

## THE FOUR CORNERS

### CLINICAL VIGNETTE CORNER

# Embolic Stroke in a Patient With Left Atrial Myxoma



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#### ABSTRACT

We present a case of a patient with a left atrial myxoma who presented with an ischemic stroke. Her cardiac myxoma had an irregular contour and was highly mobile, both features that have been associated with a greater risk of thromboembolism. She was treated with prompt surgical resection. (JACC Case Rep. 2024;29:102852) © 2024 The Authors. Published by Elsevier on behalf of the American College of Cardiology Foundation. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

A 30-year-old woman with a medical history of hypertension, prior intravenous drug use, and dental caries presented with dizziness and numbness of both upper and lower extremities. She also reported intermittent palpitations, dull chest pain, and exertional dyspnea persisting for more than 6 months. The patient was afebrile and physical examination demonstrated normal S1 and S2 heart sounds without murmurs or gallops. The chest was clear upon auscultation, with no rhonchi or wheezing. Laboratory work demonstrated white blood cell count of  $6.4 \times 10^9/L$ . Electrocardiogram showed normal sinus rhythm, low voltage in the precordial leads, and diffuse T-wave inversions. The chest X-ray demonstrated a normal cardiac silhouette and clear lung fields. Magnetic resonance angiography of the head and neck was unremarkable for any significant stenosis or large vessel occlusion. However, magnetic resonance imaging of the brain detected multiple small ischemic strokes in the left cerebellum, left occipital lobe, right temporal lobe, and bilateral frontal lobes, without evidence of hemorrhage, suggestive of embolic strokes. This raised the concern for endocarditis, as the patient had a history of intravenous drug use and had poor dentition. However, blood cultures obtained on admission remained negative and transthoracic echocardiography revealed a large, irregular, mobile mass in the left atrium, attached to the interatrial septum, measuring  $5.8 \times 2.4$  cm (Figures 1A and 1B). It prolapsed

#### TAKE-HOME MESSAGES

- Multimodal imaging, including transthoracic echocardiogram and CT with contrast, can be used to differentiate myxomas from other types of cardiac masses.
- There are myxoma features such as increased mobility, irregular contour, and robust cardiac function that increase the risk of ischemic strokes; however, prompt surgical resection can lead to a favorable prognosis.

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The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the [Author Center](#).

Manuscript received July 16, 2024; revised manuscript received August 30, 2024, accepted September 9, 2024.

## ABBREVIATIONS AND ACRONYMS

CT = computed tomography

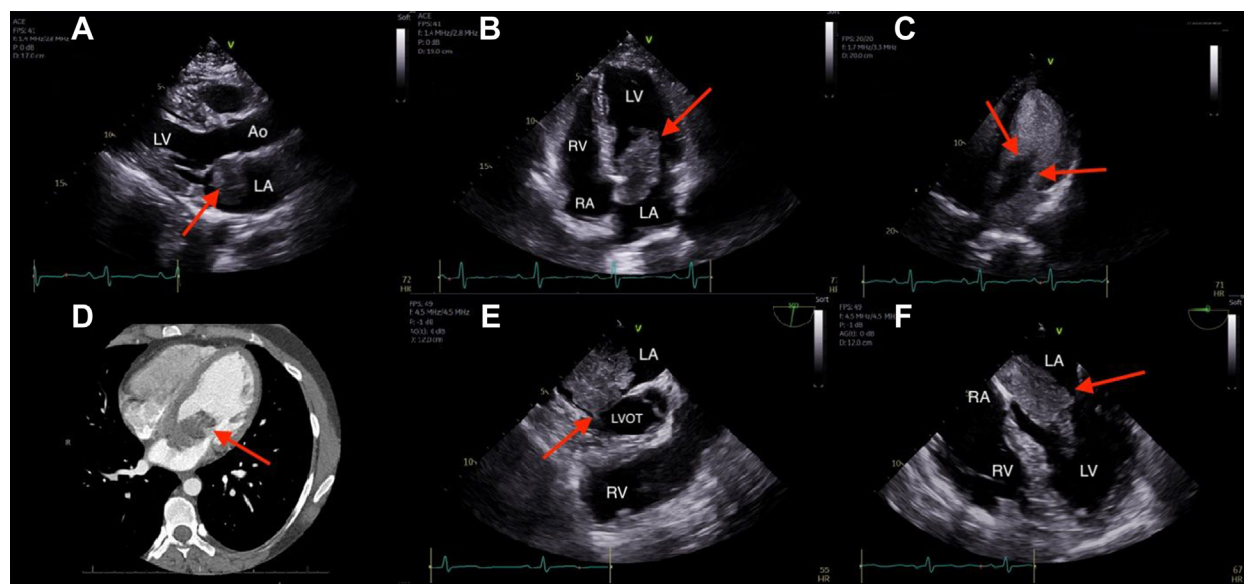
into the left ventricle and with Definity contrast, peripheral contrast uptake was seen within this mass (Figure 1C), findings suggestive of a cardiac myxoma.

