the Doppler image was observed for the PFO closure device (Fig. 2).

The patient was discharged without complications the following day on dual antiplatelet therapy (aspirin and clopidogrel).

Percutaneous closure of the LAA is offered as a new treatment option for patients at risk of embolism in whom it may be difficult to achieve satisfactory anticoagulation control or where anticoagulation treatment is not possible or desirable.[1] Ninety percent of thrombi in patients with nonrheumatic atrial fibrillation occur in the LAA.[2] A PFO closure is also possible and is recommended in situations where there is a risk of paradoxical embolism,[3] regardless of recent discussions and reports on its long-term usefulness.

This case shows that it is possible to carry out the double percutaneous procedure in the same intervention and to thereby act directly on the embolic focus of the LAA while also closing the PFO.

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Available online 23 May 2011

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Endovascular Diagnosis and Palliative Treatment of a Pulmonary Artery Angiosarcoma

Diagnóstico y tratamiento paliativo endovascular de un angiosarcoma de arteria pulmonar

To the Editor,

A 62-year-old woman with dyspnea at rest and chest pain persisting for 2 months was referred to our hospital with a presumptive diagnosis of pulmonary thromboembolism (PTE). On admission the physical examination revealed signs of right-sided heart failure and systolic murmur in the pulmonary area. The electrocardiogram showed signs of overload of the right chambers, whereas transesophageal echocardiography showed dilatation of the pulmonary trunk, a heterogeneous hypoechoic image straddling the bifurcation, and a right ventricle with severe dilatation and deterioration of the systolic function. A ventilation-perfusion scintigraphy suggested a high probability of PTE and, therefore, anticoagulant therapy with sodium heparin was initiated. Venous Doppler ultrasound of the lower limbs ruled out the presence of thrombosis. The differential diagnosis included a tumor of the pulmonary artery.

Computed tomography angiography of the chest showed an occlusive endoluminal filling defect that involved the pulmonary trunk, extending toward both main branches but primarily affecting the left: some sectors of the image were late-phase contrast-enhanced (Fig. 1A). The lesion was confirmed by pulmonary angiography (Fig. 1B), and found to produce a critical obstruction with a translesional pressure gradient of 53 mmHg. Atypical, vimentin-positive Ki67 cells were observed in specimens taken with a bioptome. The anatomical pathology diagnosis was angiosarcoma of the pulmonary trunk.

Given the infiltration of the pulmonary artery and adjacent cardiac structures and the patient's poor overall condition and high surgical risk, it was considered that the tumor could not be surgically resected. To relieve the dyspnea, palliative treatment consisting of angioplasty of the pulmonary trunk with 2 stents of 26/40 mm and 24/60 mm was successfully undertaken (Fig. 2).

Following the procedure, the patient's symptoms improved. She was discharged with functional class II dyspnea and was able to return to her normal activities. After 4 months, she presented progressive dyspnea up to functional class III, caused by severe

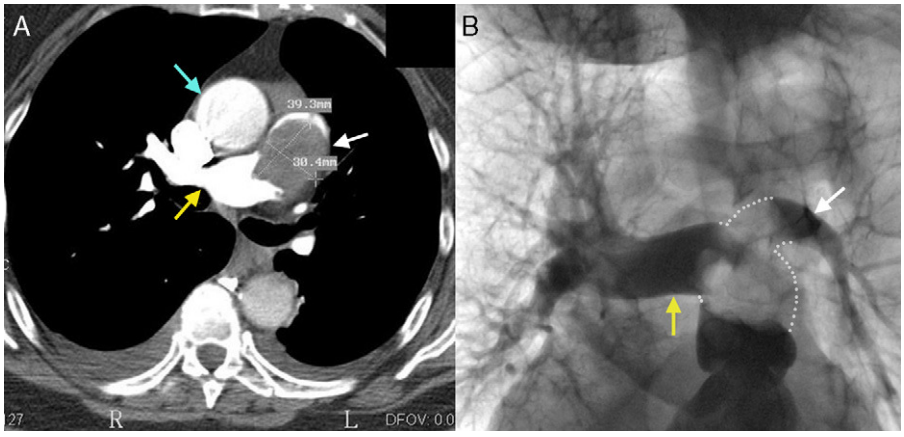

Figure 1. A: tomography angiography of the chest; endoluminal mass affecting the trunk (white arrow) and invading the right branch of the pulmonary artery (yellow arrow); its relationship with the aorta can also be seen (blue arrow). B: pulmonary angiography confirming the previous finding: absence of filling with iodinated contrast material.

