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Right atrial myxoma as an atypical source of pulmonary embolism

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Abstract

The most common primary benign heart tumor is myxoma, located only 10–20% in the right atrium. Right heart tumors are a rare cause of pulmonary embolism. In this paper, we present a case report of a 42-year old patient with a tumor of the right atrium and acute pulmonary embolism. The described case confirms the important role of imaging modalities in the diagnosis of proliferative changes in the heart.

Key words: heart tumors, myxoma, pulmonary embolism

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Introduction

Additional masses in the right heart chambers are usually thrombi; they are detected in 4% of patients with pulmonary embolism [1]. Despite the epidemiology supporting a thromboembolic aetiology, pathological structures within the cardiac chambers should always be differentiated by imaging and histopathological examination from proliferative lesions, vegetations, inflammatory tumours or abscesses.

Here we report the case of a 42-year-old female patient with clinical presentation of a right atrial tumour in the setting of acute pulmonary embolism.

Case report

The patient, 42, not yet chronically treated, was admitted to the Department of Cardiology because of progressive impairment of exercise tolerance that started three weeks before. An electrocardiogram on admission showed atrial fibrillation with a ventricular rate of approximately 120 bpm (an arrhythmia diagnosed for the first time). Laboratory tests: d-dimers: 1817 µg FEU/L, N-terminal pro B-type natriuretic peptide: 1969 pg/mL, troponin T determined by high-sensitivity method: 0.01 ng/mL. Echocardiography revealed an additional longitudinal heteroechogenic structure (50 mm long) in the right atrium, with a peduncle in the posterosuperior margin of the fossa ovalis, protruding into the tricuspid opening, without signs of pressure overload of the right heart chambers, with good left ventricular systolic function with an ejection fraction of 60%, moderate mitral and tricuspid regurgitation and moderate enlargement of both atria. The location of the tumour indicated the presence of a thrombus, but its morphology was more consistent with a cardiac myxoma. The patient had no previous history of deep vein thrombosis. An angio-computed tomography of the pulmonary arteries was performed, which confirmed the presence of an additional structure in the right atrium and showed embolic material in the arteries to segments 2, 3, 6 of the right lung and a dilated pulmonary trunk

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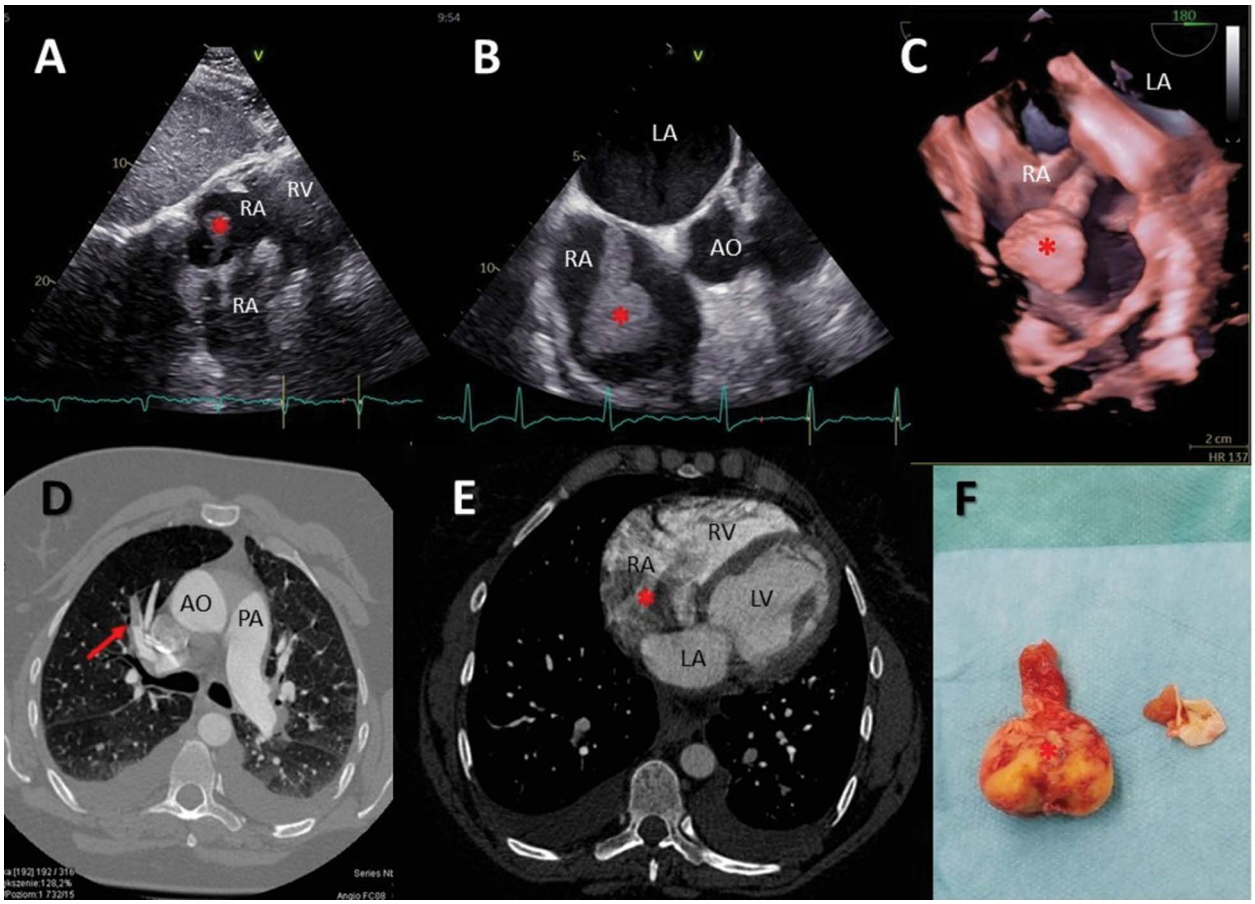

