

A 79-year-old man with pericardial tumor (RCD code: VI-1B.4)

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Abstract

A huge pericardial tumor was incidentally detected in 79 year old man during routine transthoracic echocardiography which was not presence in previously performed echocardiography studies (the last was 4 months ago). Tests performed (CT, CMRI) showed that the tumor did not significantly impair function of the heart or coronary arteries and suggested it was rather benign which was in discrepancy with a short history of appearance such a large tumor. The patient was referred for surgical treatment. During the procedure the tumor was initially identified as angiosarcoma and found to be inoperable. Only a biopsy for histological examination was performed, and Histopathological analysis indicated haemangioma without evidence of malignant tissue. After 4 months the patient stays in good condition. JRC D 2014; 2 (1): 27–30

Key words: haemangioma, CMRI, haemangiosarcoma, echocardiography

Background

Primary pericardial tumors are very rare and much less common than the metastatic ones [1]. Cardiac hemangiomas comprise 2% to 5% of benign cardiac tumors and affect patient in all ages [2]. They can occur anywhere in the heart, however, pericardial hemangiomas are extremely rare [3,4,5]. Only single cases were described in the literature. Histopathologically, cardiac haemangiomas can be capillary, cavernous or arteriovenous type. This report presents the giant pericardial tumor accidentally detected in asymptomatic volunteer of the echocardiography course.

Case presentation

A 79-year-old Caucasian man was referred to Department of Cardiac and Vascular Diseases because of the pericardial tumor diagnosed during routine transthoracic echocardiography study which was not presence in previously performed echocardiography studies.

The patient had a history of coronary artery disease, in 2012 he underwent the circumflex coronary artery angioplasty with drug-eluting stent in proximal segment and balloon angioplasty of

distal segment of that artery. After that procedure the patient was in regular cardiological workup, including transthoracic echocardiography twice a year (the last one 3 months ago).

Other patient's medical problems involved type 2 diabetes, prostatic hypertrophy and liver haemangioma (21 × 11 mm). He was in good condition and denied any symptoms or traumas. However, in ECG atrial fibrillation with average heart rhythm 90 bpm was detected for the first time. There were no signs of heart failure in physical examination. Blood tests revealed no abnormalities (Table 1).

On echocardiography the enlarged size of both atria (left atrium area of 29 cm², right atrium area of 31 cm²) and normal size of ventricles (left ventricle 52/37 mm, left ventricle 26 mm) was seen. The ejection fraction was mildly decreased to 45% with no wall motion abnormalities. There was no significant valvular heart disease. In the pericardium polycyclic structure, adjacent to the inferior wall of the left ventricle and measuring 102 × 61 mm was revealed. The color Doppler flow was noted within the structure but it did not seem to have communication with the cavities of the heart (Figure 1). The was only physiological pericardial effusion.

Diagnosis of the tumor was extended to cardiac magnetic resonance (CMR) that confirmed the presence of pathological structure in the pericardium. The tumor had polycyclic, smooth contours

Conflict of interest: none declared.

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Table 1. Basic laboratory tests revealing no significant abnormalities

	value	reference values
WBC	7,17 10 ³ /mcl	[3,80 – 10,00]
RBC	4,79 10 ⁶ /mcl	[3,70 – 5,10]
HGB	14,6 g/dL	[12,0 – 16,0]
HCT	43,2 %	[37,0 – 47,0]
MCV	90,2 fl	[80,0 – 99,0]
PLT	163	10 ³ /mcl [140 – 440]
INR	1,04	[0,85 – 1,15]
TCHOL	2,97 mmol/L	[3,00 – 5,00]
LDL	1,55 mmol/L	[< 1,80]
HDL	1,11 mmol/L	[> 1,00]
TG	0,91 mmol/L	[< 1,70]
CRP	1,0 mg/L	[<5,0]
eGFR	76	[>60]
K+	4,5 mmol/L	[3,5 – 5,1]
Na+	141 mmol/L	[135 – 145]
TSH	1,3 μmol/L	[0,27 – 4,20]
Glucose	11,4 mmol/L	[3,40 – 5,60]
ALT	16 U/l	
AST	15 U/l	

WBC – white blood cells, RBC - red blood cells, HGB - hemoglobin, HCT - hematocrite, MCV – mean cell volume, PLT - platelets count, INR - international normalized ratio, TCHOL – total cholesterol, LDL - low density lipoproteins, HDL - high density lipoproteins, TG – triglycerides, CRP - C-reactive protein, eGFR - estimated glomerular filtration rate, TSH – thyroide stimulating hormone, ALT - alanine aminotransferase, AST - aspartate transaminase

