

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

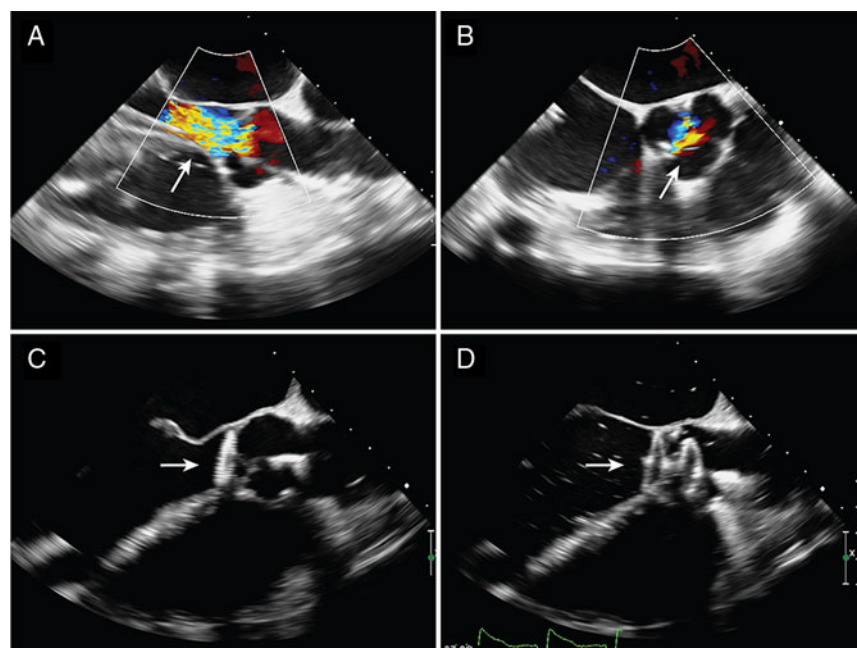


Figure 1

(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.

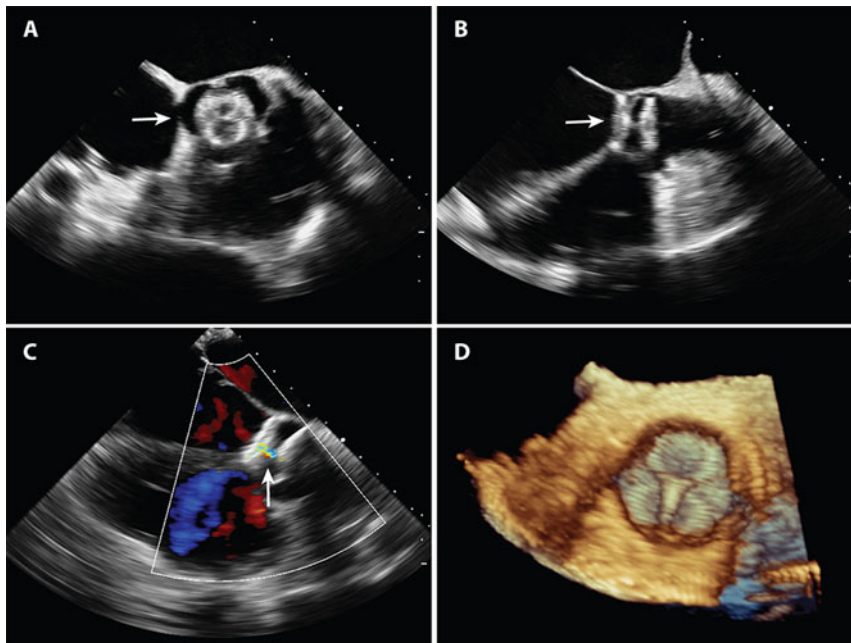


Figure 2

(A) Mid-esophageal short-axis image after device deployment with a closed aortic valve (white arrow). (B) Mid-esophageal long-axis image after device deployment with a closed aortic valve (white arrow). (C) Mid-esophageal long-axis image revealing trivial aortic regurgitation (with minimal flow between the 2 device discs) (white arrow). (D) Three-dimensional en face view (ascending aorta perspective) after device deployment.

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

Mid-esophageal long-axis image revealing severe aortic regurgitation. View Video 1 at <http://movie-usa.glencoesoftware.com/video/10.1530/ERP-17-0003/video-1>.

Video 2

Mid-esophageal short-axis image demonstrating severe central aortic regurgitation. View Video 2 at <http://movie-usa.glencoesoftware.com/video/10.1530/ERP-17-0003/video-2>.

Video 3

Mid-esophageal long-axis image showing the right atrial disc of the Amplatzer cribriform atrial septal defect closure device in the left ventricle. View Video 3 at <http://movie-usa.glencoesoftware.com/video/10.1530/ERP-17-0003/video-3>.

Video 4

Mid-esophageal long-axis image showing the right atrial disc of the Amplatzer cribriform atrial septal defect closure device in the left ventricle, and the left atrial disc in the ascending aorta. View Video 4 at <http://movie-usa.glencoesoftware.com/video/10.1530/ERP-17-0003/video-4>.

Video 5

Mid-esophageal short-axis image after device deployment with a closed aortic valve. View Video 5 at <http://movie-usa.glencoesoftware.com/video/10.1530/ERP-17-0003/video-5>.

Video 6

Mid-esophageal long-axis image after device deployment with a closed aortic valve. View Video 6 at <http://movie-usa.glencoesoftware.com/video/10.1530/ERP-17-0003/video-6>.

Video 7

Mid-esophageal long-axis image revealing trivial aortic regurgitation (with minimal flow between the 2 device discs). View Video 7 at <http://movie-usa.glencoesoftware.com/video/10.1530/ERP-17-0003/video-7>.

Video 8

Three-dimensional en face view (ascending aorta perspective) after device deployment. View Video 8 at <http://movie-usa.glencoesoftware.com/video/10.1530/ERP-17-0003/video-8>.

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.

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

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