Letter to the Editor

A Rare Case of Angiosarcoma of the Left Ventricle Detected by Cardiac Magnetic Resonance Imaging

Christina Chrysohoou, Omosalewa Lalude, Arthur Stillman, Stamatios Lerakis

Emory University School of Medicine, Department of Medicine, Division of Cardiology, Atlanta, GA, USA

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Address:
Stamatios Lerakis

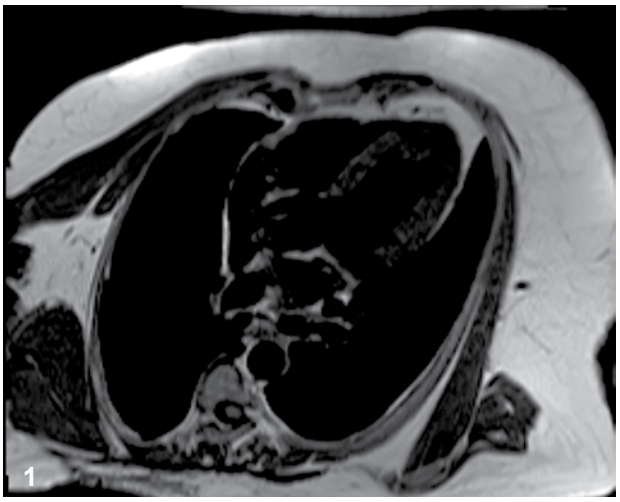
Emory Healthcare
1365 Clifton Road NE
Suite AT503
Atlanta, GA 30322, USA
stam_lerakis@emoryhealthcare.org

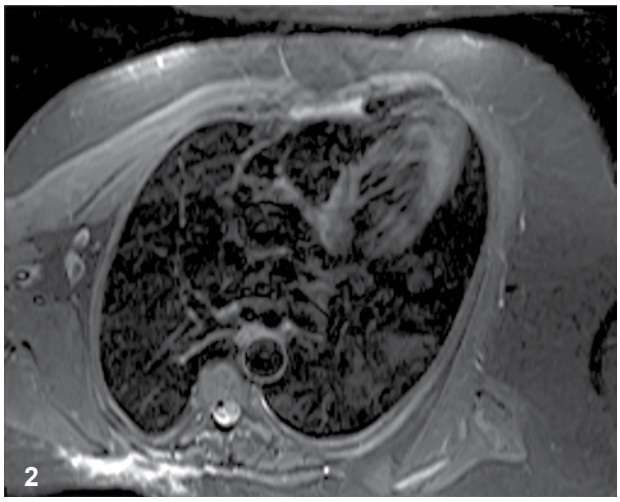
One of the main applications of cardiac magnetic resonance (CMR) is the detection of cardiac tumors and masses. Before the era of modern imaging, the diagnosis of cardiac tumors was extremely difficult and was often only possible with postmortem pathologic evaluation.

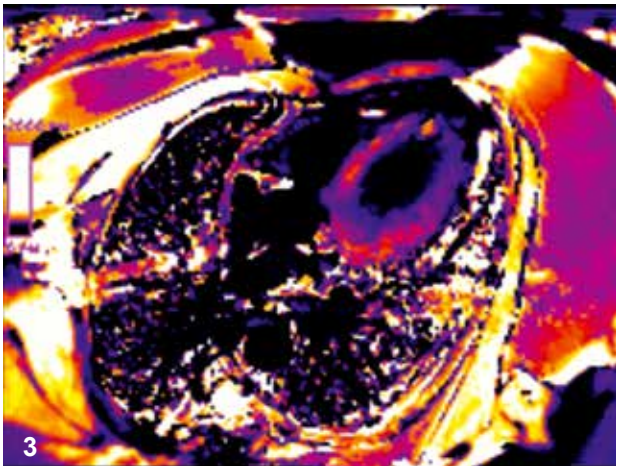
A 39-year-old male patient underwent CMR imaging because of dyspnea on exertion during the previous month. He had a known history of angiosarcoma for the past two years and had undergone surgical resection and chemotherapy treatment. CMR is the preferred imaging modality for the evaluation of patients with a suspected cardiac mass, as the multiplanar imaging capacity, the use of different echo sequences and the administration of paramagnetic contrast agents provide a more precise view of the anatomy of the mass, its relation with the surrounding tissues, border detection, the degree of mass vascularization, and histological detection.[1,2] For the detection and evaluation of cardiac tumors, the spin-echo technique uses dark blood for better visualization of the cardiothoracic anatomy, while the gradient-echo technique uses bright blood for the estimation of myocardial contractility, the site of implantation, the impact of the cardiac mass on myocardial function, and the presence of calcification.

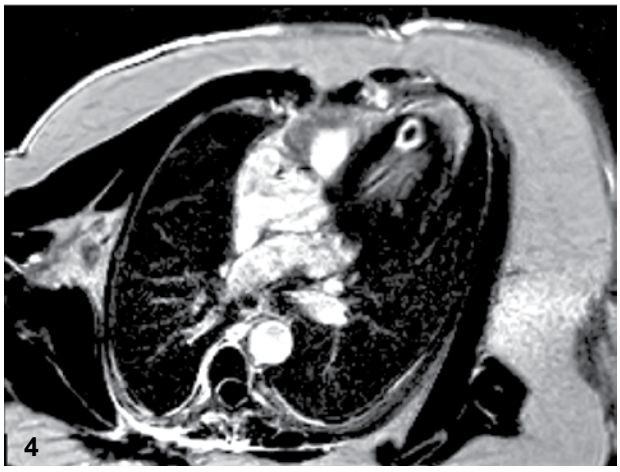
In this case, a mass was visualized at the apical anterior septum of the left ventricle. A characteristic presentation of angiosarcoma is the intermediate density of signal in T1-weighted images (Figure 1), while T2-weighted images show heterogeneity (Figure 2). This heterogeneous appearance in T2-weighted imaging may be due to the presence of hemorrhagic and necrotic material. Furthermore, areas of increased signal intensity have also been described on T1 images and may be secondary to the presence of blood products.[3] The differentiation from thrombus is feasible with contrast imaging, as cardiac tumors, which tend to have increased vascularity, enhance brightly with this contrast material, whereas thrombi tend to remain dark. In post T1 mapping the tumor shows increased density (Figure 3).

Late gadolinium enhancement (LGE) is currently the primary tool for tissue characterization in CMR and provides an excellent depiction of myocardial infarction (MI) and focal scar. It has become an accepted standard for assessing myocardial viability. Late enhancement imaging illustrates a bright ring with a dark necrotic core (Figure 4). Local nodular areas of increased signal intensity within areas of intermediate signal intensity have also been described and have been characterized as a "cauliflower" appearance. The combi-









Figures 1-4. See text for description.

nation of both post-contrast T1 and LGE is crucial, as both methods have limitations. A single post-contrast T1 measurement has limitations due to a variety of confounding factors, such as gadolinium clearance rate, time of measurement, injected dose, body composition, and hematocrit, while LGE may not detect a diffuse fibrosis.

References

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