

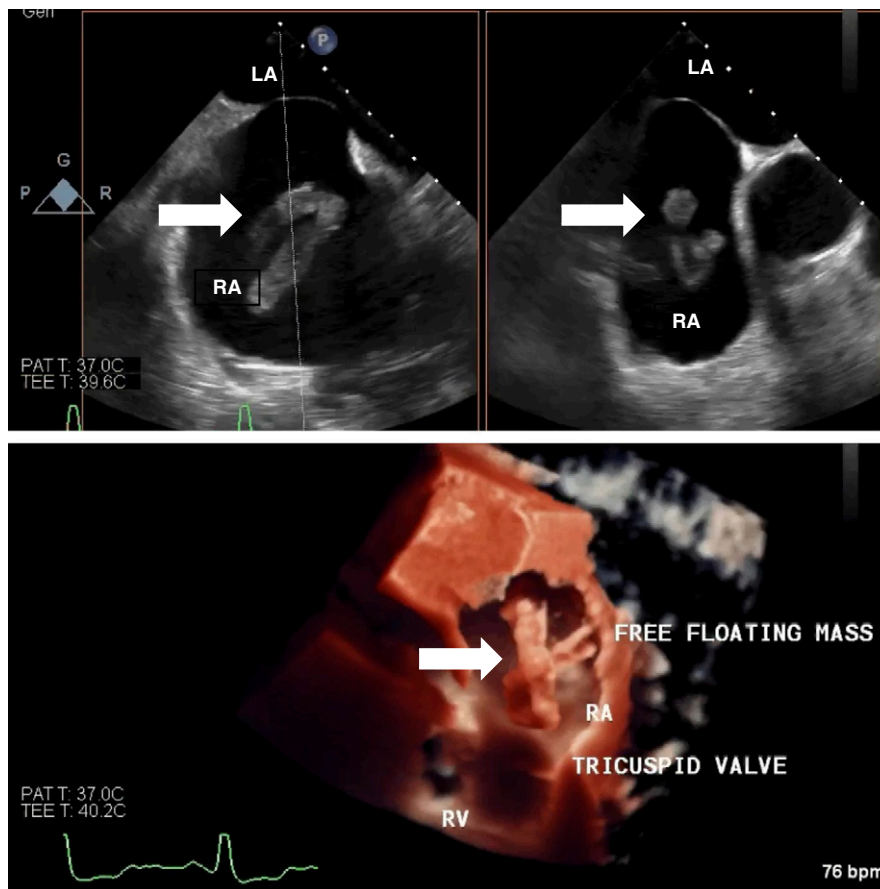
# IMAGES IN PULMONARY, CRITICAL CARE, SLEEP MEDICINE AND THE SCIENCES

## Free-Floating Right Atrial Thrombus Removed by Aspiration Thrombectomy under Transesophageal Guidance

Alexander E. Sherman<sup>1</sup>, John M. Moriarty<sup>2</sup>, Eric H. Yang<sup>3</sup>, Deepak Ravi<sup>3</sup>, Steven Y. Chang<sup>1</sup>, and Richard N. Channick<sup>1</sup>

<sup>1</sup>Division of Pulmonary, Critical Care, Sleep Medicine, Clinical Immunology and Allergy, David Geffen School of Medicine, University of California, Los Angeles, Los Angeles, California; and <sup>2</sup>Division of Interventional Radiology, Department of Radiological Sciences and <sup>3</sup>Division of Cardiology, Department of Medicine, David Geffen School of Medicine, Ronald Reagan UCLA Medical Center, Los Angeles, California

ORCID IDs: 0000-0002-5622-2804 (A.E.S.); 0000-0001-8108-520X (J.M.M.); 0000-0003-4889-7454 (E.H.Y.); 0000-0002-7365-5265 (S.Y.C.).



**Figure 1.** Top panels: Two-dimensional transesophageal echocardiography showing midesophageal biplanar ( $0 \times 90$  degrees) views of mobile mass (arrows) in the right atrium (RA). Bottom panel: Three-dimensional transesophageal echocardiography zoom view demonstrating free-floating mass (arrow) in the RA with intermittent closure of the tricuspid valve. LA=left atrium; RV=right ventricle.

A 74-year-old man presented to our hospital with shortness of breath, hypoxia, and hypotension transiently requiring vasoactive support. He was diagnosed with bilateral pulmonary embolism, deep vein thrombosis, and a mobile right atrial mass.

