Cine MRI assessment of extensive late no reflow in severe ischemic cardiomyopathy

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No reflow is usually assessed by first-pass analysis of gadolinium kinetic. Its persistence in cine magnetic resonance imaging (MRI) sequences performed after the gadolinium injection predicts a severe microvascular obstruction and non-viable myocardium, and is associated with a poor prognosis.

A 61-year-old man was hospitalized for acute heart failure occurring eight days after an inaugural and prolonged chest pain. An electrocardiogram revealed a complete left bundle branch block and the troponin I level was elevated (20 ng/mL, \(N < 0.1\)). Coronary angiography, performed at admission, showed occlusions of the proximal left anterior descending and right coronary arteries. Medical treatment was adopted and cardiac MRI (3-T Achieva, Philips Medical Systems, Eindhoven, Netherlands) was performed to determine the viability in territories supplied by these arteries:

- cine MRI pregadolinium (Fig. 1) showed circumferential akinesia, excluding the lateral territory (left ventricular ejection fraction 17%);
- first-pass dynamic perfusion imaging (Fig. 2) revealed no reflow in the same territories;
- cine MRI performed 5 minutes after the gadolinium injection (Fig. 3) confirmed, in a demonstrative way, the no reflow and microvascular obstruction;
- the search for delayed contrast enhancement, 10 minutes after the gadolinium injection (Dotarem\textsuperscript{\textregistered}, 30 mL) (Fig. 4), showed a transmural hyperfixation, excluding the...
Figure 1. Left ventricular regional contractility assessment by cine MRI: circumferential akinesia, excluding the lateral territory.

Figure 2. Short-axis first-pass dynamic perfusion imaging.

Figure 3. Cine MRI 5 minutes after the gadolinium injection in the (A) long axis, (B) short axis and (C) four-chamber views.
medioparietal area. This pattern assesses the lack of myocardium viability.

Because of the absence of viability, medical treatment was continued.

**Appendix A. Supplementary data**

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.acvd.2008.08.001.