We present a 70-year-old man who had a past medical history of dilated idiopathic pulmonary artery, incidentally diagnosed at the age of 23 years. He was asymptomatic until a year ago when he was admitted for an episode of anginal chest pain in the context of paroxysmal atrial fibrillation. At rapid rates, he showed pathological ST segment descent. A coronary angiography showed a slight stenosis of the left main coronary artery (LMCA). At that time, the mean pulmonary artery pressure was 36 mm Hg. After recovering sinus rhythm, the patient became asymptomatic and was discharged with β-blockers.

A year later, the patient was admitted with resting angina. The echocardiogram (Figure A) and the computed tomography-angiography showed that the aneurysm had increased to 80 mm and compressed the LMCA (Figure B). This finding was confirmed on coronary angiography and intravascular ultrasound that showed a critical stenosis of LMCA (Figure C, insert 1, and online-only Data Supplement Movie I) and normal luminal diameter of anterior descending artery (Figure C, insert 2). In addition, the mean pulmonary artery pressure had increased >60 mm Hg.

Because of the high surgical risk posed by aneurysm surgery, percutaneous revascularization of LMCA with drug-eluting stent was performed with good final result (Figure D, insert 1, and online-only Data Supplement Movie II). We also initiated specific treatment of pulmonary hypertension (PH) with phosphodiesterase-5 inhibitors and an endothelin receptor antagonist. The patient became asymptomatic and was discharged to reevaluate the surgical indication of aneurysm according to the clinical and PH evolution in the follow-up. One year later, the patient is asymptomatic with no adverse events.

Extrinsic compressions of LMCA by a pulmonary artery aneurysm are extremely rare and usually associated with PH. Only case reports and small series have described this entity as a cause of angina and sudden death, and, currently, the appropriate management of these patients remains unknown.

Figure. A, Echocardiogram showing a giant pulmonary artery aneurysm (PAA, *). B, Computed tomography-angiography showing the compression of the left main coronary artery (LMCA; arrow) by the PAA (*). C, Coronary angiography (CA) and intravascular ultrasound showing a critical stenosis of LMCA attributed to the PAA compression (insert 1) and normal luminal diameter of anterior descending artery (insert 2). D, CA after percutaneous revascularization of LMCA with drug-eluting stent (insert 1).
High-resolution computerized tomography permits evaluation of the pulmonary artery aneurysm and the degree of LMCA compression. As in our case, intravascular ultrasound can confirm the diagnosis and currently be used for procedure guidance if necessary.

Although it is unclear, surgery of pulmonary artery aneurysm is indicated in symptomatic patients and in asymptomatic ones with high risk of complications (>60-mm aneurysms, high pulmonary pressure). On the other hand, it should be also considered a high surgical risk, especially in the context of severe PH and critical stenosis of the LMCA. Furthermore, some authors believe in the need of coronary revascularization for cases with significant LMCA obstruction. Others suggest that surgical reduction of pulmonary artery aneurysm may eliminate the compression of the LMCA.

Nowadays, aortocoronary bypass and unprotected LMCA stent implantation are the currently available revascularization strategies. Given the high surgical mortality in patients with PH, LMCA stenting has been favored as the revascularization strategy of choice, and several authors have reported successful results in this kind of patients. Of note, all of the reported cases have involved compression of the ostium or proximal LMCA, sparing the left main bifurcation, and single stent placement was required.

It has also been reported that in cases in which the possibility of surgical treatment is ruled out because of the high risks of the intervention, the intensification of specific PH treatment improves the compression of adjacent structures.

In patients like ours, with unaffordable surgical risk and critical stenosis of the LMCA that produces severe symptoms, percutaneous revascularization and intensification of specific PH treatment may be a reasonable option.

Disclosures
None.

References
Compression of the Left Main Coronary Artery by a Giant Pulmonary Artery Aneurysm

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