Cardiac surgery was consulted and recommended dental clearance before any surgical intervention. Maxillofacial surgery assessed the patient and performed extractions of her carious teeth. A computed tomography (CT) angiogram of the coronary arteries was performed that did not show any coronary artery stenosis; however, again demonstrated a lobulated mass with heterogeneous contrast enhancement and broad-based attachment to the interatrial septum with dynamic prolapsing through the mitral valve into the left ventricle (Figure 1D). The patient was taken to the operating room for resection of the left atrial mass. Intraoperative transesophageal echocardiography showed the mass was adherent to the anterior mitral annulus via a stalk, but free from the valve leaflets (Figures 1E and 1F). The patient underwent successful resection of the left atrial mass without complications. Pathology of the resected mass was consistent with cardiac myxoma. The patient was discharged home shortly thereafter.

Between 20% and 45% of patients with cardiac myxoma experience embolic manifestations, which can occasionally serve as the initial symptom.<sup>1</sup> However, other types of cardiac masses can also result in embolic manifestations, hence it is important to distinguish a myxoma from a thrombus or vegetation. Contrast echocardiography is one modality that can be used to differentiate between intracardiac masses. Cardiac myxomas will exhibit partial contrast uptake; however, to a much lesser degree than a malignant tumor.<sup>2</sup> Thrombi and vegetations are avascular, hence will not demonstrate contrast uptake.<sup>2</sup> The same findings can be noted on a contrast-enhanced CT scan.

Location and mobility can also help differentiate between different types of cardiac masses and have been found to correlate with embolic risk. Myxomas usually adhere to the atrial septum via a stalk and prolapse through the mitral valve. On the contrary, thrombi are usually not mobile and almost never prolapse through the mitral valve. The embolic risk of an atrial myxoma often correlates more with its mobility,<sup>1</sup> irregular

**FIGURE 1** Multimodal Imaging Findings



(A) Transthoracic echocardiogram. Parasternal long-axis view showing a mass (arrow) in the left atrium, adherent to mitral valve annulus or left atrial septum. (B) Transthoracic echocardiogram. Apical 4-chamber view demonstrating the 2.5 × 6.4-cm left atrial mass with irregular contour (arrow), prolapsing into the left ventricle. (C) Transthoracic echocardiogram with Definity contrast demonstrates contrast uptake in the peripheries of the mass (arrows). (D) Gated cardiac computed tomography with contrast demonstrates heterogeneous contrast enhancement within the cardiac mass (arrow). (E) Transesophageal echocardiogram. Mid-esophageal aortic valve long-axis view demonstrates the left atrial mass adherent to the mitral valve annulus via a thin stalk (arrow). (F) Transesophageal echocardiogram. Mid-esophageal 4-chamber view demonstrates the highly mobile mass (arrow) prolapsing into the left ventricle. Ao = ascending aorta; LA = left atrium; LV = left ventricle; LVOT = left ventricular outflow tract; RA = right atrium; RV = right ventricle.

surface, smaller base size, and location, along with patient factors such as a diagnosis of hypertension and cardiac function.<sup>3</sup> Better cardiac function is associated with a greater risk of embolism.<sup>3</sup> Treatment of cardiac myxomas is prompt resection to prevent further complications. Comparing post-surgical outcomes of those with embolic phenomenon with those without revealed no differences in morbidity, mortality, and long-term survival.<sup>4</sup> Hence, the prognosis of patients with cardiac myxomas is generally favorable regardless of embolic phenomenon.

#### FUNDING SUPPORT AND AUTHOR DISCLOSURES

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The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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**KEY WORDS** cardiac mass, cardiac myxoma, ischemic stroke, systemic thromboembolism