

Clinical Case Studies in Renal Transplantation

The case studies below are referred to in the articles “Pulmonary Hypertension in Patients with Chronic Kidney Disease: Noninvasive Strategies for Patient Phenotyping and Risk Assessment” by Amresh Raina, MD, and “Hemodynamic Evaluation of Pulmonary Hypertension in Chronic Kidney Disease” by Ryan Tedford, MD, and Paul Forfia, MD, on the following pages.

Clinical Case 1

A 69-year-old man presents for preoperative evaluation prior to consideration of renal transplantation. He has a long-standing history of systemic hypertension, type 2 diabetes mellitus, obesity, and obstructive sleep apnea. He developed end-stage renal disease as a result of diabetic nephropathy and has been on hemodialysis via right subclavian tunneled catheter for the last 3 years.

Over the past few months, the patient reports worsening dyspnea with mild to

moderate exertion and multiple episodes of paroxysmal nocturnal dyspnea over the past 6 months. He has also developed 2 pillow orthopnea and bilateral lower extremity. He denies chest discomfort, angina, palpitations, syncope, or presyncope. He has bilateral pleural effusions noted on chest x-ray.

Ventilation-perfusion scan is low probability for pulmonary embolism. Lower extremity Doppler studies are negative for deep venous thrombosis.

Chest CT reveals no evidence of emphysema or interstitial lung disease, but does reveal a large right pleural effusion.

A screening pretransplant transthoracic echocardiogram showed normal left and right ventricular size and systolic function, with estimated pulmonary artery pressure of 60 mm Hg. He is therefore referred for further evaluation of his pulmonary hypertension in consideration of transplant.

Clinical Case 2

A 74-year-old man presents for evaluation of dyspnea. He has a long-standing history of systemic hypertension and hypertensive nephropathy. He had required hemodialysis 3 times weekly via a right upper extremity arteriovenous (AV) fistula for several years, and ultimately underwent successful cadaveric renal transplantation 3 years ago. His right heart catheterization just prior to renal transplant revealed a right atrial pressure of 2 mm Hg, mean pulmonary arterial pressure of 35 mm Hg, pul-

monary capillary wedge pressure of 11 mm Hg, and an elevated cardiac output of 8.8 L/min (cardiac index 4.3 L/min/m²). His AV fistula was not taken down post-transplant.

He initially did well after transplant but presented to the pulmonary hypertension clinic after a progressive decline in exercise tolerance over the past 6 months, now limited even when walking short distances. To date, evaluation for ischemic disease has been negative, a

ventilation/perfusion scan was low probability for pulmonary embolism, and a CT scan of the chest showed enlargement of the pulmonary arteries but no evidence of parenchymal lung disease.

A transthoracic echocardiogram is performed, which reveals normal left ventricular and right ventricular (RV) systolic function with significant RV dilatation and estimated pulmonary artery systolic pressure of 80 mm Hg.

Clinical Case 3

A 47-year-old man with long-standing type 1 diabetes mellitus, systemic hypertension, and chronic kidney disease related to diabetic nephropathy underwent combined renal and pancreatic transplant 13 years ago. Subsequently, he had renal allograft failure leading to dialysis for 10 years via an arteriovenous (AV) fistula. Three years ago, he received another successful renal transplant and is now being con-

sidered for a repeat renal transplant. His AV fistula remains functional.

On interview he reports mild lower extremity edema, which has been chronic, and mild dyspnea with moderate activity. He denies orthopnea or paroxysmal nocturnal dyspnea. A ventilation perfusion scan shows no evidence of pulmonary embolism. A CT scan of the chest shows dilated central pulmonary arteries consistent with pulmonary hypertension (PH), but no

evidence of parenchymal lung disease. Pulmonary function tests showed a mildly reduced diffusion lung capacity for carbon monoxide.

However, on a screening pretransplant echocardiogram, he was noted to have a dilated right ventricle with RV dysfunction, with an estimated pulmonary artery systolic pressure of 105 mm Hg. He is therefore referred for further evaluation of his PH.