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IMAGING

THE FOUR CORNERS: CLINICAL VIGNETTE CORNER

Giant Right Atrial Myxoma

Multimodality Imaging and Management

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ABSTRACT

A 35-year-old man presented to the emergency department with reports of chest pain, progressive shortness of breath, and pedal edema. He had a history of multiple hospital admissions without improvement. Multimodality imaging revealed a suspected giant right atrial myxoma. The patient underwent successful excision of the mass, and his symptoms improved postoperatively. Histopathologic examination of the mass confirmed the diagnosis of atrial myxoma. (JACC Case Rep. 2025;30:102772) © 2025 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 35-year-old man presented to the emergency department with reports of chest pain, progressive shortness of breath, paroxysmal nocturnal dyspnea, orthopnea, fatigue, and pedal edema. He was previously seen at multiple hospitals and also underwent laparotomy for appendicitis. On examination, the patient's blood pressure was 120/70 mm Hg, pulse rate was 90 beats/min, respiratory rate was 20 breaths/min, and oxygen saturation was 92% on room air. The patient was noted to be pale, jaundiced, and had a raised jugular venous pressure. Cardiac examination revealed a loud S1 and S2 but no murmurs, rubs, or gallops. Abdominal examination indicated mild enlargement of the liver. Laboratory tests revealed hemoglobin level of 9.0 g/dL, and the patient had abnormal liver function test results.

A 12-lead electrocardiogram revealed normal sinus rhythm with nonspecific ST-T wave changes (**Figure 1**). Transthoracic echocardiography and three-dimensional echocardiography showed a large mobile echogenic mass in the right atrium (RA), protruding into the right ventricle (RV) through the tricuspid valve, extending into the right ventricular outflow tract and causing inflow obstruction (Videos 1 and 2).

Computed tomography scan showed a dumbbell-shaped, well-encapsulated intracardiac mass (8.2 × 3.8 × 4.5 cm^3) in the RA extending into the RV (**Figure 1**). Cardiovascular magnetic resonance imaging showed a large, well-circumscribed, ovoid bilobed mass in the RA extending into the RV through the tricuspid valve (**Figure 1**, Video 3). Intraoperative transesophageal echocardiography confirmed the transthoracic echocardiography findings (Video 4).

The differential diagnosis included thrombus, malignant mass, and benign atrial myxoma. Based on multimodality imaging features, there was a higher suspicion for myxoma. A multidisciplinary team, including a cardiologist, cardiac imaging expert, and cardiac surgeon, recommended that the RA mass be excised given the

TAKE-HOME MESSAGES

- Multimodality imaging may be invaluable in diagnosing cardiac masses.
- A multidisciplinary team approach to management is recommended for complex cardiac masses.

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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.

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ABBREVIATIONS AND ACRONYMS

RA = right atrium

RV = right ventricle

patient's symptoms. Intraoperative findings revealed a right-sided mass measuring 8 × 5 × 3 cm^3 with a pedicel attached to the posterior wall of the RA (**Figure 1**). The mass was removed, and postoperative transesophageal echocardiography confirmed no remnants (Video 5). The resected mass was sent for histopathologic examination, the results of which were consistent with atrial myxoma. Postoperatively, the patient remained hemodynamically stable and recovered without any complications.

At the follow-up visit 2 weeks after surgery, the patient was doing well and reported no chest pain or dyspnea.

DISCUSSION

Cardiac tumors make up 0.2% of all tumors, with secondary tumors being 20 to 40 times more common.[1] Myxomas are the most frequent primary cardiac tumors, occurring in only 0.0017% of the population, with 75% occurring in the left atrium, 18% in the right atrium, and around 2% in the ventricles.[2]

Multimodality cardiac imaging is crucial in diagnosing and planning myxoma excision, offering valuable insights that influence treatment decisions and prognosis. Cardiovascular magnetic resonance imaging is pivotal in diagnosing myxomas and distinguishing them from other benign and malignant cardiac tumors because it allows for tissue characterization.[3] This case underscores the importance of narrowing down the diagnosis using imaging, which then leads to timely management and treatment of the patient.

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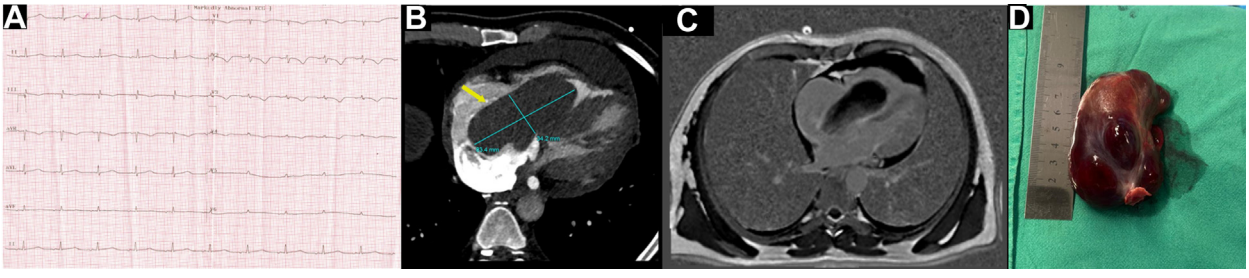
KEY WORDS imaging, multimodality, myxoma, right atrium

APPENDIX For supplemental videos, please see the online version of this paper.

FIGURE 1 Presenting Electrocardiogram, Computed Tomography, Cardiovascular Magnetic Resonance Imaging, and the Resected Mass



Presenting electrocardiogram with normal sinus rhythm with nonspecific ST-T changes (A), computed tomography scan showing a low attenuated dumbbell-shaped intracardiac mass in the right atrium extending into the right ventricle (B), cardiovascular magnetic resonance imaging showing a large well-circumscribed ovoid mass in the right atrium extending into the right ventricle (C), and the resected mass (D).