The Importance of Ultrasound in a Case of Stroke Caused by Left Atrial Myxoma

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Abstract

Myxoma is one of the most common cardiac tumors. It is relatively straightforward to diagnose by echocardiography. Sometimes, it can cause cardiac syncope and thromboembolic events. A woman without comorbidities was admitted to our hospital with stroke symptoms: left-sided hemiplegia and dysarthria. After brain computed tomography (CT) and angio-CT value, she was initially treated with pharmacological thrombolysis. Due to persisting symptoms, cerebral angiography and thrombectomy were then performed. At the end of this procedure, the patient had a complete neurological recovery, but she developed new symptoms, such as dyspnea and orthopnea. Transesophageal echocardiogram showed an atrial mobile mass. Therefore, an urgent cardiac surgery was performed in order to remove the mass. Histological examination confirmed cardiac myxoma. Our experience could show the importance of echocardiography to early diagnosis.

Keywords: Cardiac myxoma, echocardiography, stroke, thrombectomy, ultrasound

INTRODUCTION

Myxoma is one of the most common cardiac tumors. Up to 90% of myxomas are located in the left atrium, with most of these tumors involving the atrial septum.[1]

Cardiac myxomas are noncancerous primary tumors of the heart and constitute about 50% of all primary heart tumors. Myxomas occur most often in female patients aged 30–70 years.[2]

In most cases, myxomas are solitary, but in their familial form, they can be multiple and recurrent.

They may present with embolism, obstruction of intracardiac orifices, or systemic symptoms associated with cytokine release; sometimes, no symptoms occur at all.[1]

CASE REPORT

We present the case of a 66-year-old female who was admitted to the emergency room due to left-sided hemiplegia accompanied by dysarthria for a 3-h history of acute onset.[3]

The patient had no other significant diseases and did not take any medications.

At the neurological evaluation, the patient showed a deficit of left strength and difficulty in speaking with the National Institutes of Health Stroke Scale (NIHSS) <7.[4,5]

Brain computed tomography (CT) and angio-CT showed the obstruction of the distal segment of the right middle cerebral artery. Alberta Stroke Program Early CT Score was 4.

Intravenous pharmacological thrombolysis was performed with recombinant tissue plasminogen activator (rtPA) within 3 h of the onset of symptoms. No clinical improvement has occurred after the treatment, and NIHSS value was 11.[6,7]

Brain angiography with thrombectomy and revascularization of the right middle cerebral artery was subsequently performed.[4]

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The patient had a complete neurological recovery but the onset of symptoms such as dyspnea and orthopnea.

An atrial mobile mass, which was attached to the interatrial septum with partial prolapse into the left ventricle during systole, was detected by Transthoracic echocardiogram (TTE) [Figure 1].

Transseophageal echocardiogram (TEE) confirmed the presence of an irregular pedunculated portion projecting and obstructing on the mitral valve and causing obstruction on the left ventricular outflow with significantly elevated pulmonary artery hypertension (45 mmHg) [Figure 2]. Mass measured was 4.5 cm × 2.2 cm. Left ventricular systolic function was mildly reduced.

Anticoagulant and antithrombotic therapy was administered, urgent cardiac surgery was performed, and the mass was confirmed as a myxoma.

Cardiopulmonary bypass was established with conventional mild hypothermia (32.0°C). During an anoxic arrest for 25 min with single aortic cross-clamping, the tumor of the interatrial septum was excised through an oblique and longitudinal atriotomy [Figure 3].

Histological examination confirmed cardiac myxoma.

She was extubated on the 1st day and then discharged on the 3rd day. She had an uncomplicated postoperative course.

**DISCUSSION**

Atrial myxoma is a rare cause of brain stroke requiring a thorough investigation to reach a diagnosis.

Clinical manifestations of atrial myxoma are manifold and different. The patients usually present one of these diseases: arrhythmias, intracardiac flow obstruction, and embolic phenomena.[1]

Myxoma could also cause acute paroxysmal dyspnea or syncope from “ball-valve blockade” of mitral orifice or mitral insufficiency from interfering with the mitral valve closure or damaging mitral leaflets.[2]

Patients with left atrial myxoma usually present with signs and symptoms of thromboembolic events.[1]

Certain conditions must be distinguished from myxoma such as thrombi, other primary cardiac tumors, metastases, and vegetations.[1,3]

Transthoracic echocardiography, a noninvasive method, is considered the imaging modality of choice for the diagnosis of cardiac myxoma, but a transseophageal approach provides a better definition of the location and characteristics of the tumor with a sensitivity of almost 100%.[8]

Two-dimensional echocardiography and color Doppler are the most common approaches used to diagnose myxoma and detect the hemodynamic changes.[9]

Typically, a left atrial myxoma arises from the interatrial septum at the level of the fossa ovalis, whereas atrial thrombi classically reside in the atrial appendage and the atrial body.[10]

In this clinical case, a pedicle attached to the left atrial lateral wall might have been the clue to the suspected diagnosis of myxoma.

In atypical cases, cardiac CT or magnetic resonance imaging is recommended.[11]

**CONCLUSIONS**

Atrial myxoma is a rare cause of brain stroke. The gold standard for the diagnosis remains pathological evidence, but TTE and TEE are essential for proper diagnosis and treatment.[8]

Surgical removal of cardiac mass remains the definitive treatment and is fundamental both to achieve the correct
diagnosis and to avoid inferior vena cava occlusion or thromboembolic risks.[12]

Ultrasound method increases their awareness of this disease and is able to the early diagnosis of such tumors. It is pertinent to have echocardiography done in patients who present with symptoms at hospital admission.

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Conflicts of interest
There are no conflicts of interest.

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