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Valve or atrial tumor? Echocardiographic imaging and successful therapy in a patient with a pathological cardiac mass

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A 62-year-old woman without prior medical history was referred to a rheumatologist due to a pain, redness and swelling of several fingertips of both hands, which appeared within a few days (Fig.1A). Initially, rheumatoid arthritis was suspected. The patient denied any cardiovascular symptoms such as dyspnea, chest pain or arrhythmia. Soft diastolic heart murmur was found on a physical examination. Basic laboratory tests were within the normal range. Transthoracic echocardiography (TTE) revealed a large, irregular and soft pathological mass, 48x32mm in size, which appeared to be directly attached to the anterior leaflet of the mitral valve (MV) (Fig.1B). We did not register a separation of the mass from the MV in any projection. No peduncle originated from the interatrial septum (IAS) was seen. A rare myxoma of the anterior mitral leaflet (AML) was suspected. Three dimensional TTE showed a few small mobile fragments on the tumor surface (Fig.1C; Video S1). A Doppler assessment revealed a moderate functional mitral stenosis (mean gradient 8 mmHg) (Fig.1D).

The tumor was precisely resected five days after TTE due to an increased risk of MV obstruction and systemic embolism. Surgeons found a fragile mass with a very short peduncle (Fig.1E), attached to the IAS directly above the AML. The removed lesion had not damaged the AML so the MV repair or replacement was not necessary. A histological examination confirmed myxoma. Follow-up TTE performed 3 months after the surgery was normal (Fig.1F). Pathological lesions in the fingers did not recur.

Myxoma is the most common cardiac tumor located in the LA, usually pedunculated and attached to the central part of IAS in the fossa ovalis area [1]. Importantly, echocardiography may be misleading in cases of myxomas located directly above the MV, which may mimic AML tumors. Location and invasiveness of the tumor affect the extent of the surgery and in some patients with AML myxoma valve reconstruction or replacement may be required [2].
In the described case, echocardiography suggested MV infiltration and a possible intervention on the valve. The AML involvement was finally excluded during the surgery.

It should be noted that other imaging modalities such as computed tomography and magnetic resonance may be also helpful diagnostic tools in locating the tumour attachment site [3].

Patients with myxomas may present nonspecific general symptoms, valve obstruction symptoms and systemic embolism including stroke [1,4].

An embolic material usually contains fragments of the tumor or thrombi formed on its surface [1,4]. In our patient, we considered peripheral microembolism as a cause of pathological vascular lesions of the fingertips that disappeared after the tumor removal. No other symptoms of the disease were found. It is of note that multiple small emboli may sometimes mimic vasculitis and cause arthralgia, [5] therefore, patients are referred to specialists other than a cardiologist, which may extend the time to make the correct diagnosis.
References


Figure 1.

A. Swelling and redness of the index fingertip.

B. A pathological mass possibly attached to the anterior mitral leaflet prolapsing into the left ventricle during diastole; TTE, long axis view.

C. A small mobile fragment on the tumor surface (arrow); three dimensional TTE, four chamber view.

D. Doppler measurements indicating a functional mitral valve stenosis.

E. A myxomatous fragile mass removed from the left atrium.

F. Normal mitral valve morphology in follow-up TTE three months after the surgery (arrow); TTE, four chamber view.

AML- anterior mitral leaflet, Ao – aorta, LA- left atrium, LV- left ventricle, TTE- transthoracic echocardiography;
Supplementary material

Video S1

A large tumor with soft texture, probably attached to the anterior mitral leaflet, with a few small mobile fragments on its surface; three dimensional transthoracic echocardiography, four chamber view.