Images in cardiovascular medicine. Acute type I aortic dissection with concomitant pulmonary artery dissection

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Acute Type I Aortic Dissection With Concomitant Pulmonary Artery Dissection
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A 55-year-old white male with hypertension and acute type I aortic dissection diagnosed on the basis of transthoracic echocardiography underwent emergency surgery. A large hematoma was found on the left lateral aspect of the ascending aorta, infiltrating the pulmonary trunk. A “hemi-arch” repair was performed with an open distal anastomosis technique using a standard tubular graft.

Postoperative course was uneventful without any noteworthy symptoms. Routine postoperative computed tomography (CT) scan was performed. Imaging revealed residual arch and descending aortic dissection (Figure 1, dotted arrow) and, surprisingly, pulmonary artery dissection (Figure 1, arrow) originating at the distal trunk (Figure 2, arrow), with involvement of the left pulmonary artery (Figure 3, arrow). Repeat CT scan at 3 months was identical and the patient was asymptomatic.

Dissection of the pulmonary artery has been previously described in cases of pulmonary artery aneurysms associated with either severe pulmonary hypertension or congenital heart malformations, and in cases of connective tissue disorders. In acute type I aortic dissection, aorto-pulmonary fistulization or thrombosis of the pulmonary artery has been reported. To our knowledge, pulmonary artery dissection has never been described in association with aortic dissection. We speculate that the infiltrating hematoma could dissect the layers of the pulmonary artery wall. Another explanation might be that perioperative manipulation of fragile tissues could create iatrogenic dissection.
Figure 2. Three-dimensional reconstruction of postoperative CT scan showing pulmonary artery dissection originating at the pulmonary trunk (arrow).

Figure 3. Three-dimensional reconstruction of postoperative CT-scan showing pulmonary artery dissection with involvement of the left pulmonary artery.