

Recurrent haemoptysis as a symptom of severe pulmonary vein stenosis—a rare complication of catheter ablation in atrial fibrillation

Jan Romantowski¹, Krzysztof Kuziemski¹, Alicja Janowicz¹, Alicja Siemińska¹, Edyta Szurowska² & Ewa Jassem¹

¹Department of Pneumology and Allergology, Medical University of Gdańsk, Gdańsk, Pomorskie, Poland.

²Department of Radiology, Medical University of Gdańsk, Gdańsk, Pomorskie, Poland.

Keywords

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Correspondence

Jan Romantowski, Department of Allergology and Pneumology, Medical University of Gdańsk, ul. Dębinki 7, 80-952 Gdańsk, Poland.
E-mail: jromant@gumed.edu.pl

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Abstract

A pulmonary vein stenosis is a known adverse event of catheter ablation in atrial fibrillation. However, it should be considered due to high frequency of such procedures. Haemoptysis, a symptom of severe stenosis, is often misdiagnosed as other different diseases. We present a case report of a 52-year-old patient with recurrent haemoptysis, dyspnoea, and fatigue, which turned out to be complication after catheter ablation. Successful treatment with drug-eluting stent (DES) was implemented with vast clinical improvement and follow-up.

Introduction

Pulmonary vein stenosis is a rare complication of catheter ablation procedure. However, it should be considered due to the high frequency of such procedures. This case report highlights severe stenosis with haemoptysis, exertion, and dyspnoea as the main symptoms [1,2]. The patient has given full consent for case publication.

Case Report

A 52-year-old patient was admitted to the pneumology clinic following recurrent and increasing dyspnoea, fatigue, and haemoptysis (at a maximum of 250 mL of blood at a time) for the last 2 years. Symptoms started after a catheter ablation procedure for persistent atrial fibrillation and were not resolved after the withdrawal of anticoagulation drugs. The patient was non-smoker with no pulmonary disease history. Transthoracic echocardiography (TE) revealed that pulmonary hypertension with

an right ventricular systolic pressure (RSVP) of 65 mmHg in colour Doppler turbulent flow was observed in the left pulmonary vein.

Laboratory blood test results were normal, with B-type natriuretic peptide (BNP) < 40 pg/mL. Chronic bacterial, viral, and parasitic infections were excluded. Spirometry revealed no aberrations, however, in the 6-min walk test (6MWT), the patient covered a distance of 440 m with dyspnoea 5/10 on Borg scale and desaturation from 93% to 88% in the process.

Computed tomography (CT) pulmonary angiography as well as perfusion scintigraphy scan have shown a massive perfusion deficiency in the left lung and upper lobe of the right lung (Fig. 1). Chest magnetic resonance imaging revealed left pulmonary vein stenosis up to 4 mm (Fig. 2). The stenosis was persistent along the entire course of the vessel. Despite the stenosis, no signs of pulmonary oedema were observed in high resolution CT. Discrete stasis could be found in the inferior lobe of the left lung, however, it was not described by the radiologist.



Figure 1. Left pulmonary vein stenosis computed tomography pulmonary angiography scan.

Pulmonary venography, arteriography, and cardiac catheterization confirmed the findings and the patient was implanted with two drug-eluting stents (DESs) in the left pulmonary vein with an acceptable haemodynamic result (Fig. 3).

In 6 months, the follow-up of all the symptoms (dyspnoea, exertion, and haemoptysis) receded. In the 6MWT, the patient covered a distance of 552 m with neither desaturation nor dyspnoea. Under TE surveillance, the RSVF values gradually lowered in time to 45 mmHg.

Discussion

A pulmonary vein stenosis is a known adverse event of catheter ablation in atrial fibrillation [1]. Currently, its incidence is assessed to be 1–21%. The wide range incidence results from a significant number of asymptomatic, mild stenoses, which do not necessarily require treatment. Those requiring intervention have an incidence of 0.29%

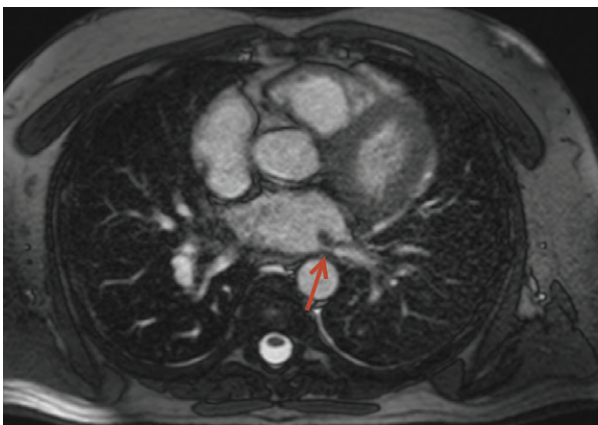


Figure 2. Left pulmonary vein stenosis—magnetic resonance.

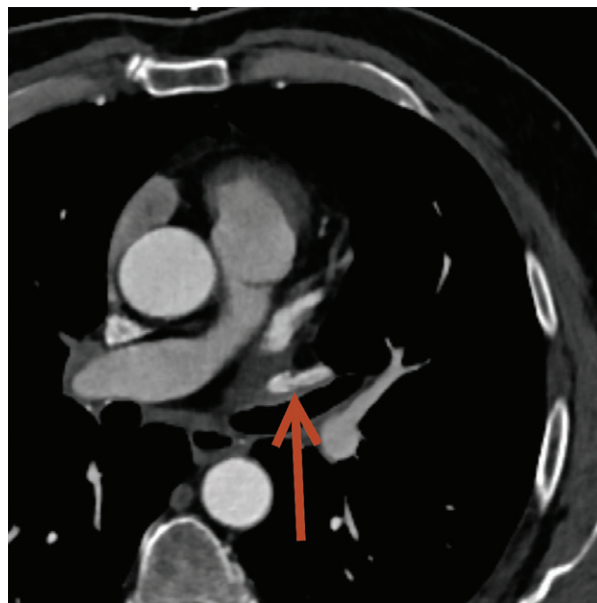


Figure 3. Drug-eluting stent in left upper pulmonary vein.

[2]. Symptoms, such as haemoptysis, usually suggest severe vessel obstruction (>70%) [3].

The literature on managing pulmonary vein (PV) stenosis is still limited. However, the consensus is that symptomatic patients should be treated with angioplasty with or without stenting [3,4]. Whether asymptomatic patients should receive such treatment remains unsettled. The success rate of the initial procedure varies from 43% to 100% according to different authors and/or different stents used.

For patient monitoring, TE Doppler and CT angiography are considered useful [3,5]. It should also be noted that the experience with pulmonary vein stents is as yet limited. The risk of restenosis is considered greater due to the low flow in the vessel. Thus, it is recommended to use not only aspirin and clopidogrel but oral anticoagulants as well for at least 12 months after treatment [4].

In addition to angioplasty, several different surgical procedures may be applied as they have been used in pulmonary vein stenosis. However, only the sutureless technique has been reported to be successfully used in this particular post-ablation stenosis [6].

Disclosure Statement

No conflict of interest declared.

Appropriate written informed consent was obtained for publication of this case report and accompanying images.

Acknowledgments

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