A 51-year-old man presented to an outside hospital after a witnessed cardiac arrest. The patient was in ventricular fibrillation and was defibrillated multiple times. ECG revealed anterolateral ST elevations. An intra-aortic balloon pump was placed, and catheterization revealed 100% proximal left anterior descending artery and 99% first obtuse marginal artery occlusion. Bare metal stents were placed in the left anterior descending artery, but the patient remained in cardiogenic shock and was transferred to our institution for a ventricular assist device. He had a short-term CentriMag biventricular assist device (Levitronix, Waltham, MA) placed with stabilization of his hemodynamics. The inflow cannula on the left side was placed in the left atrium and across the mitral valve into the left ventricle. He was maintained on aspirin and a heparin infusion. The patient’s condition improved, and he was evaluated for a long-term ventricular assist device. On the 16th hospital day, hematochezia occurred. Colonoscopy revealed a necrotic ulcer in the cecum thought to be caused by a thromboembolism. A transesophageal echocardiogram revealed the left-sided inflow cannula ensheathed in clot with mobile thrombus (Figures 1 and 2 and Movies I and II in the online-only Data Supplement). There was considerable thrombus along the lateral and apical wall of the left ventricle (Figure 3 and Movie III in the online-only Data Supplement). Thrombectomy was performed emergently, and the cannula was removed and replaced with a cannula at the left ventricular apex. The following day, the

**Figure 1.** Two-dimensional transesophageal echocardiogram with clot on the left-sided inflow cannula of the ventricular assist device in the left atrium. Mobile thrombus is present in the left atrium and on the mitral valve.

**Figure 2.** Three-dimensional transesophageal echocardiogram with clot ensheathing the left-sided inflow cannula of the ventricular assist device in the left atrium. Mobile thrombus is present.

**Figure 3.** Two-dimensional transesophageal echocardiogram with thrombus present at the left ventricular apex and lateral wall.
patient developed mesenteric ischemia and multiorgan dysfunction syndrome and died.

Cardiogenic shock in the setting of an acute myocardial infarction is associated with a 50% mortality rate despite early reperfusion of the infarct-related artery and intra-aortic balloon counterpulsation. In these patients, mechanical circulatory support with a ventricular assist device is necessary to support hemodynamics and end-organ perfusion. Even with adequate anticoagulation, a thrombus can form on the left ventricular assist device apically placed inflow cannula. In this particular case, stasis in the left atrium and left ventricle created by the transatrial cannulation likely led to the extensive thrombus formation.

Disclosures
Dr Naka has received consulting fees from Terumo Heart Inc and Thoratec Co. Dr Jorde has received consulting fees from Thoratec Co and Jarvick Heart Inc. The other authors report no disclosures.

References
Ventricular Assist Device–Associated Thrombus
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