Pericardial Disease

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Description

- A typical CMR for the evaluation of the pericardium includes a variety of pulse sequences. Cine-CMR can be used to quantify chamber size and function; black blood T1 with and without fat saturation is often used to measure pericardial thickness; T2-STIR images can help determine if the pericardium is actively inflamed; myocardial tagging is used to determine if the pericardium is tethered to the myocardium as a sign of constriction; late gadolinium enhancement can provide insight into whether there is pericardial and/or myocardial inflammation or fibrosis present, and real time cine images and phase contrast imaging can be used to determine if there is evidence of constrictive physiology.

Indications and Purpose of the Scan:

- To evaluate the pericardium for constriction and for masses/cysts.

Why CMR (Specific Advantages):

- CMR has the unique ability to look for the presence of pericardial inflammation and can in addition identify myocardial involvement in myopericarditis. This can be useful to make the diagnosis as a first test and can reduce additional testing with appropriate treatment initiated earlier (3).

Evidence:

- CMR provides anatomic, functional and hemodynamic information that can be very helpful in making the diagnosis of constriction.
- Delayed enhancement imaging by CMR identifies neovascularization of the pericardium.
- CMR provides an unobstructed view of the pericardium, which can be difficult to visualize on echocardiography due to limited acoustic windows. Evaluation of the CMR features using various sequences allows tissue characterization and can often help in understanding the etiology of pericardiac masses/cysts, evaluate for the need for further intervention, and assist in surgical planning when indicated.

Contraindications:

- Any implanted device that is not MRI conditional
- Inability to lie flat
- Inability to tolerate the scan
- Altered mental status/ inability to follow verbal commands in scanner
- Severe arrhythmias
Patient is a 48 year old female with SLE who presented with chest discomfort and shortness of breath. The patient’s physical exam and ECG were unrevealing. The Cardiac MRI reveals a thickened pericardium with significant delayed enhancement with gadolinium (red arrows). The patient was treated with steroids with complete resolution of her symptoms.

References: