



## Pericarditis: An AHP Guide

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### Introduction

Pericarditis refers to inflammation of the pericardium and can lead to complications such as pericardial effusion and cardiac tamponade. Cardiovascular Magnetic Resonance (CMR) provides comprehensive anatomical and functional assessment and is useful in both diagnosis and monitoring. This protocol is tailored to allied health professionals performing CMR.

### CMR Protocol

Sequence/Step	Purpose/Notes
Anatomy (including T1 and T2 weighted imaging)	Evaluate pericardial thickness, inflammation and oedema
Cine Imaging (LV and RV function)	Assess global and regional function of both ventricles
Real-time free-breathing cine in 2 planes	Detect dynamic septal shift or chamber collapse
Real-time free-breathing cine (2 planes)	To evaluate septal motion and respiratory variation
Late Gadolinium Enhancement (LGE)	Assess fibrosis and inflammation of the pericardium and myocardium
Consider tumour protocol	If there is suspicion of pericardial mass involvement
Consider valve protocol	If associated valvular disease is suspected



### Technical Tips

- Use thin slice (6–8 mm) cine SSFP imaging for detailed wall motion and pericardial contour.
- Real-time cine should include at least short-axis and 4-chamber views during quiet respiration.
- LGE imaging should be optimized for the pericardium; inversion time may differ from myocardium.
- Distinguish pericardial effusion from pleural effusion using TSE signal properties.

### Reporting Essentials

1. Pericardial thickness (normal <3mm)
2. Presence and extent of pericardial effusion
3. Dimensions (corrected for BSA) and function: LV: EDV, ESV, SV, EF
4. Regional wall motion abnormalities
5. Septal wall motion during normal respiration and breath holding
6. Presence or absence of atrial or ventricular diastolic collapse
7. LGE in RV, LV and pericardium

### Tips & Tricks for Allied Health Professionals

1. Pericardial tamponade is a clinical diagnosis. Even a small and focal effusion can be hemodynamically significant.
2. Look for signs of tamponade: RA / LA collapse, RV / LV collapse, and septal shift towards LV during inspiration.
3. Calcification is better assessed on CT, not CMR.
4. Common causes of pericardial disease:
  - *Global effusion*: Uremia, infection, myxoedema, neoplasm
  - *Regional/localized effusion*: Post-op, trauma, purulent, cysts



5. Pericardial effusion may coexist with pleural effusion. On cine SSFP, both pleural and pericardial effusions appear bright—use T1/T2-weighted TSE to differentiate.

6. Effusion types and CMR characteristics:

<b>Effusion Type</b>	<b>T1 Signal</b>	<b>Cine Signal (b-SSFP)</b>
Transudate	↓	↑ Simple
Exudate	Variable	↑↑ Complex
Haemorrhagic	Variable	↑↑ Complex
Chylous	↑	↑↑ Simple

**Reference:**

Herzog, B. A., Greenwood, J. P., Plein, S., Garg, P., Haaf, P., & Onciul, S. (2017). Cardiovascular magnetic resonance pocket guide. *Eur Soc Cardiol*.

