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CMR is Superior to FDG-PET for Viability Imaging

Viability imaging is done to assess whether a myocardial segment affected by infarction has enough viable myocardium to justify revascularization.

FDG-PET and CMR are both equivalent when it comes to the assessment of viability per se.

However, CMR brings so much more to the table, providing information ranging from thrombus imaging to RV infarction to hemorrhage, etc. as the list below shows. CMR is also fast, simpler to do and needs no preparation.

CMR and infarct imaging apart from viability assessment.

1. Microvascular obstruction (MVO) and intramyocardial hemorrhage (IMH)
2. Thrombi
3. RV involvement
4. Papillary muscle involvement and mitral regurgitation (MR)
5. Aneurysms and ruptures

There is also additional information regarding “at-risk” myocardium and peri-infarct ischemia, but we will discuss this another time.

Given all the additional “infarct” related information that CMR gives, it is the modality of choice when it comes to viability and infarct imaging.

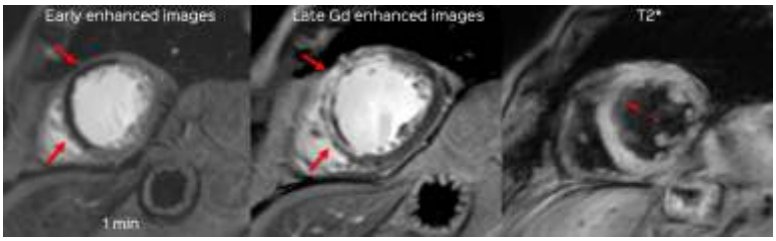

Fig. 1: MVO and IMH. This patient with an LAD infarct shows a large area of microvascular obstruction (MVO) on the early enhanced images (red arrow), with subtotal enhancement of the infarct on the late Gd images and low signal on T2* suggesting hemorrhage.

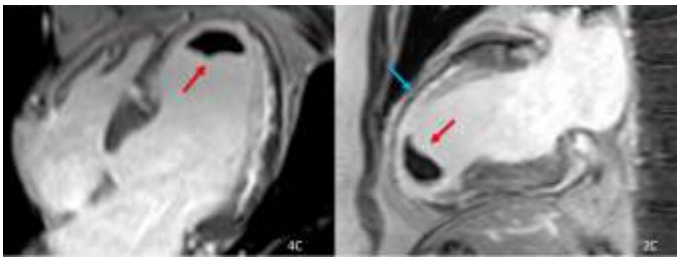

Fig. 2: Thrombus. 4C and 2C views show a non-enhancing large LV apical thrombus (red arrow), in a patient with a large LAD territory infarct (blue arrow).

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At a glance

- Cardiac MRI and FDG-PET are both equivalent when it comes to just assessment of viability, both superior to SPECT.
- However, CMR is the preferred modality because of all the additional information it provides about the infarct and the myocardium, all of which can impact prognosis, outcomes and management

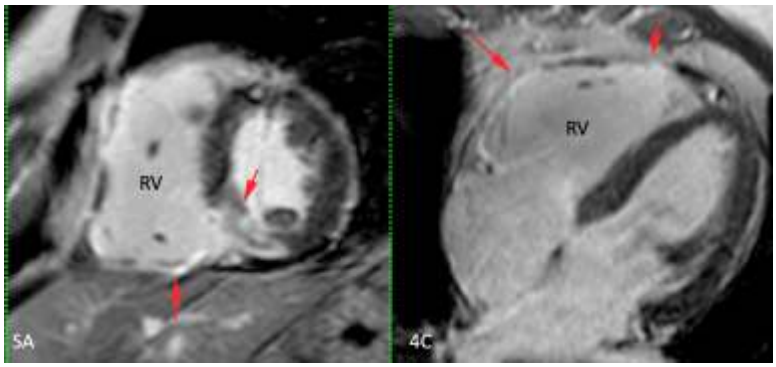

Fig. 3: RV involvement. The SA view shows an inferior wall RCA territory infarct in the LV, with a large infarct involving all the walls of the RV (red arrow), also well seen on the 4C image.

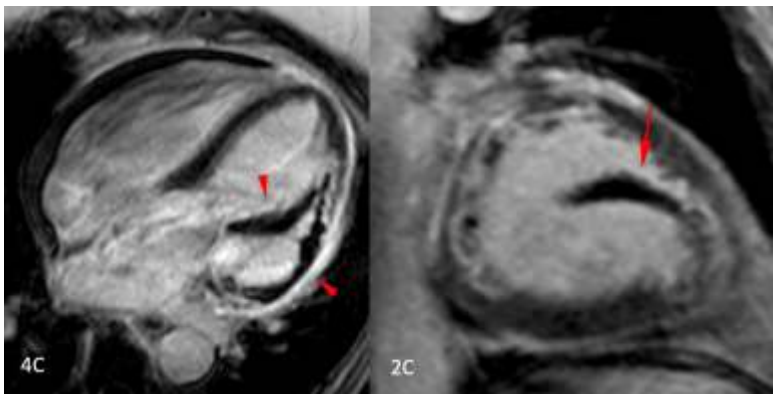

Fig. 4: Papillary muscle infarction. The 4C view shows a large LCx territory lateral wall infarct (arrow) involving the anterolateral papillary muscle (arrow), also well seen in the para-2C view. The patient had moderate mitral

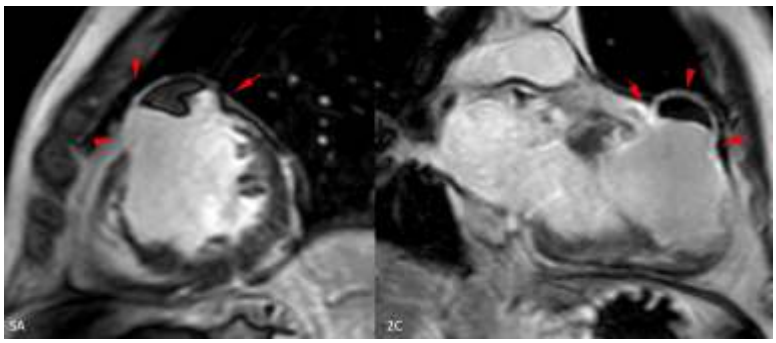

Fig. 5: Anterior wall blow-out. The SA and 2C views show a blow-out of the anterior wall, contained by pericardium with a large thrombus in the pseudoaneurysm.

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