

Assessing the “Possible Intracardiac Mass”: Methodological Imaging and Interpretation of Cardiovascular Magnetic Resonance Findings

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Target audience: This cardiovascular e-poster is designed to review the methodological imaging and interpreting process that clinicians should consider in cardiovascular magnetic resonance (CMR) assessment of “possible intracardiac mass”.

Background/Purpose: Tissue characterization is one of CMR’s many strengths that makes it unique from other imaging modalities that predominantly provide anatomic details. The literature is filled with charts that dogmatically characterize masses based upon their MRI characteristics (e.g., “this ‘x-y-z’ mass is always bright on T2-weighted imaging and dark on late gadolinium enhancement”). However, over-interpretation of tissue characterization findings can also lead to misleading conclusions. Additionally, the pitfalls related to “pseudo”- masses need to be considered in the imaging and interpretation process.

Outline of content: We propose to present a text and pictorial summary of various intracardiac mass types to demonstrate the heterogeneity that may occur during the tissue characterization process, using T1, T2, fat suppression and fat-water separation, first-pass perfusion, and late gadolinium enhancement techniques (see Figure 1 for example). We have a database of over 200 cases of well-characterized (example of characterization in Figure 2) mass types, (lipomas, benign tumors, malignant tumors, thrombi, aneurysms), many with histopathologic confirmation or treatment outcome data, and additional “no intracardiac mass identified by CMR” cases (crista terminalis, Chiari network, Eustachian valve, atypical epicardial fat, “warfarin ridge”) to be able to carefully dissect the thought process involved in dealing with “possible intracardiac mass” cases.

Conclusion: We conclude that while some tumor types can have “general” or “typical” tissue characteristic presentations, the interpreting physician needs to be judicious in the CMR interpretation findings. In most cases, CMR can identify normal structures that may appear to be a mass on other imaging modalities, and CMR can generally differentiate between cysts, vascular structures, fat, thrombi, and solid tumors.

Figure 1. Heterogeneous Late Gd Enhancement Patterns in Myxomas

The patient on the left has a right atrial myxoma that enhances brightly, and another right ventricular myxoma that has a mixed, heterogeneous pattern. The patient on the right has two myxomas that hypoenhance.

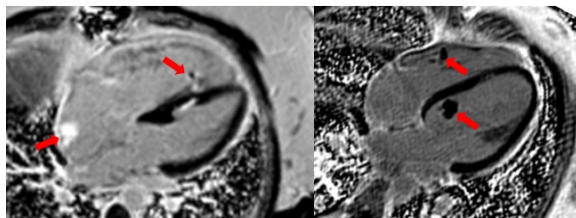


Figure 2. Multi-Sequence Tissue Characterization of Metastatic Adrenal Carcinoma

