hepatic veins, and deformity and compression of the cardiac chambers. CT and cardiovascular magnetic resonance imaging are indicated when hemorrhagic effusion or pericardial thickening is suspected or when findings at echocardiography are inconclusive [2-5].

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