

TRICVALVE GETS TRICKY: IATROGENIC ATRIAL SEPTAL DEFECT DUE TO MIGRATION OF BICAVAL PROSTHESIS DEVICE

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Background

Multiple transcatheter devices have been developed to address tricuspid regurgitation (TR) in high-risk patients. TricValve system is one of the emerging therapeutic options for severe TR. We present a case of atrial septal defect caused by migration of the TricValve.

Case Presentation

76-year-old female with history of coronary artery bypass grafting, mechanical aortic valve replacement, patent foramen ovale, persistent atrial fibrillation, cardio-renal syndrome, and symptomatic severe secondary tricuspid regurgitation due to annular dilation underwent bicaval implantation of the TricValve system in 2023. Within 2 months, patient had an acute embolic stroke. TTE at the time did not show any significant changes from baseline. Over the next 4 months, she had progressive dyspnea on exertion, hypoxia, and heart failure hospitalizations despite escalating diuretics. She presented with another acute embolic stroke, which prompted further investigation with a transesophageal echocardiogram (TEE). This showed severe tricuspid regurgitation and the TricValve extending into the right atrium from inferior vena cava and pressing against the interatrial septum, leading to an iatrogenic atrial septal defect (ASD) with fibrinous strands along the ASD border.

Decision-Making

Patient had advanced right heart failure due to severe TR requiring multiple hospitalizations. Not a surgical candidate (TRI-SCORE 22%) and unsuitable anatomy for TEER due to large coaptation gap. Patient underwent compassionate implantation of TricValve. Unfortunately, the IVC valve migrated and eroded into the atrial septum causing recurrent embolic strokes and persistent hypoxia. We decided to proceed with ASD closure using an 18 mm Amplatzer septal occluder device without any significant residual shunting and resolution of hypoxia.

Functional tricuspid regurgitation is common and associated with poor prognosis

Caval valve implantation (CAVI) may be the only transcatheter option for patients with advanced stage of tricuspid regurgitation who are poor candidates for surgical or transcatheter orthotropic repair/replacement

Current clinical evidence for CAVI is very limited

Images



(A) Transesophageal echocardiogram showed migration of the IVC valve into the right atrium and causing atrial septal erosion. (B) Doppler demonstrating flow across the interatrial septum with a Vmax of 1.25 m/s. (C) Transesophageal image showing atrial septal defect ~ 1.4 cm with right-to-left shunting.

Conclusions

We need better comprehension of optimal timing and patient selection to understand the benefits from TR intervention. As the options for percutaneous intervention for TR continue to grow, it is essential to consider associated complications. With bicaval prosthesis device, it is important to note the proximity of inferior vena cava valve to the interatrial septum, which can lead to early or late atrial septal erosion. Percutaneous ASD closure is a reasonable approach to handle this complication. Lastly, our case highlights the need for further research into safety and efficacy of these emerging procedures.

Disclosure Information