Severe Mitral Regurgitation After Valve Replacement as Cause of Pulmonary Venous Aneurysm

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A 49-year-old man was referred because of an acute myocardial infarction. He had undergone aortic and mitral valve replacements for endocarditis in 1984 (Figure 1). In the early 1990s, the mitral valve had developed a paravalvular leak that was not regarded as consequential. A right-sided mass was noted on the chest roentgenogram, however, that was interpreted as a pericardial “cyst.” The patient denied trauma, vasculitis, syphilis, and chronic granulomatous diseases and had not been known to have a pericardial cyst previously. On admission, the chest roentgenogram demonstrated cardiomegaly and a well-circumscribed circular mass adjacent to the right cardiac border (Figure 2). Transthoracic echocardiography demonstrated an enlarged right pulmonary vein (Figure 3, arrows). Color Doppler studies revealed 2 paravalvular leaks flanking the mitral valve prosthesis; the larger septal jet extended into the right pulmonary vein. CT confirmed the presence of a true aneurysm involving the right inferior pulmonary vein (Figure 4, arrows).

True aneurysms of the pulmonary vein are rare, and little is known about their pathogenesis. However, an association between such aneurysms and mitral regurgitation has been described. Our patient’s lesion developed subsequent to his valve replacement and paravalvular regurgitation. The pathogenesis is believed to involve the force vector of blood flow from the left ventricle to the left atrium, targeting the right...
inferior pulmonary vein. This notion is supported by the higher wedge pressure V wave (48 versus 34 mm Hg, respectively) we observed when catheterizing the patient’s right compared with his left pulmonary vein. The same mechanism is held responsible for the right upper lobe pulmonary edema occasionally observed accompanying mitral regurgitation.4

References
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