Medical Image of the Week: Pulmonary Artery Sling

Figure 1. Computerized tomography (CT) of the chest showing the aberrant origin of the left pulmonary artery from the right pulmonary artery creating a pulmonary artery sling with mild tracheal narrowing (arrow).

Figure 2. Cardiac magnetic resonance imaging (MRI) confirming the presence of a pulmonary artery sling with aberrant origin of the left pulmonary artery from the right pulmonary artery.

A 42-year-old year woman with asthma was admitted to the hospital with an asthma exacerbation. The patient complained of dyspnea on exertion, two-pillow orthopnea and bipedal edema. An echocardiogram showed a severely dilated right ventricle (RV) with elevated right ventricular systolic pressure of 71 mmHg. The systolic left ventricular (LV) function was also reduced with an ejection

fraction of 45%. Computerized tomography (CT) of the chest showed an aberrant origin of the left pulmonary artery (PA) creating a pulmonary artery sling with mild tracheal narrowing (Figure 1, arrow). Cardiac magnetic resonance imaging (MRI) confirmed the presence of a pulmonary artery sling with the aberrant origin of the left PA from the right PA (Figure 2). Cardiac catheterization showed a mean PA pressure of 46mmHg with LV end diastolic pressure of 12mm Hg. The patient was diagnosed with WHO Group I pulmonary hypertension and started on treatment with sildenafil with a stable outpatient course.

Pulmonary artery sling is an uncommon form of vascular ring. The anomaly is a result of formation of the left PA from the right sixth vascular arch (rather than the left), leading to the left PA arising from the posterior aspect of the right PA (1). Pulmonary artery slings may produce symptoms of airway compression and esophageal compression and usually presents in childhood (2). In asymptomatic cases, a PA sling may mimic a mediastinal mass on chest radiographs and CT and MRI may be used to establish the diagnosis (3).

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