

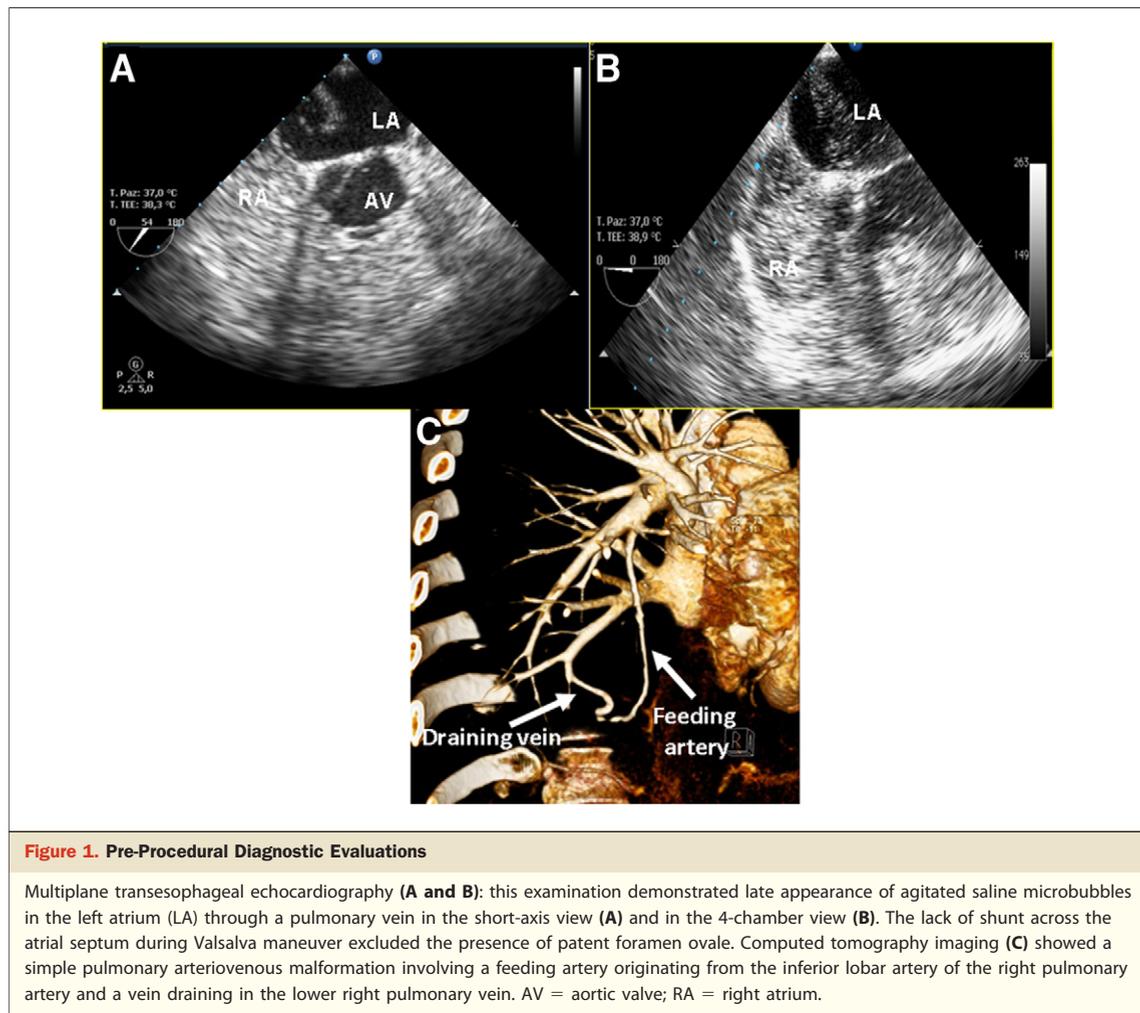
## IMAGES IN INTERVENTION

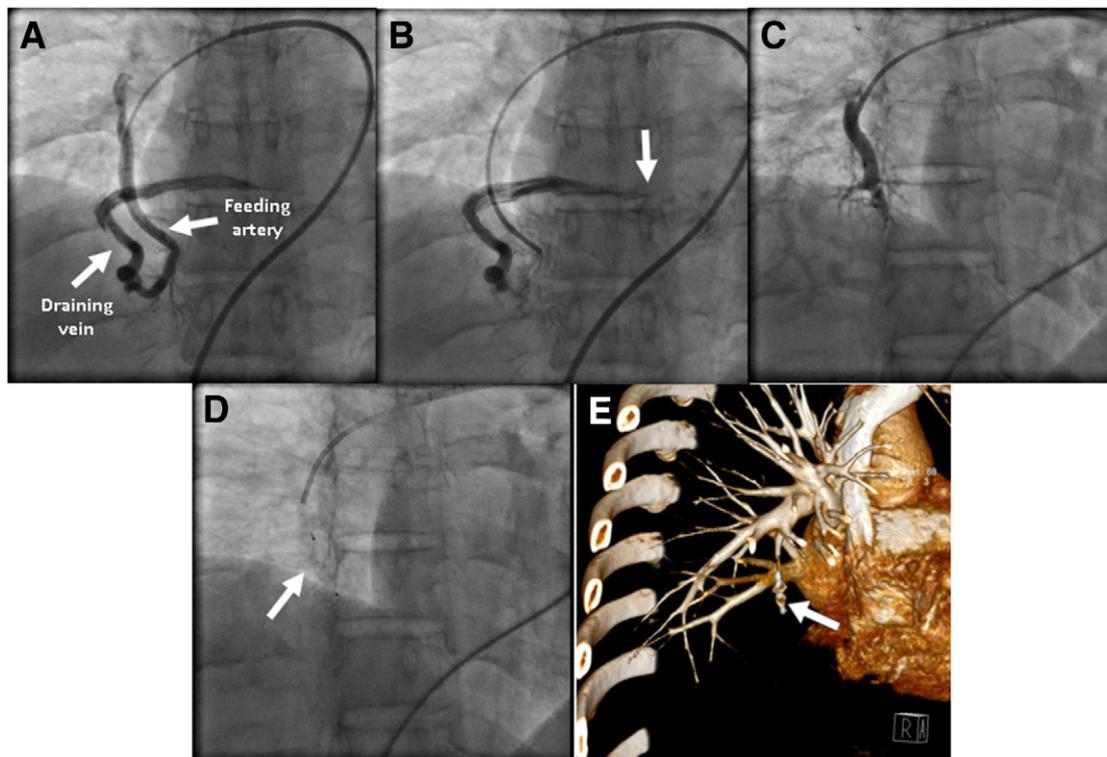
# Percutaneous Closure of a Pulmonary Arteriovenous Malformation in Young Patient With Cryptogenic Stroke

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A 44-year-old woman had a transient ischemic attack (while on a regimen of aspirin therapy) in May 2012 with evidence of an ischemic cerebral lesion





**Figure 2.** Peri-Procedural and Post-Intervention Images

(A) Pre-procedural selective angiography with the feeding artery and the draining vein of the pulmonary arteriovenous malformation. (B) Drainage of the vein in the left atrium (arrow). (C) Post-procedural angiography demonstrating complete closure of the anomaly. (D) Implanted vascular plug (arrow). (E) Computed tomography imaging confirming complete closure of the anomaly by the vascular plug (arrow).

at magnetic resonance imaging. Thrombophilic screening tests showed factor V Leiden homozygosis. Transesophageal echocardiography revealed an atrial septum aneurysm without shunt during Valsalva maneuver after injection of agitated saline solution in the right antecubital vein; however, there was a late (after 5 cardiac cycles) appearance of agitated saline microbubbles in the left atrium through a pulmonary vein (Figs. 1A and 1B). An arteriovenous malformation was thus suspected, and this was confirmed by computed tomography imaging, showing a simple communication in the right lower pulmonary lobe between an inferior lobar artery of the right pulmonary artery and a vein draining in the lower right pulmonary vein (Fig. 1C). Percutaneous closure of the malformation was considered indicated and successfully performed with implantation of a 7-mm Amplatzer Vascular Plug 4 (St. Jude Medical, St. Paul, Minnesota) (Fig. 2). Prevalence of pulmonary arteriovenous malformations is approximately 2 to 3/100,000 persons, but this is higher in patients with cryptogenic stroke (1). These malformations are usually congenital, and 47% to 80% of the cases are associated with Osler-Weber-Rander disease (1). The presence of a pulmonary arteriovenous malformation has to be kept in mind as a possible cause of paradoxical embolism, especially in young adults with cryptogenic stroke (2), particularly in the presence of a thrombophilic

genetic pattern. In our patient, transesophageal echocardiography—initially performed to possibly diagnose a patent foramen ovale—strongly suggested the presence of a pulmonary arteriovenous malformation, which was confirmed at computed tomography imaging. According to guidelines (3) that recommend treatment of these malformations when considered responsible for a cerebral ischemic event, we performed percutaneous closure of the anomaly for secondary prevention.

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#### REFERENCES

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**Key Words:** arteriovenous malformation ■ percutaneous closure ■ stroke.