



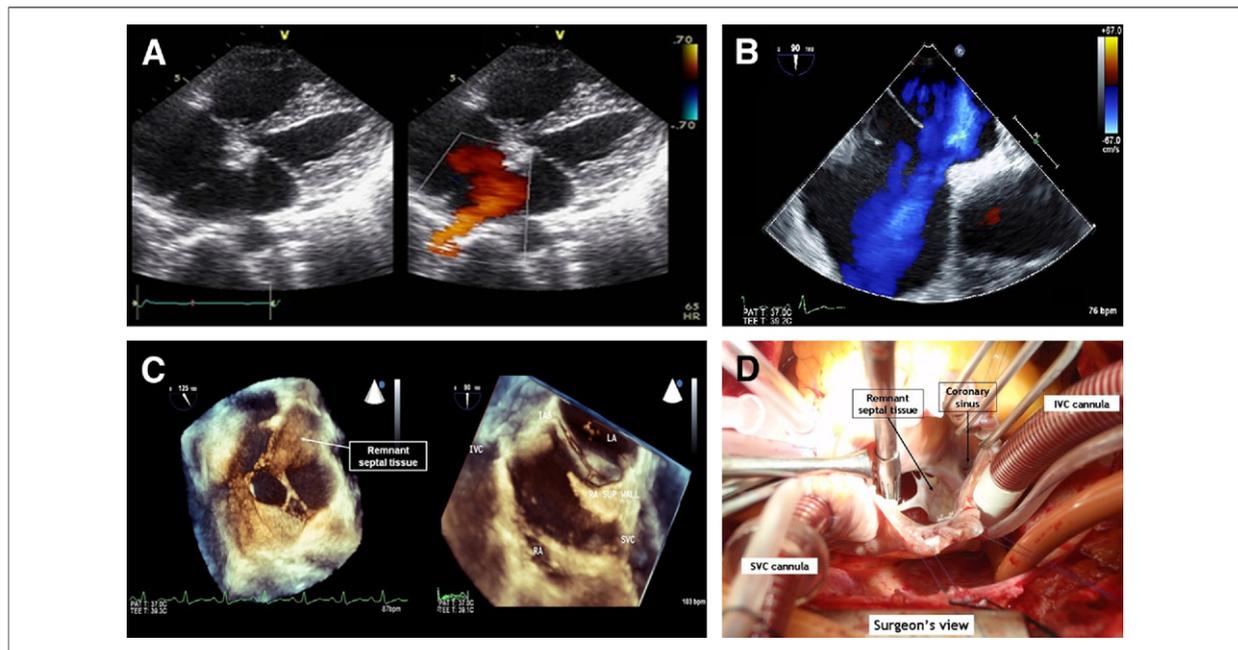
# iMAGE

## LETTERS TO THE EDITOR

### Real-Time 3D TEE for Multiperforated Interatrial Septum

Atrial septal defect (ASD) closures are becoming more common, and imaging is allowing us to better triage the most suitable candidates for this kind of intervention (1). Transesophageal echocardiography

assessment of the complete morphology of the multiple ASD (Fig. 1C, Online Videos 1 and 2). These anatomical features, found only with RT3D TEE, favored surgical repair over a transcatheter approach. Images from the surgical field clearly confirmed the RT3D TEE findings (Fig. 1D). A multiperforated membranous interatrial septum was surgically resected and replaced by a patch of autologous pericardium. Use of RT3D TEE might improve the triage and possible clinical outcomes of ASD closure.



**Figure 1. Multiperforated Interatrial Septum**

A and B show a typical secundum atrial septal defect with left to right shunt through the interatrial septum. C reveals multiple defects separated by the membranous bars of the interatrial septum (Online Videos 1 and 2). D demonstrates a multi-perforated membranous interatrial septum as seen at surgery. IAS = interatrial septum; IVC = inferior vena cava; LA = left atrium; RA = right atrium; RA sup wall = right atrial superior wall; SVC = superior vena cava.

(TEE) has been used traditionally to image the interatrial septum; real-time 3-dimensional (RT3D) TEE is proving to be additive in a number of situations and might also improve our ability to image the interatrial septum prior to interventional procedures (2). Some anatomic defects might cross multiple imaging planes and may not be easily visualized and understood with regular 2-dimensional (2D) TEE. Missing such defects might result in a suboptimal device delivery and outcomes. We present a situation where good quality TEE images failed to reveal the complete anatomy of the interatrial septum that was easily evident using RT3D TEE. The 2D trans-thoracic echocardiographic images in Figure 1 show what was thought to be a typical secundum ASD with left to right shunt through the interatrial septum (Fig. 1A) in a 52-year-old-woman. 3D TEE revealed the complex nature of the septum, thus providing more exact imaging of cardiac structures in real time than with 2D TEE (Fig. 1B). The sizes and shapes of multiple defects separated by the membranous bars of the interatrial septum allowed anatomical

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#### APPENDIX

For supplementary videos, please see the online version of this article.