



CASE REPORT

Massive hemoptysis as an unusual complication of right heart catheterization: Successful treatment with percutaneous stent



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KEYWORDS

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Abstract The authors present a case report of successful treatment of pulmonary artery perforation by endovascular stent graft implantation.

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Hemoptises massivas como complicação pouco habitual do cateterismo direito: um tratamento bem-sucedido com *stent* percutâneo

Resumo Os autores descrevem um caso de sucesso do tratamento da rotura da artéria pulmonar com a implantação de um *stent* endovascular.

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Introduction

Pulmonary artery catheterization is a useful tool for the diagnosis and management of cardiovascular and pulmonary disease.^{1,2} A rupture in a branch of the pulmonary artery is a very rare complication of right heart catheterization using

a Swan-Ganz catheter; however, it does have a high mortality rate due to immediate and delayed bleeding following pseudoaneurysm formation.³

Case report

A 79-year-old woman with a medical history of atrial fibrillation and rheumatic mitral valve disease underwent closed mitral commissurotomy in 1972. In 2014, the patient had New York Heart Association class III symptoms and

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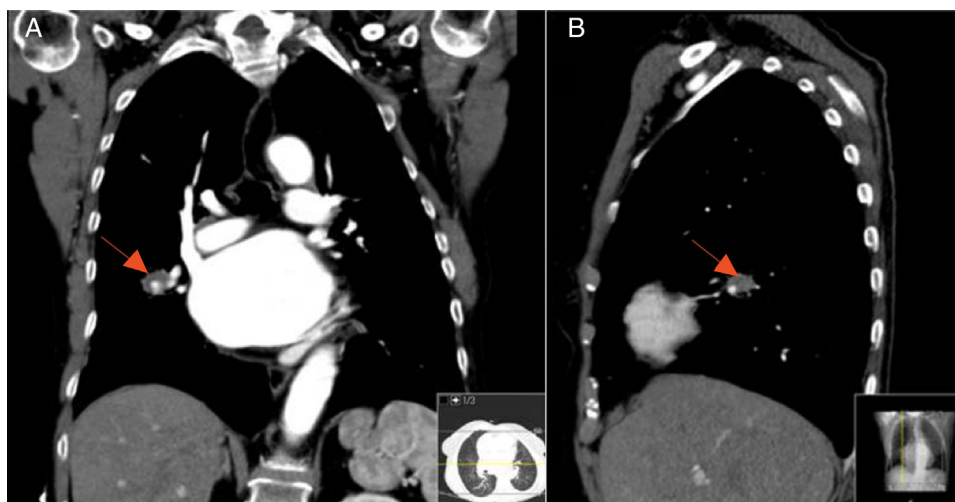


Figure 1 Contrast-enhanced chest computed tomography scan showing the pulmonary artery pseudoaneurysm (arrows): (A) coronal view; (B) sagittal view.

moderate mitral stenosis, with a valve area of 1.4 cm² by planimetry, and moderate pulmonary hypertension. In order to better assess the pulmonary hypertension, and as part of a planned mitral surgery, elective right heart catheterization via the right femoral vein was performed using a 7F Swan-Ganz pulmonary artery catheter. The patient was under anticoagulation (warfarin) and the procedure was performed with bridging therapy (INR of 1.56 on the day of the procedure).

During catheterization, after inflation of the balloon tip of the pulmonary artery catheter in the wedge position, she suddenly developed massive hemoptysis and became hypoxic. She was sedated and given aminocaproic acid and vitamin K. The acute bleeding was stopped and the patient was admitted to the coronary care unit. Intubation or mechanical ventilation were not necessary.

A contrast-enhanced computed tomography scan of the chest showed a pulmonary artery pseudoaneurysm with a maximum diameter of 45 mm at the right middle lobe, which was enhanced by contrast (Figure 1A and B). Pulmonary angiography confirmed the diagnosis (Figure 2A). After consultations with the respiratory medicine and interventional radiology departments, a percutaneous stent graft

implantation was planned, in which a 6F multipurpose guiding catheter (Cordis) was placed and a PT2TM guide wire was positioned distal to the aneurysm. Under angiographic control a 3.5 mm × 18 mm stent (BeGraft Peripheral Stent Graft System, Bentley Innomed) was placed in the pulmonary artery. This procedure was successful and there were no complications (Figures 2B and C).

During hospitalization, the patient was hemodynamically stable and had no further hemoptysis. She was discharged 16 days after admission, treated with aspirin 100 mg/day, clopidogrel 75 mg/day, warfarin 5 mg (dose set by the hematology department), furosemide 40 mg/day and pantoprazole 20 mg/day. A follow-up chest computed tomography scan performed two months later showed patency of the stent graft in the pulmonary artery, with a completely thrombotic false aneurysm (Figure 3). At seven months of follow-up, no events were recorded.

Discussion

Iatrogenic perforation of a pulmonary artery, followed by pseudoaneurysm formation within minutes or even months,

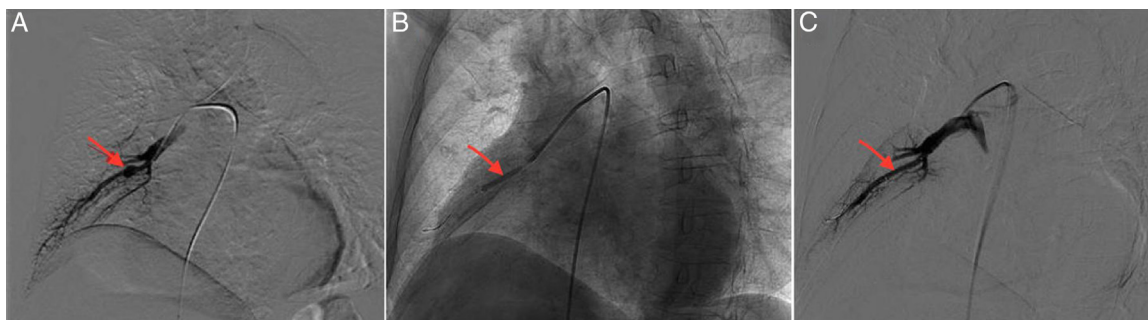


Figure 2 Pulmonary angiogram confirming the presence and location of the pulmonary artery pseudoaneurysm (arrow), showing its extent: (A) anteroposterior view, with stent graft implantation (arrow) to treat the pseudoaneurysm; (B) anteroposterior view, showing an excellent result with unrestricted blood flow into the periphery when the bleeding had stopped (arrow); (C) anteroposterior view.

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