

IMAGES IN INTERVENTION

Percutaneous Pulmonary Embolus Mechanical Thrombectomy



Deepali Nivas Tukaye, MBBS, PhD,^a Michael McDaniel, MD,^a Henry Liberman, MD,^a
Yelena Burkin, MD,^b Wissam Jaber, MD^a

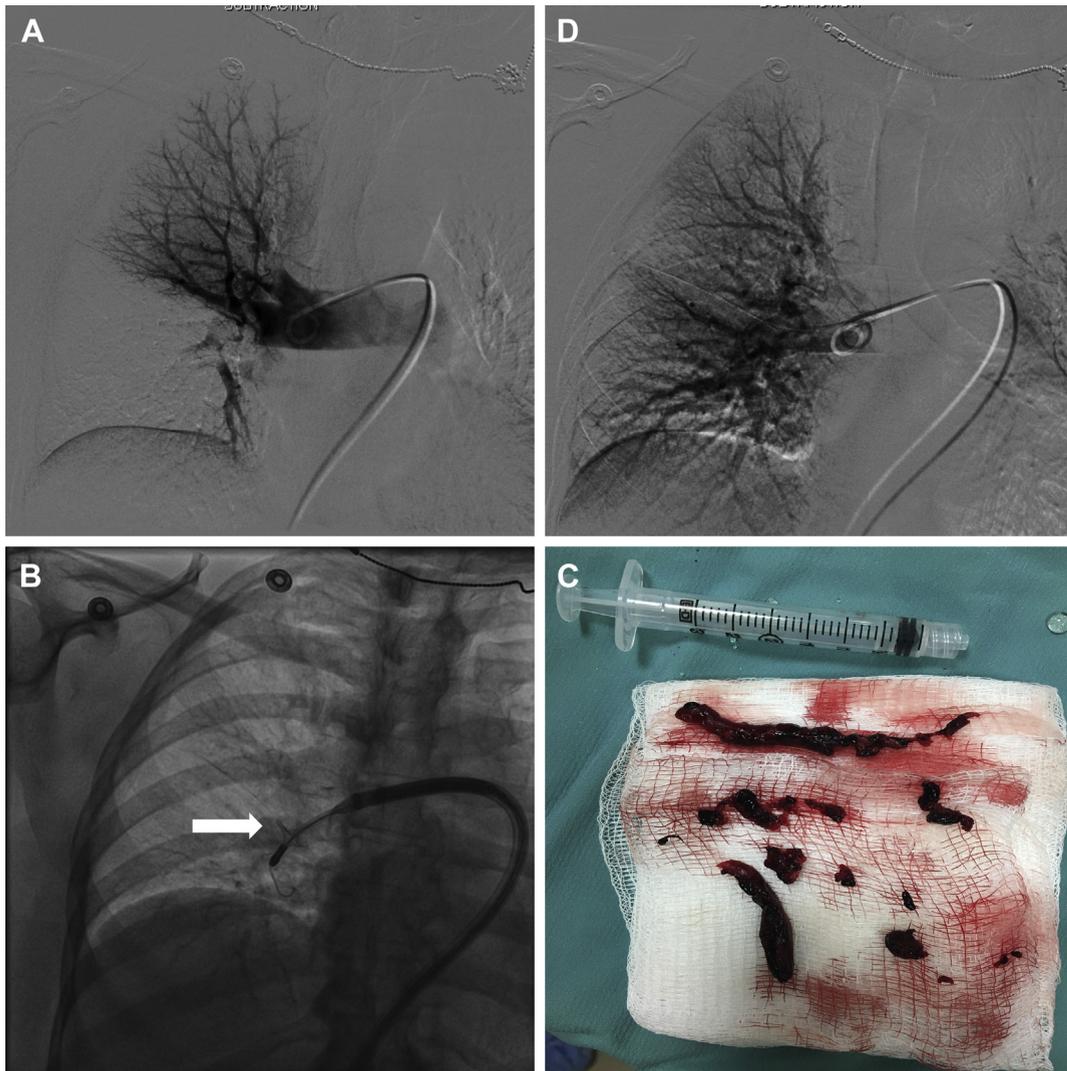
A 66-year-old African-American woman with no significant medical history presented with a 2-day history of worsening exertional dyspnea with minimal activity. Pulmonary embolus (PE) was suspected on the basis of clinical presentation and elevated D-dimer levels in absence of other clear explanation for her symptoms. Computed tomography of the chest revealed extensive, acute bilateral pulmonary embolus with significant clot burden in the right main pulmonary artery (PA). There was evidence of right heart strain with right ventricular (RV) dilation (elevated troponin [0.39 ng/ml] and brain natriuretic peptide [187 pg/ml]; right ventricle/left ventricle ratio 1.17 on computed tomography). Transthoracic echocardiography confirmed moderate RV dilation and systolic dysfunction. The patient's estimated RV systolic pressure was 71 mm Hg. She was hemodynamically stable at admission, with normal blood pressure and heart rate and oxygen saturation >90% on room air. Given her hemodynamic stability and on the basis of the patient's own preference, she was started on intravenous

