A 43-year-old man was admitted with progressive fatigue, shortness of breath, and orthopnea. He received an orthotopic heart transplant 13 years ago, which was complicated by multiple episodes of rejection. His last catheterization 2 years before presentation demonstrated moderate transplant vasculopathy. More recently, a nuclear perfusion scan showed a myocardial scar in the mid to basal anterior and anterolateral walls, but no reversible stress-induced ischemia. On admission, the ECG showed normal sinus rhythm with a rate of 95 beats per minute, complete right bundle-branch block, inferior Q waves, and lateral ST & T wave abnormalities. A transthoracic echocardiogram revealed a left ventricular ejection fraction of 40. A 16-slice multi-detector computed tomographic (MDCT) scan of the heart was performed after the injection of 100 cc nonionic iodinated contrast medium. The examination demonstrated diffusely thickened coronary vessel walls with severe narrowing of the left main trunk, a totally occluded left circumflex artery, and a severely diseased right coronary artery (Figure 1A and 1B). Left heart catheterization demonstrated 80% stenosis of the left main trunk (Figure 2) and confirmed the MDCT findings of severe 3-vessel disease. The patient underwent coronary artery bypass grafting to the left anterior, left circumflex, and right coronary arteries, as well as tricuspid valve repair. At the time of his operation, diffuse thickening of the left coronary artery consistent with transplant vasculopathy was noted. He was discharged from the hospital 6 days after his surgery. This case demonstrates that valuable information can be gained from the evaluation of the coronaries by MDCT, which can not only reveal the presence of severe luminal narrowing, but can also depict the morphology of the vessel walls.
Figure 1. A and B, Multi-detector computed tomographic image (A, multiplanar reconstruction; B, 3-dimensional rendering technique) demonstrating severe stenosis of the lumen and thickening of the wall of the left main trunk as well as an occluded left circumflex artery. During the MDCT examination, the patient’s heart rate ranged from 90 to 108 beats per minute (average 95 beats per minute).

Figure 2. Conventional angiography demonstrating severe stenosis of the left main coronary artery and occlusion of the circumflex artery.
Transplant Vasculopathy: Evaluation With Multi-Detector Computed Tomography
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