

Cardiac Imaging

Pulmonary Endarterectomy for Thromboembolic Pulmonary Hypertension

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A 70-year-old obese (body mass index 33.1 kg/m²) female presented to our institution with worsening dyspnea over the previous five days. On further questioning she admitted suffering from exertional dyspnea, fatigue and low exercise tolerance for the last two years. Her ECG showed sinus rhythm with an S1Q3 pattern. The transthoracic echocardiogram demonstrated a dilated right ventricle (37 mm) with moderate right ventricular systolic impairment and severe pulmonary hypertension (systolic pulmonary artery pressure, PAP 90 mmHg). Contrast-enhanced computed tomographic (CT) pulmonary angiography revealed a large filling defect in the right pulmonary artery and several smaller eccentric

filling defects in the left pulmonary artery suggestive of the coexistence of acute and chronic thromboembolism (Figure 1). Dilatation of the main pulmonary artery as well as the branches was also noted on the CT (Figure 2). The blood examination revealed hyperhomocysteinemia with decreased levels of protein C and protein S, indicative of a thrombophilic state.

The surgical accessibility of the lesions prompted us to offer the patient pulmonary endarterectomy (Figure 3). The operation was carried out successfully (postoperative systolic PAP of 29 mmHg) and the patient had an uneventful recovery. She was discharged home on the eighth postoperative day on warfarin and sildenafil.

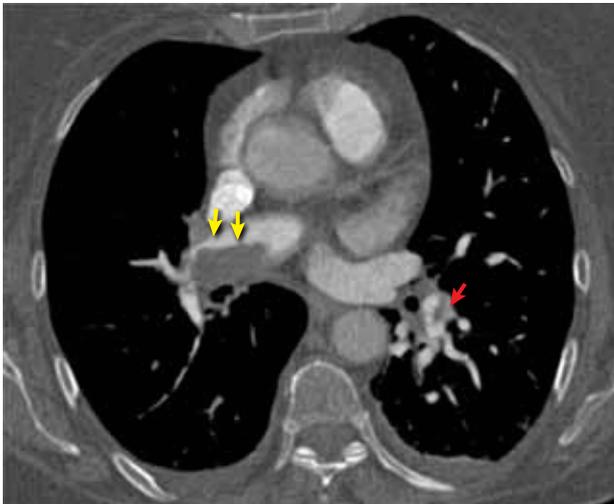


Figure 1. Axial contrast-enhanced CT scan shows an eccentric chronic thrombus producing irregular contours on the intimal surface of the right pulmonary artery (yellow arrows) and a web in the lumen of the left pulmonary artery (red arrow).

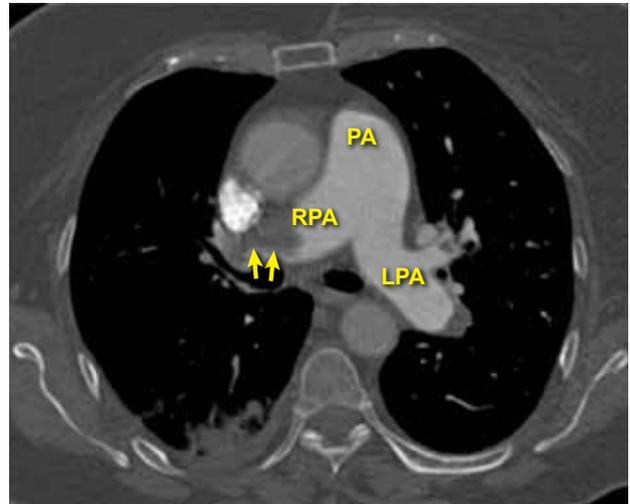


Figure 2. Axial contrast-enhanced CT scan shows enlargement of the main, right, and left pulmonary arteries secondary to pulmonary hypertension, and a filling defect in the right main pulmonary artery (arrows). PA – pulmonary artery; LPA – left pulmonary artery; RPA – right pulmonary artery.

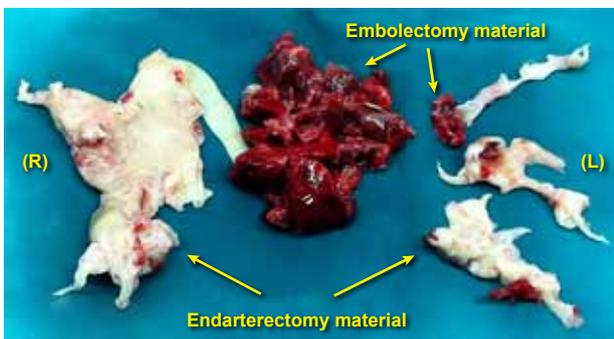


Figure 3. Material removed by embolectomy and endarterectomy from the right (R) and left (L) pulmonary artery. Embolectomy consists of removal of loose thrombus and endarterectomy of removal of fibrotic clot and thickened intima, as well as part of the media. Embolectomy without endarterectomy is quite ineffective.