Cardiac Masses

Author: Jason N. Johnson
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Indications and Purpose Of The Scan

- Although cardiac masses are rare, the management of cardiac masses differs according to the mass type and subsequent hemodynamic affects. CMR is the imaging modality of choice to define cardiac mass characteristics.

Description

- Cardiac cine images acquired without contrast for ventricular volumetric and valvular assessment to evaluate the hemodynamic effects of the cardiac mass. Standard short-axis cine stack, 2ch, 3ch, and 4ch cines should be combined with multiplanar assessment of the cardiac mass. Tissue characterization of the mass with T1, T1 with fat saturation, and T2 weighted images are performed prior to contrast administration. Perfusion imaging of the mass and delayed enhancement imaging (both with high inversion time and null inversion times) are recommended during and after gadolinium contrast administration.

Why CMR (Specific Advantages)

- In comparison to other imaging modalities, CMR has the benefits of multiplanar image acquisition, high spatial resolution imaging, large field of view, and tissue characterization. CMR is not limited by the acoustic windows of ultrasound, and it is radiation-free.¹

- CMR can risk stratify cardiac masses based upon tissue characterization and hemodynamic evaluation and distinguish a benign from a malignant process. The ability of CMR to reliably define these characteristics directly affects management strategy and allows for a “virtual biopsy”.² ³

Evidence Examples from The Literature

- When a comprehensive imaging protocol is utilized, CMR can predict the tumor type in children with cardiac masses. A multi-institutional study imaging various cardiac masses in children allowed the creation of a tumor diagnosis prediction table.²

- Comprehensive CMR imaging protocol in adults provides a confident risk-stratification and clinical-management tool in patients with cardiac masses.³

Contraindications

- Reasons to consider a test other than CMR include the presence of contraindications to MRI and severe renal failure (eGFR<30).

Appropriateness

- CMR is appropriate as part of a diagnostic work-up of suspected cardiac masses.¹
References

