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Percutaneous Closure of a Residual Left Atrial Appendage Leak After Lariat Procedure

Krishan Soni, MD, MBA, Manoj Kesarwani, MD, Nitish Badhwar, MD, Vaikom S. Mahadevan, MD

A 77-year-old man with long-standing persistent atrial fibrillation, coronary artery disease, and systolic heart failure underwent left atrial appendage (LAA) ligation with a Lariat suture delivery device (SentreHEART, Redwood City, California), and subsequent pulmonary vein isolation. One month after the ligation procedure, transesophageal echocardiogram (TEE) demonstrated a residual communication between the left atrium (LA) and the LAA with low-velocity flow across the defect. The residual LAA measured 1.4 × 1.8 cm, and the diameter of the opening, 0.4 cm (**Figures 1A to 1C**). The patient was referred for percutaneous closure of the residual LAA leak.

An 8.5-F Fast-Path Swartz SL 1 Transseptal introducer sheath (St. Jude Medical, St. Paul, Minnesota) and an NRG RF transseptal needle (Baylis Medical, Montreal, Quebec, Canada) were used to puncture the intra-atrial septum under TEE guidance. A 5-F straight pigtail catheter was advanced through the introducer sheath into the LA, and contrast injection was performed to confirm the position of the residual LAA (**Figure 1D**). A 6-F JR 4 guide catheter was carefully positioned in the LAA over an 0.035-inch angled glidewire. A 6-mm Amplatzer Vascular Plug II (AVP2) (St. Jude Medical) was advanced to the LAA and was positioned successfully with 2 discs deployed in the LAA and 1 disc in the LA. Multiple views on TEE (**Figures 2A to 2C**) and fluoroscopy (**Figure 2D**) demonstrated appropriate device positioning with no significant residual flow across the defect.

LAA exclusion is a promising treatment in the management of atrial fibrillation. However, residual leak after ligation of the LAA limits the effectiveness of this therapy (1,2). Percutaneous placement of an AVP2 device may be an effective and feasible approach for closure of residual leaks after LAA ligation.

REPRINT REQUESTS AND CORRESPONDENCE: Dr. Vaikom S. Mahadevan, University of California, San Francisco, 505 Parnassus Avenue, Room L524, University of California, San Francisco, San Francisco, California 94143. E-mail: Vaikom.mahadevan@ucsf.edu.

From the Division of Cardiology, Department of Medicine, University of California, San Francisco, San Francisco, California. The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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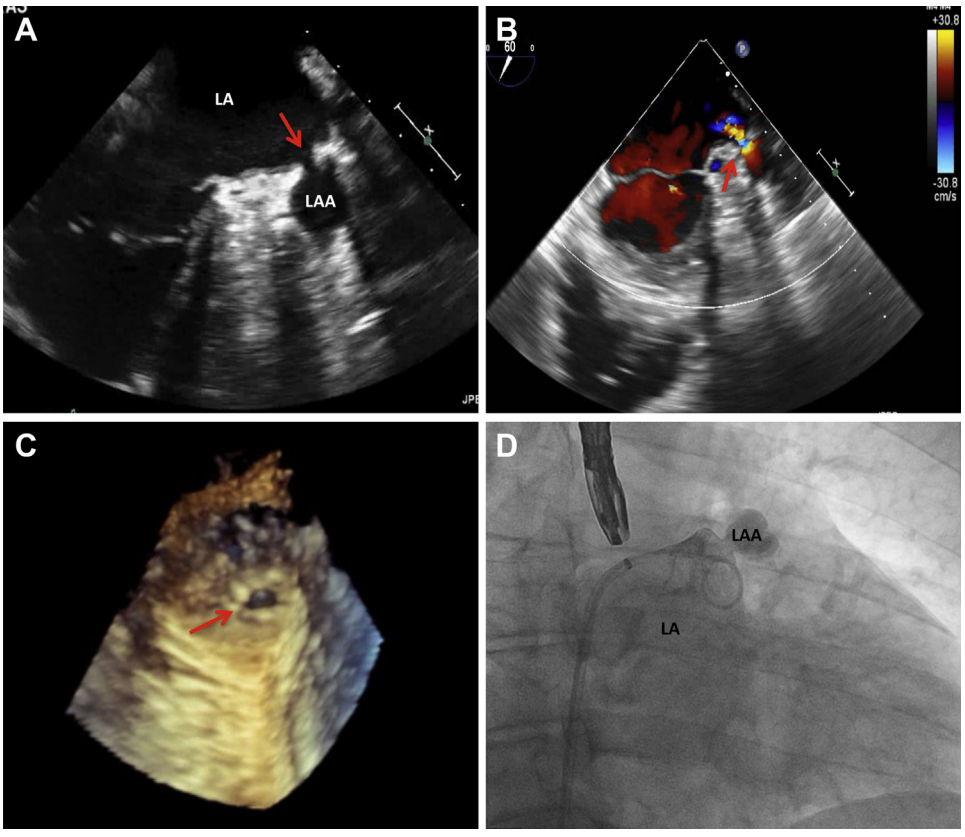
FIGURE 1 Residual Communication Between the LA and LAA by TEE