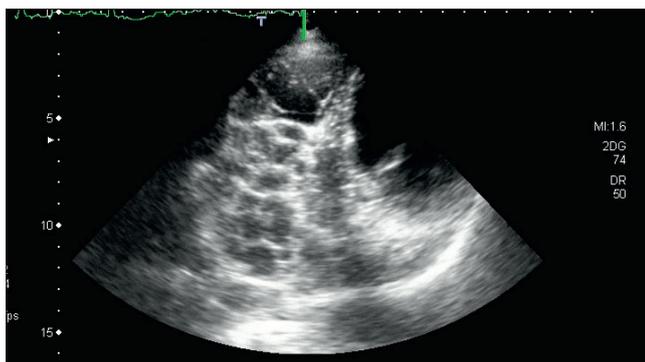


Figure 1. Transthoracic echocardiography, parasternal short view. The pathological structure in pericardium

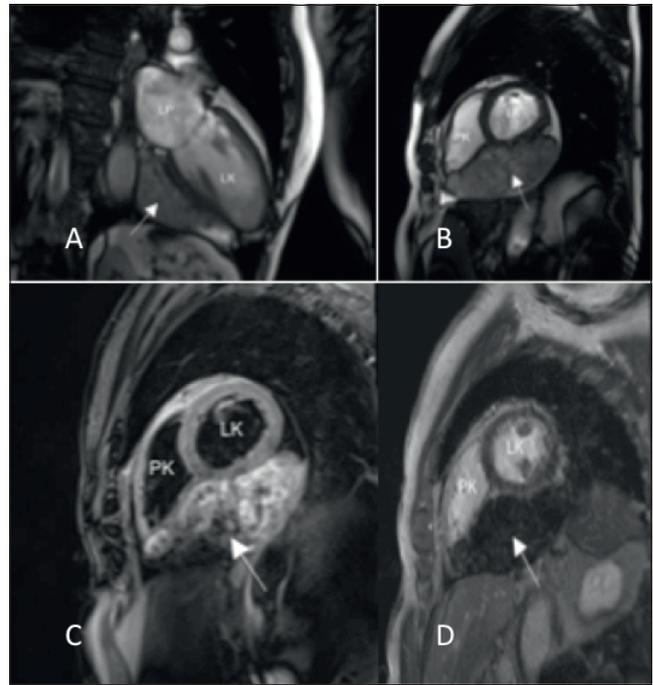


Figure 2. Cardiovascular Magnetic Resonance. **A.** Cinematographic images cine GE (Gradient Echo) long axis dual-chamber view. **B.** Cinematographic images cine GE (Gradient Echo) short axis view. **C.** T2 dependent image (STIR sequence called. Short Time Inversion-Recovery) in the short axis view. **D.** T1 dependent image GE (Gradient Echo) after application of contrast (late contrast imaging) in the short axis view. White arrow-pericardial tumor.

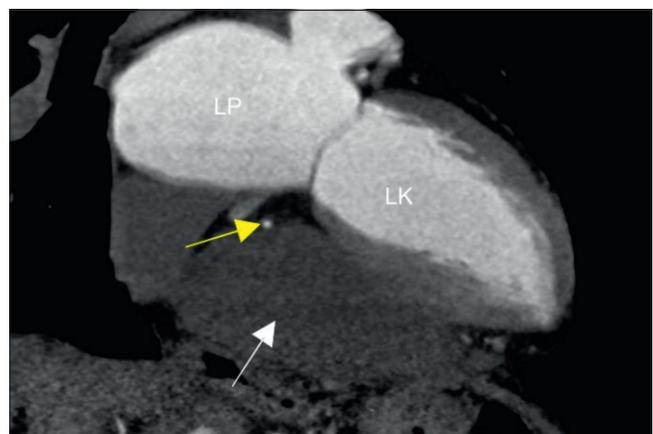


Figure 3. Computed tomography CT, multi-faceted reconstruction (MPR called. Multiplanar Reformation). White arrow – tumor change. Yellow arrow – right coronary artery modeled by a tumor

and dimensions of 91 × 124 × 57mm. It modeled adjacent inferior heart wall and both atria, especially the right one, caused narrowing of the tricuspid annulus and adjoined to the anterior wall of descending aorta, vena cava inferior and esophagus. In CMR the tumor showed a heterogeneous signal, however no flow within it, communicating with the heart cavities or evident infiltration of adjacent structures was revealed (Figure 2).

