

MCE for viability and revascularizations strategy in ischaemic cardiomyopathy

Clinical Case Portal

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Authors:

Nicola Gaibazzi
Reviewers: Benoy Shah, Roxy Senior

Abstract

Case from the [Contrast Echo Box](#)
[Detection of Viability](#)

Introduction

- 77 year old male: inferior MI at age 41, 2° MI 1996 -> CABG for diffuse severe 3-vessel disease
- Since then several admissions for heart failure and an ICD implanted for resuscitated VF
- Recent angiography shows disease in the LIMA graft which may be amenable to percutaneous revascularization, if distal myocardial tissue is viable
- MCE at rest is performed with SonoVue infusion (1cc/min)

Case Report

Figures 1-3: Consider that triggered imaging always shows more perfusion(bubbles) in the microcirculation than realtime, due to less bubble destruction.

Figures 4-6: Triggered and realtime 4-chamber view: apical and mid septal segments show only mildly reduced rest late perfusion, strongly suggestive of residual viability.

Figures 7-9: Note how realtime clips underestimate perfusion compared with triggered imaging.

Viability is absent only in the RCA inferior territory, while LAD territory is clearly mostly viable based on at least partly maintained perfusion at tissue level (microcirculation) in most LAD segments.

Figure 10: The lateral wall in this example is viable, as contrast uptake is seen after flash destruction (implying an intact microcirculation) The patient went on to have CRT device implanted and follow-up echo showed reduced LV volume (reverse remodelling) with improved ejection fraction.

Figure 11: This case helps to demonstrate the utility of MCE-derived viability assessment for determining optimal LV lead positioning .

Tips and Tricks in this case

Figures 12-15: This is a triggered sequence which has been created extracting single frames from a realtime sequence (37Hz).

Note how the apical defect, is more pronounced compared with a true triggered sequence (see previous slide) This is due to the relatively high frame rate of realtime imaging which destroys more microbubbles than using a single image per cycle: this may have a significant impact when perfusion is already compromised.

Figure 16: In this case anterolateral basal and mid segments become interpretable by selecting an end-diastolic frame instead of the commonly used end-systolic frames.

Video 1 :
[realtime 4 chamber view](#)



Video 2 :
[triggered 4 chamber view](#)



Video 3 :
[2 chamber view](#)



Fig. 1 :

Triggered 4 chamber view



Video 4 :
realtime 4 chamber view



Fig. 2 :
Triggered 4 chamber view

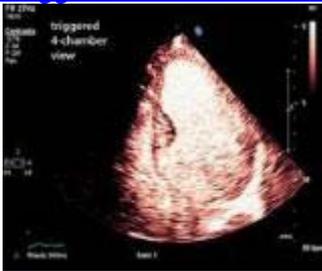


Fig. 3 :
2 chamber view



Video 5 :
2 chamber view



Fig. 4 :

2 chamber view after flash



Fig. 5 :
Pre-flash



Fig. 6 :
Post-flash



Fig. 7 :
6 beats



Fig. 8 :
12 beats



Fig. 9 :

No more artefacts