Figure 1A. Transthoracic echocardiography — substernal view; **B.** Transoesophageal echocardiography — high transoesophageal view, 2D greyscale imaging, an asterisk indicates the right atrial pedunculated tumour in the fossa ovalis region of the interatrial septum; **C.** 3D echocardiography — volumetric mapping, an asterisk indicates the right atrial pedunculated tumour in the fossa ovalis region of the interatrial septum; **D.** Computed tomography of the pulmonary arteries, an arrow indicates embolic material in the segmental arteries of the right lung; **E.** Cardiac computed tomography, an asterisk indicates right atrial tumour — motion artefacts present; **F.** Intraoperative image — the resected right atrial tumour (marked with an asterisk) and part of the interatrial septum; LA — letf atrium; LV — left ventricle; PA — pulmonary artery; RA — right atrium; RV — right ventricle

(Figure 1). A compression ultrasound of the lower limb veins was performed — negative. The patient was consulted for cardiac surgery and qualified for urgent surgery.

The patient was transferred to the Department of Cardiac Surgery of this hospital, where under extracorporeal circulation and antibiotic cover, the heart tumour with its base and the embolic material from the pulmonary artery branch were removed. On the second postoperative day, a transient cerebral ischaemic episode occurred (no abnormality in the follow-up computed tomography scan). On the following day, the neurological symptoms subsided. Due to atrial fibrillation of unknown duration detected in the Cardiology Department, electrical cardioversion was performed, and sinus rhythm was restored. The patient was discharged home in overall good condition. The histopathological examination of the tumour confirmed the diagnosis of myxoma. A few months' follow-ups confirm the good effect of the procedure; the patient does not report any complaints; she remains under the care of the Cardiology Outpatient Clinic and awaits the follow-up cardiac magnetic resonance imaging.

Discussion

The source of pulmonary embolism is usually deep vein thrombosis and sometimes tumours of the right heart. Cardiac tumours are rare, usually metastatic. The differential diagnosis of a pathological structure in the right cardiac chambers in adults should include a thrombus, cardiac tumour, abscess, or vegetation [2]. The most common primary benign cardiac tumour is myxoma, located in 15–20% of cases in the right atrium. This pedunculated tumour originates in the right atrium, typically from the fossa ovalis, where it joins the interatrial septum. The symptoms

depend on the exact location, structure, fragility, and mobility of the lesion [3, 4]. Right atrial myxoma may remain asymptomatic or manifest with symptoms associated with tricuspid opening blockage or right heart failure [5, 6] and tissue pulmonary embolism. The predominant symptom is dyspnoea, while atypical clinical presentations include syncope, palpitations, atypical chest pain, or pulmonary embolism [7].

Due to the risk of serious complications, prompt diagnosis is essential and diagnosed myxoma requires cardiac surgery, which significantly improves patient prognosis [8, 9].

The case presented here is an example of an unusual background of embolism and a rare location of myxoma. Furthermore, it confirms the critical role of imaging studies in the diagnosis of proliferative cardiac lesions and the key part of the collaboration between cardiology specialists in diagnosing and treating patients with cardiovascular disease.

Conflict of interest

The authors declare no conflict of interest.

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