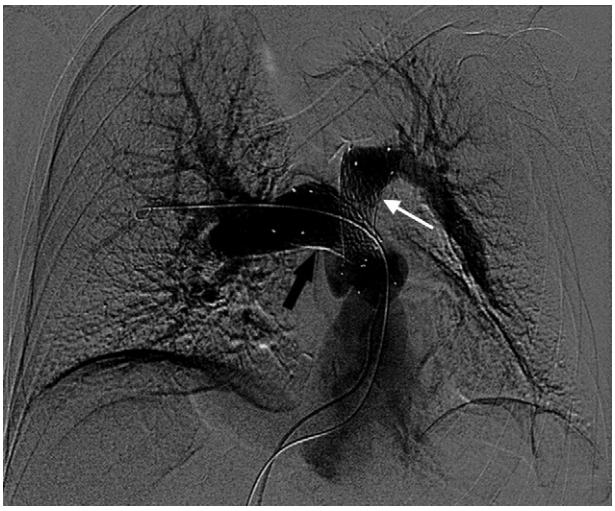

Figure 2. Digital subtraction angiography: stents placed in the right (black arrow) and left (white arrow) branches of the pulmonary artery.

stent obstruction due to tumor growth. Repeat angioplasty was not technically feasible. Following considerable discussion by the medical team and in accordance with the patient's wishes, surgical reduction of the tumor mass was undertaken as the last therapeutic option to relieve the progressive symptoms. The patient died 3 days later, due to multiple postoperative complications.

Primary angiosarcomas of the pulmonary artery are rare, and only a few cases have been described. The similarity of acute and chronic PTE at onset and the inability of imaging techniques to yield an accurate diagnosis (although they may be useful in the differential diagnosis) lead to delays in the definitive diagnosis, which can only be obtained by tissue sampling or autopsy (60% of cases).[1] Percutaneous endomyocardial biopsy is a safe, easily performed procedure with low morbidity and mortality. To enhance the diagnostic benefit, the biopsy can be taken under fluoroscopic guidance, as in the case described, or under transesophageal echocardiographic guidance.[2]

Angiosarcoma presents in middle age (40-65 years) and tends to affect only one of the pulmonary branches, unlike PTE which tends to affect both. The tumor grows rapidly and produces local invasion and distant metastasis. Vascular occlusion is the main cause of death. The prognosis is poor: the mean survival is 1.5 months if surgical resection is not possible and about 12 months if the patient undergoes surgery, which is usually partial.[3]

Angioplasty of the pulmonary trunk is a minimally invasive, palliative procedure that has only been reported in a few cases.[4] The procedure could be useful to improve symptoms due to obstruction and can be combined with chemotherapy or radiotherapy to reduce the tumor size and improve the quality of life in patients excluded from surgical treatment.

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Available online 23 May 2011

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Heart Failure in a Patient With Wolff-Parkinson-White Syndrome

Insuficiencia cardiaca en un paciente con Wolff-Parkinson-White

To the Editor,

A 41-year-old patient was referred to our center for ablation of accessory pathways (AP) in the context of Wolff-Parkinson-White (WPW) syndrome. The patient, who was still asymptomatic, had been diagnosed with WPW 9 years earlier in a routine examination. Three years before the present admission she began to refer to short episodes (<5 min) of sudden-onset, sudden-offset palpitations, which were never recorded by electrocardiogram (ECG). In the past 9 months, she began to show signs of heart failure in the form of New York Heart Association functional class II effort dyspnea. Physical examination was normal, but during exercise testing she only achieved 6 METs. The ECG showed sinus rhythm with pre-excitation manifested by a right antero-septal AP suggesting a classic pattern of left bundle branch block (LBBB) (Fig. 1A). Both echocardiography and magnetic resonance imaging (MRI) showed a marked intraventricular dyssynchrony, with early activation of the septum

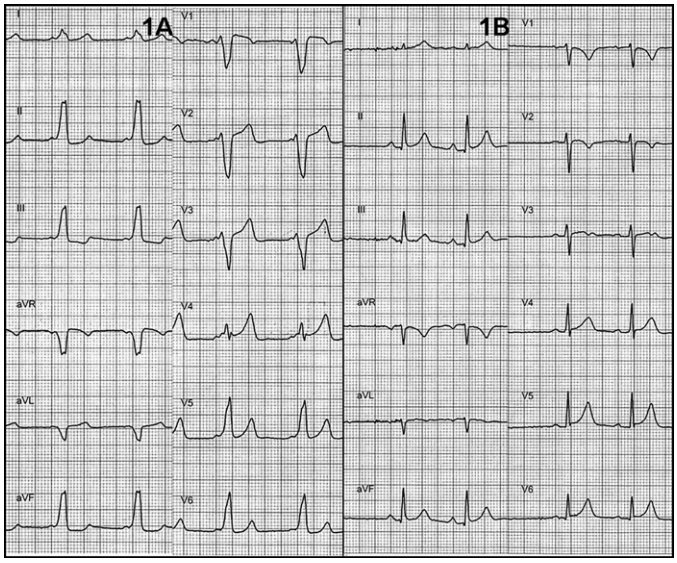

Figure 1. A: electrocardiogram showed a pattern of pre-excitation by a right antero-septal pathway suggesting a classic pattern of left bundle branch block. B: normalization of the electrocardiogram after ablation.