IMAGES AND VIDEOS

Transesophageal echocardiographic guidance of transcatheter closure of the aortic valve in a patient with left ventricular assist device-related severe aortic regurgitation

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Summary

A 68-year-old man with a severe ischemic cardiomyopathy underwent left ventricular assist device (LVAD) implantation (Heart Mate II device) for destination therapy. He presented 49 months after LVAD implantation with worsening heart failure symptoms and new severe aortic regurgitation. Given high risk for both surgical and transcatheter aortic valve replacement, he was admitted for transcatheter closure of the aortic valve under transesophageal echocardiographic (TEE) guidance. TEE imaging revealed severe aortic regurgitation (Fig. 1A and B and Videos 1 and 2). Under TEE and fluoroscopic guidance, a 25mm Amplatzer cribriform atrial septal defect closure device was advanced across the aortic valve (Fig. 1C and D and Videos 3 and 4). Immediately after device deployment, TEE revealed a well-seated device with complete aortic valve closure and trivial aortic regurgitation (Fig. 2A, B, C and D and Videos 5, 6, 7 and 8). Subsequent transthoracic echocardiograms obtained from 74 to 172 days after the procedure revealed no residual aortic regurgitation. The patient awoke with diffuse

Figure 1
(A) Mid-esophageal long-axis image revealing severe aortic regurgitation (white arrow). (B) Mid-esophageal short-axis image demonstrating severe central aortic regurgitation (white arrow). (C) Mid-esophageal long-axis image showing the right atrial disc of the Amplatzer cribriform atrial septal defect closure device in the left ventricle (white arrow). (D) Mid-esophageal long-axis image showing the right atrial disc of the Amplatzer cribriform atrial septal defect closure device in the left ventricle (white arrow), and the left atrial disc in the ascending aorta.
urticaria 244 days after the procedure and died en route to the emergency department, presumably secondary to a systemic allergic reaction. De novo aortic regurgitation is increasingly recognized in patients with LVADs (1). TEE-guided transcatheter aortic valve closure is an option in these high-risk patients (2).

**Video 1**

**Video 2**

**Video 3**

**Video 4**

**Video 5**

**Video 6**

**Video 7**
Declaration of interest
The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of this article.

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Patient consent
This patient is deceased. Written informed consent was received from the patient’s wife.

Video 8

Author contribution statement
Preetham R Muskala: responsible for initial draft of manuscript; Taiyeb M Khumri: named physician of the patient; Michael L Main: oversight of the reported case.

References
