Spiral rupture of the interventricular septum

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A 76-year-old woman experienced typical chest pain precipitated during normal activity. She was hospitalized for one month in a district hospital and treated for congestive heart failure before being referred to another hospital, where she was diagnosed by scintigraphy as having a pulmonary embolism. She did not improve, so she was referred to the cardiology department of the Medical University of Lublin (Lublin, Poland).

On examination, she had ankle edema, an enlarged liver and a loud systolic murmur along the left sternal margin. An electrocardiogram revealed sinus tachycardia with left bundle branch block.

Transthoracic echocardiography revealed normal-sized chambers with an estimated left ventricular ejection fraction of 56%; there was insignificant mitral, tricuspid and aortic regurgitation. The maximal pulmonary artery systolic pressure was estimated to be 55 mmHg. There was also a pathological jet of 400 cm/s, suggesting a ventricular septal defect. Close inspection helped to distinguish two sites of endocardial rupture (in the basal and apical segments), with a tunnel extending within the septum connecting the entry and exit points (Figures 1 and 2). Multislice computed tomography confirmed the diagnosis (Figure 3). Angiography revealed only a 40% lesion of the circumflex branch. Injection of contrast into the left ventricle resulted in immediate visualization of both ventricles, consistent with ventricular septal defect with left-to-right shunt.

Surgery was recommended. Unfortunately, the patient died during the procedure.

Figure 1) Echocardiography showing double rupture of the interventricular septum (IVS). The direction of left ventricle (LV) to dilated right ventricle (RV) shunt is marked by arrows. LA Left Atrium; RA Right atrium

Figure 2) Colour Doppler echocardiography showing the direction of the left ventricle (LV) to dilated right ventricle (RV) shunt (marked by arrows). IVS Interventricular septum; LA Left atrium; RA Right atrium

Figure 3) Multislice computed tomography showing double rupture of the interventricular septum. The direction of the left ventricle (LV) to right ventricle (RV) shunt is marked by arrows

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Received for publication November 27, 2006. Accepted November 29, 2006