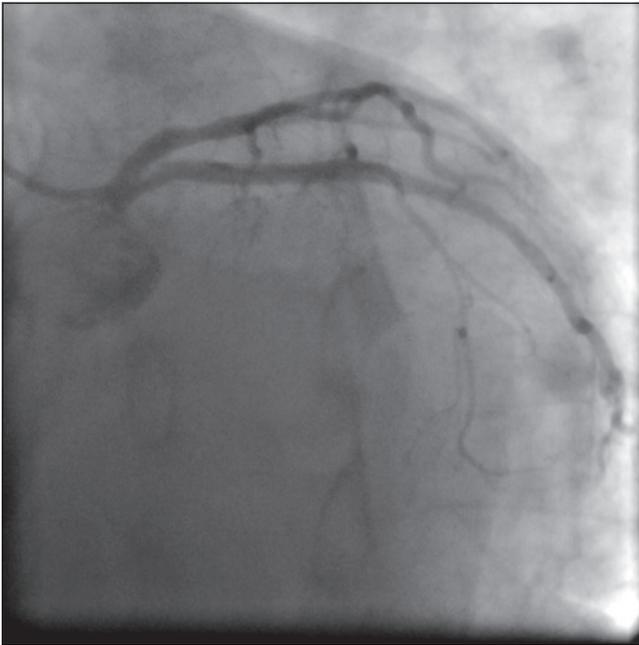


Figure 4. Coronary angiography without significant stenosis in coronary artery

Because of inconclusive results of CMR, computed tomography angiography was performed (CT) (Figure 3). That study showed that there were no calcification in the tumor and it was mostly separated from the heart by adipose tissue. Distal part of right coronary artery was partially within and partially on the surface of the tumor. In the differential diagnosis also hematoma after previous angioplasty performed two years earlier was taken into consideration.

Coronary angiography revealed no significant stenosis of coronary arteries and the proper result of prior angioplasty of circumflex artery (Figure 4). Ventriculography showed normal contractility of left ventricle walls (ejection fraction 55%) and flat contour of the inferior wall. No blood vessels feeding the tumor extending from coronary arteries were revealed.

Performed imaging studies showed that the tumor did not significantly impair function of the heart or coronary arteries and suggested it was rather benign which was in discrepancy with a short history of appearance such a large tumor.

Literature review

Most cardiac hemangioma are asymptomatic. If present, symptoms are not specific and depend on the location, size of hemangioma and its compression on adjacent structures. The clinical presentation involves: dyspnea, chest pain, dysrhythmia, heart failure, cough or dysphagia, sudden cardiac death, pericardial effusion or recurrent tamponade [6-9].

The natural history of cardiac hemangiomas is difficult to predict. It covers both accelerated growth, lack of progression for 20 years or even spontaneous involution [2,10,11].

Noninvasive diagnostics of hemangioma include transthoracic echocardiography, CT and CMR. These studies allow to assess

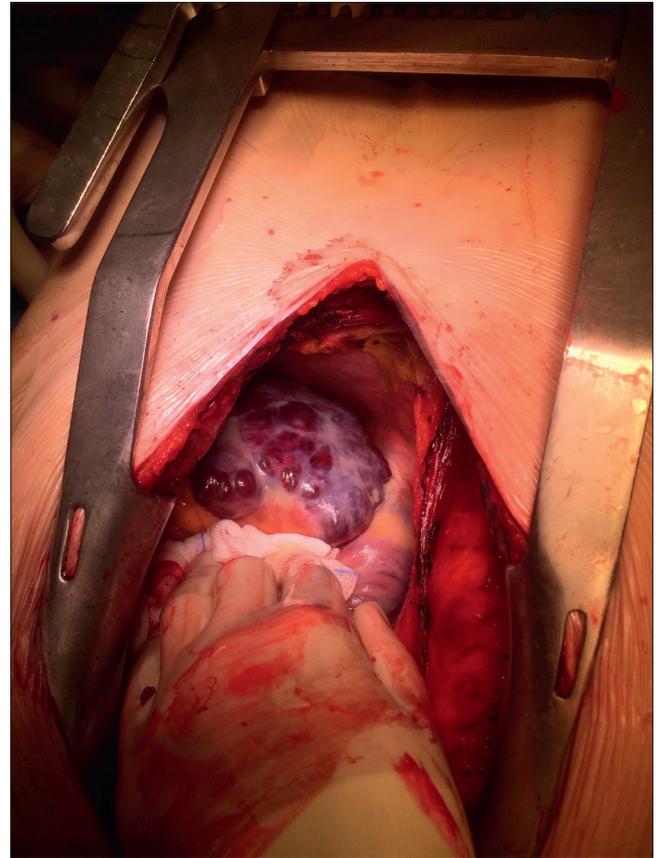


Figure 5. Huge pericardial tumor – intraoperative view

the appearance of the tumor, its impact on adjacent structures and cardiac function. Moreover, coronary angiography should be performed routinely because vessels feeding the pericardial tumor can also be supplied from the coronary arteries and identifying the origin of blood supply is essential for surgical management. Results of these studies allow to make initial diagnosis and enable to plan surgery. Definitive diagnosis is usually made based on postoperative pathological findings [2,12].

For primary pericardial tumors, radical surgery is the treatment of choice whenever possible, with acceptable operative risks, especially if clinical symptoms occur, but also to prevent mechanical consequences of tumor growth [2,11-13]. After surgery the long-term outcome for benign hemangioma are favorable, however hemangiomas have the potential to recurrence if the resection is incomplete [12,13].

Patient management and follow-up

The patient was referred for surgical treatment. During the procedure the tumor was initially identified as angiosarcoma (Figure 5) and found to be inoperable. Only a biopsy for histological examination was performed. However, histological results confirmed the diagnosis of hemangioma. The patient was qualified for further conservative treatment and close observation. After 4 months of tumor diagnosis the patient is still asymptomatic and there is no disease progression.

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