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IMAGES IN EMERGENCY MEDICINE

Imaging

Woman with dyspnea and acute respiratory distress

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1 | PATIENT PRESENTATION

A 37-year-old woman with idiopathic pulmonary artery (PA) hypertension and PA aneurysm presented to the emergency department (ED) in respiratory distress. She was tachycardic, tachypneic, tripoding, and had an oxygen saturation of 90% on 5L nasal cannula with clear lung fields. She had a loud P2, 3/6 systolic ejection murmur, 3/6 diastolic murmur, and pitting pedal edema bilaterally. The murmurs were noted on previous examinations, but her edema and increased oxygen requirement were new. Chest radiograph demonstrated abnormal PA contour, cardiomegaly, and congestion. A cardio-pulmonary point-of-care ultrasound (POCUS) was performed to assess causes of undifferentiated dyspnea and acute respiratory distress.

2 | DIAGNOSIS

2.1 | Pulmonary artery dissection

Point-of-care ultrasound (POCUS) revealed a dilated PA (9.3 cm) with a dissection flap. Starting from a mid-ventricle parasternal short

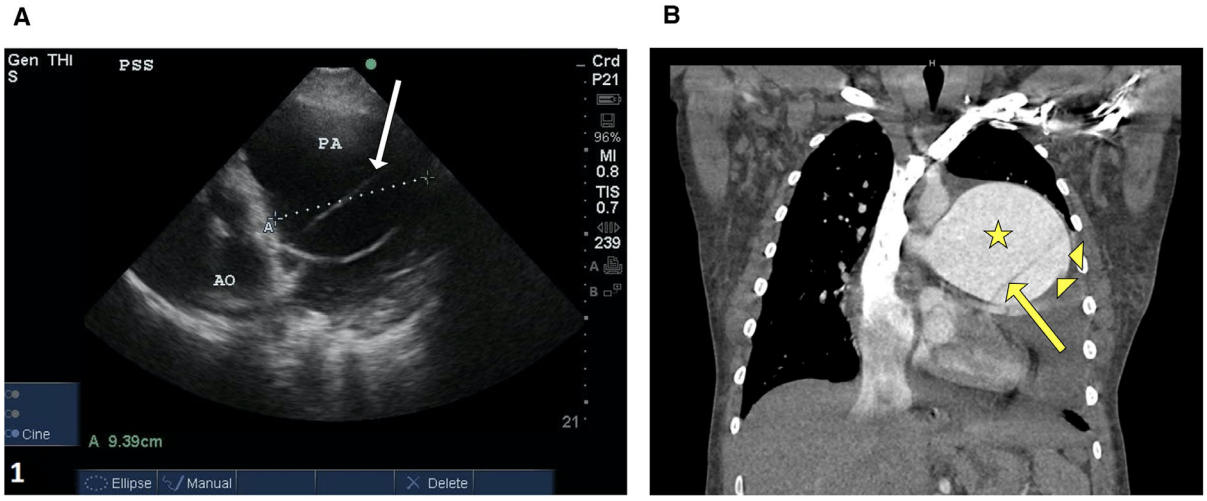

FIGURE 1 (A) Bedside transthoracic echocardiography in the parasternal short axis view at the level of the aortic valve showing an intimal flap (white arrow) in a dilated main pulmonary artery (PA) proximal to its bifurcation. (B) Pulmonary computed tomography angiography coronal view confirming PA aneurysm with intimal dissection flap (yellow arrow) separating true lumen (star) and false lumen (arrow heads) in main pulmonary artery trunk

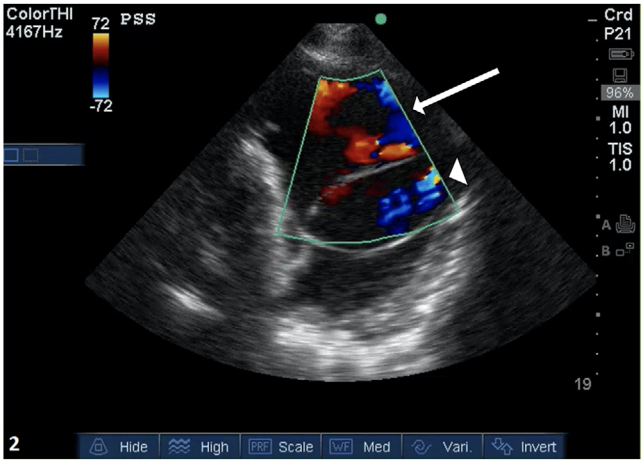

FIGURE 2 Color flow Doppler showing turbulent flow within the main pulmonary artery (PA) trunk (arrow) and flow into the false lumen (arrowhead) separated by the dissection flap

axis (PSAX) view, the probe was translated and angled superiorly toward the aortic valve, at which point, the large aneurysm came into view. The aneurysm and dissection flap were visualized beyond the pulmonic valve, proximal to the PA bifurcation (Figure 1A; Supporting information Video S1). Turbulent flow was seen within the main PA trunk and the false lumen (Figure 2; Supporting information Video S2). After stabilization, PA computed tomography (CT) angiography (Figure 1B) corroborated POCUS findings. The patient was admitted to the cardiac unit for worsening cor pulmonale secondary to pulmonary artery dissection (PAD) and was managed medically with pulmonary vasodilators and a diuretic infusion. She was transferred for heart–lung transplantation.

PAD is a rare and fatal condition, most commonly diagnosed post-mortem.[1] Although possible in segmental and lobar arteries, the majority of cases affect the main PA.[2] As management for pulmonary hypertension and congenital heart disease improve, patients are living longer with higher pulmonary pressures, predisposing them to this rare complication. Therefore, PAD should be considered for at-risk patients presenting with cardiogenic shock or sudden cardiac death, as well as with nonspecific symptoms, such as chest pain, dyspnea, or central cyanosis.[3,4] Diagnosis is increasingly made using CT[5] and/or transthoracic echocardiography.[6] As with this case, POCUS is especially useful when these patients present in extremis and are unstable for CT. A quick confirmation of PAD using a high PSAX view facilitates timely consultation and treatment.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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