(A to C) TEE images of residual communication. **(D)** Angio image of residual communication. **Red arrows** show the site of residual leak. LA = left atrium; LAA = left atrial appendage; TEE = transesophageal echocardiography.

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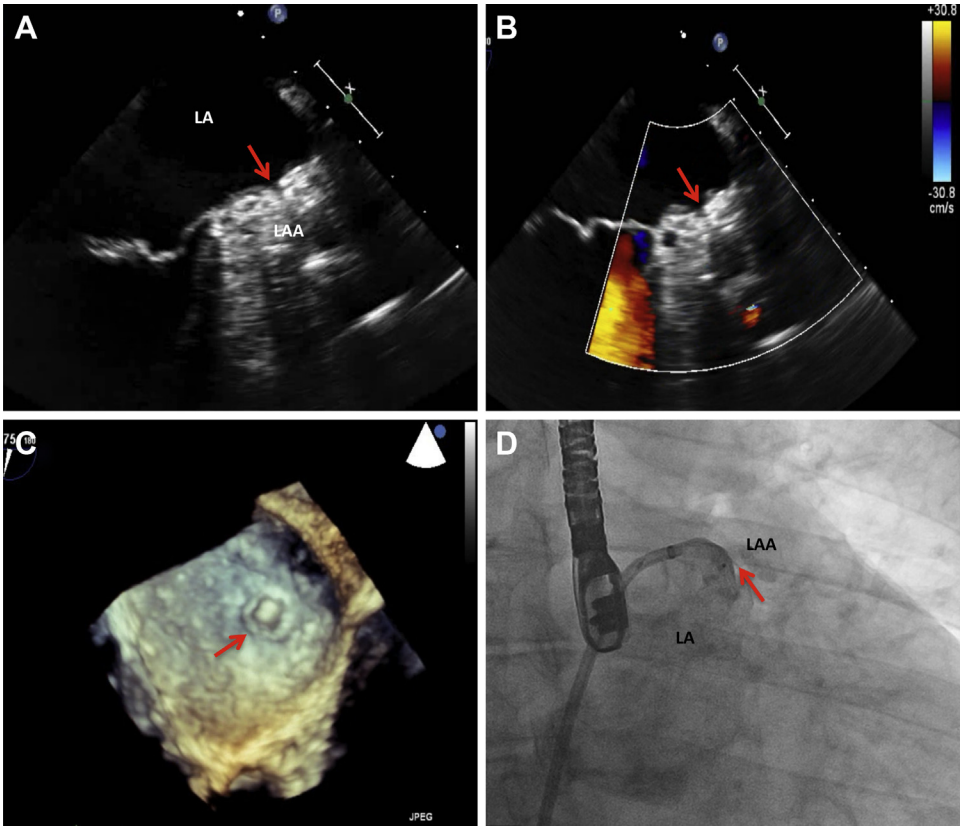
FIGURE 2 Closure of Residual Communication Following Deployment of AVP2



(A to C) TEE images of successful closure of residual leak with AVP2 in situ. **(D)** Angio image showing successful closure. **Red arrows** showing AVP2 device in situ. AVP2 = Amplatzer Vascular Plug II; other abbreviations as in Figure 1.

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KEY WORDS device closure, Lariat, left atrial appendage residual leak