Cardiac Sarcoidosis: An AHP Guide

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1. Introduction

Cardiac sarcoidosis is a rare but potentially life-threatening condition where abnormal clusters of inflammatory cells (granulomas) form in the heart tissue. It can lead to various complications, including arrhythmias, heart failure, and sudden cardiac death. While the exact cause remains unclear, it is most often seen in individuals with systemic sarcoidosis, a disease that affects multiple organs such as the lungs, skin, and lymph nodes.

Cardiac sarcoidosis primarily affects young to middle-aged adults, with a higher prevalence in men. If can present with diverse symptoms, making it challenging to diagnose. The disease can remain asymptomatic for years, or present with chest pain, palpitations, or syncope. A key feature of cardiac sarcoidosis is its ability to mimic other heart conditions, including myocarditis and coronary artery disease.

From a CMR perspective, cardiac sarcoidosis is characterized by the presence of myocardial inflammation and fibrosis. It is characterised by myocardial oedema, late gadolinium enhancement (LGE), and evidence of regional fibrosis. CMR is pivotal in confirming the diagnosis, assessing the extent of myocardial involvement, and guiding management. Understanding the patterns of LGE, oedema, and fibrosis distribution can assist in differentiating sarcoidosis from other cardiomyopathies.

2. CMR Protocol

	Sequence/Technique	Notes
1	Anatomy (Localisers)	Scout images to plan cardiac views
2	LV & RV Function – Cine SSFP	Long and short axis views to assess RV & LV size, EF and wall motion

3	T2-Weighted imaging	Detect myocardial oedema, typically in areas of inflammation or injury
4	T1 Mapping	Quantify myocardial fibrosis & inflammation to assess disease burden
5	LGE	Identify areas of active disease or fibrosis in endocardial or epicardial regions

3. Reporting Checklist

- LV: EDV, ESV, SV, EF (indexed to BSA)
- RV: EDV, ESV, SV, EF (indexed to BSA)
- Regional Wall Motion Abnormalities: Wall motion abnormalities can be present but are often patchy and non-coronary in distribution.
- Oedema: Distributes in areas with active inflammation, typically in the basal and mid-cavity regions.
- Myocardial granulomas on LGE imaging
- Extra cardiac findings

4. Key Diagnostic Criteria

- Restrictive LV pattern – non dilated ventricles, preserved LV function, restrictive filling pattern, enlarged LA/RA
- Cardiac involvement – in about 25% of patients with systemic sarcoidosis
- Myocardial granulomas on LGE: Intramural, spotty, predominantly basal lateral, respond to immunosuppressive drugs, enhancement not in CAD territory
- LV dysfunction common
- Oedema suggests active inflammation. May mimic HCM.
- Extra cardiac findings: Hilar lymphadenopathy, involvement of any other organ system possible.

5. Tips & Tricks for Allied Health Professionals

- High degree AV nodal blocks, AF, NSVT, are common

- High-Resolution Imaging: Ensure high temporal resolution cine imaging to assess left and right ventricular function.
- Ensure good fat suppression and minimal motion for accurate oedema detection. Must acquire pre contrast
- Fibrosis Detection: LGE imaging can be subtle; use correct inversion time (TI) to null normal myocardium .

Reference

Herzog, B. A., Greenwood, J. P., Plein, S., Garg, P., Haaf, P., & Onciul, S. (2017). Cardiovascular Magnetic Resonance Pocket Guide. Eur Soc Cardiol.