heparin and conservative management. Over the next 72 h, her symptoms did not improve, and she perceived dyspnea at rest. Repeat transthoracic echocardiography revealed persistent RV dilation and systolic dysfunction, with an estimated RV systolic pressure of 90 mm Hg. Because of persistent significant symptoms and severe pulmonary hypertension, she underwent percutaneous aspiration and mechanical pulmonary embolectomy from her right PA and segmental (middle and lower) arteries. Preprocedural pulmonary angiography revealed absent pulmonary arterial flow to the right middle and lower lobes (Figure 1A). Her mean PA pressure post-procedure was 45 mm Hg. The procedure was performed using the FlowTrievery (INARI Medical, Irvine, California) retrieval and aspiration system. A significant amount of thrombus was aspirated (Figure 1C) after 3 passes in different lower and middle lobe segmental branches, with establishment of normal arterial flow to the right middle and lower pulmonary lobes (Figure 1D). The patient's mean PA pressure immediately post-embolectomy

From the ^aDivision of Cardiology, Department of Medicine, Emory University, Atlanta, Georgia; and the ^bDivision of Internal Medicine, Department of Medicine, Emory University, Atlanta, Georgia. Dr. Jaber is principal investigator for FLARE (FlowTrievery Pulmonary Embolectomy Clinical Study) at Emory University. The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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FIGURE 1 Percutaneous Pulmonary Thrombectomy



(A) Baseline right pulmonary artery (PA) angiogram revealing central filling defects with occluded middle and lower lobar branches. **(B)** The 20-F FlowTriever aspiration guide catheter advanced through the right femoral vein with tip in the right main PA; the self-expanding nitinol disk (**arrow**) engaging the thrombus in the right lower lobe branch is then retracted with simultaneous aspiration into the guide catheter. **(C)** Total thrombi recovered. **(D)** Final angiogram after 3 passes showing restoration of flow to all previously occluded branches.

was 33 mm Hg. She had a noticeable improvement in her dyspnea and improvement in oxygen saturation. Twenty hours post-procedure, transthoracic echocardiography revealed a decrease in RV dilation to mild from moderate, a reduction in RV dysfunction to mild from moderate, and an estimated RV systolic pressure of 45 mm Hg, a decrease from 90 mm Hg. The patient was able to ambulate with minimal dyspnea. She was switched to oral apixaban

for management of pulmonary embolus and discharged 24 h post-thrombectomy.

REPRINT REQUESTS AND CORRESPONDENCE: Dr. Deepali Nivas Tukaye, Emory University, Division of Cardiology, 101 Woodruff Circle, 319 WMB, Atlanta, Georgia 30322. E-mail: dtukaye@gmail.com.

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