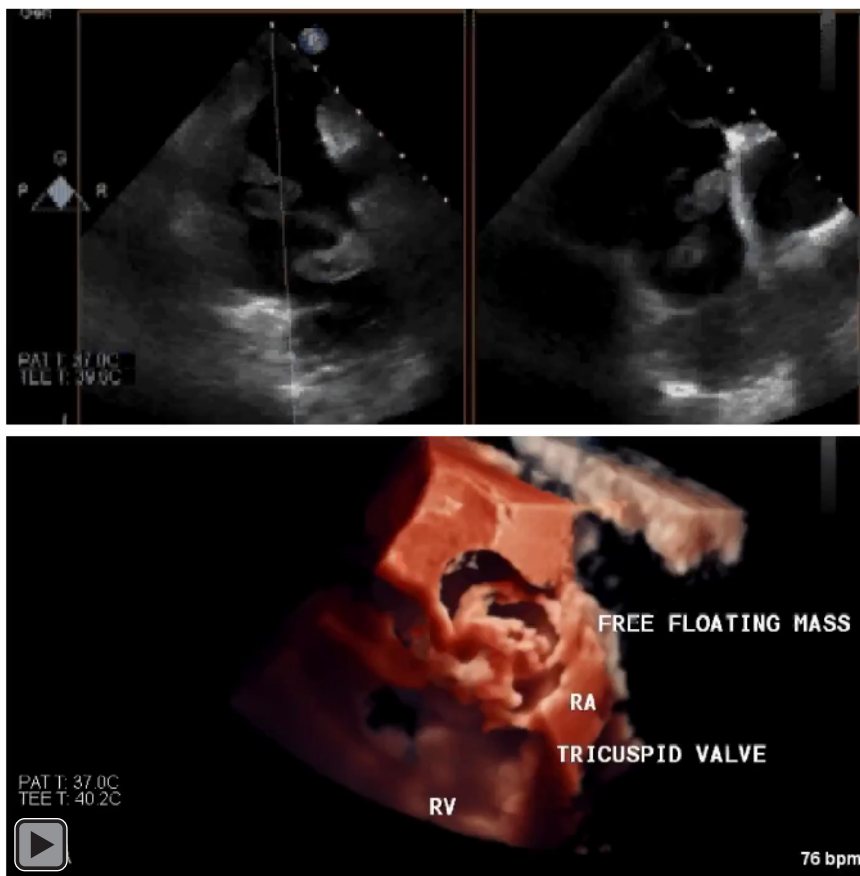
The pulmonary embolism response team (PERT) was consulted, and it recommended aspiration thrombectomy for submassive pulmonary embolism and thrombus in transit. Systemic thrombolysis was not recommended, owing to the presence of hematuria on systemic anticoagulation. Surgery was considered, but given this patient's relative stability, age, and concern about anticoagulation, the consensus of the PERT was to attempt catheter thrombectomy. He underwent aspiration of the right atrial thrombus with AngioVac (AngioDynamics) thrombectomy under transesophageal echocardiographic (Figure 1 and Video 1) and fluoroscopic guidance (1). Three-dimensional reconstruction demonstrated a free-floating intracardiac thrombus. The patient's preprocedural blood pressure was 106/62 mm Hg, and he required no hemodynamic support during the 7-minute AngioVac venovenous bypass under conscious sedation. Pathologic examination of the 20-cm mass (Figure 2) showed a bland thrombus. After the procedure, the patient's hypoxia, dyspnea, and chest pressure rapidly resolved, and he was discharged on Hospital Day 3 while receiving a direct oral anticoagulant. A transthoracic echocardiogram 6 weeks after discharge demonstrated normal right ventricular function and hemodynamics.

The uncompressed video is accessible from this article's supplementary material page.

Am J Respir Crit Care Med Vol 202, Iss 1, pp e1–e2, Jul 1, 2020  
 Copyright © 2020 by the American Thoracic Society  
 Originally Published in Press as DOI: 10.1164/rccm.201909-1756IM on February 19, 2020  
 Internet address: www.atsjournals.org



Figure 2. Mass after removal from the right atrium.



**Video 1.** Top panels: Two-dimensional transesophageal echocardiography showing midesophageal biplanar ( $0 \times 90$  degrees) views of mobile mass in the right atrium (RA). Bottom panel: Three-dimensional transesophageal echocardiography zoom view demonstrating free-floating mass in the RA with intermittent closure of the tricuspid valve. RV = right ventricle.

Right heart thrombi occur in approximately 4% of patients with acute pulmonary embolism and are associated with increased 30-day mortality (2). This case highlights the role of mechanical thrombectomy devices and the importance of PERT to facilitate expeditious multidisciplinary treatment decisions. ■

**Author disclosures** are available with the text of this article at [www.atsjournals.org](http://www.atsjournals.org).

## References

1. Al-Hakim R, Park J, Bansal A, Genshaft S, Moriarty JM. Early experience with AngioVac aspiration in the pulmonary arteries. *J Vasc Interv Radiol* 2016;27:730–734.
2. Koć M, Kostrubiec M, Elikowski W, Meneveau N, Lankeit M, Grifoni S, *et al.*; RiHTER Investigators. Outcome of patients with right heart thrombi: the Right Heart Thrombi European Registry. *Eur Respir J* 2016;47:869–875.