A 25-year-old man presented with a 3-month history of recurrent syncope, exertional chest discomfort, and shortness of breath. On physical examination, he had right ventricular heave, loud P2, jugular venous distension, tricuspid regurgitation murmur, and lower extremity edema. D-dimer was negative. Echocardiography showed right ventricular hypertrophy with elevated right ventricular pressure. Left ventricular function was normal. Cardiac catheterization showed pulmonary artery pressure of 131/50/78 mm Hg (concurrent aortic pressure was 145/80 mm Hg). Pulmonary wedge pressure was 15 mm Hg. Pulmonary angiography showed dilation of the main pulmonary artery with peripheral tapering (Figure 1). After pulmonary angiography, optical coherence tomography (LightLab Imaging Inc, Westford, Mass) and intravascular ultrasound (Boston Scientific) were performed.

Figure 1. Pulmonary angiogram from a patient with pulmonary hypertension shows the markedly dilated pulmonary artery.

Figure 2. At the level of the arteriole with the comparable luminal area (A, 1.71 mm²; B, 1.78 mm²) the intima is more than twice in the thickness in the patient with primary pulmonary hypertension (A) compared with another patient with normal pulmonary pressure (B) (0.26 versus 0.11 mm).
formed. Optical coherence tomography images at the distal pulmonary artery are shown in Figure 2. The intima was more than twice in thickness in this patient with pulmonary hypertension (Figure 2A) compared with a patient with normal pulmonary pressure (Figure 2B). There was no evidence of mural thrombus. An intravascular ultrasound image of the corresponding site showed a strong echogenic layer that prohibited accurate measurement of intimal thickness (Figure 3).

**Disclosures**

Dr Jang received research grant and honorarium from LightLab Imaging.

The study was approved by the hospital ethics committee and the written consent form was obtained before the start of the procedure.

*Figure 3.* Intravascular ultrasound of the pulmonary artery shows strong echo signal. An accurate measurement of intimal thickness is difficult.
Pulmonary Vascular Changes in Pulmonary Hypertension: Optical Coherence Tomography Findings
Jingbo Hou, Hai Qi, Maomao Zhang, Lingbo Meng, Zhigang Han, Bo Yu and Ik-Kyung Jang

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