Correlations between echocardiography and cardiovascular magnetic resonance in a patient with midventricular stress cardiomyopathy

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A 73-year-old woman without previous medical history was admitted for suspected persistent thoracic anginal pain following a violent suffocating cough. On admission, results of physical examination and per-critical electrocardiogram were normal. Aortic dissection and pulmonary embolism were ruled out by computed tomography scan. The troponin peak reached 3.55 g/l at day one, while an electrocardiogram showed T-wave inversion in the anterior and lateral leads. A transthoracic echocardiogram showed akinesis of the midportion of the lateral, posterior, anteroseptal and anterior walls of the left ventricle while the apical and basal parts of these walls were normocontractile (Panel A) and left ventricular ejection fraction was at 40%. Coronary angiography was normal. Cardiovascular magnetic resonance (CMR) confirmed echocardiographic findings with wall motion abnormalities confined to the midportion (Panel B). High T2 signal was observed within the asynergic myocardium (Panel C) while no regional delayed gadolinium hyperenhancement was observed (Panels D, E). A provisional diagnosis of transient midventricular ballooning syndrome, a peculiar form of stress cardiomyopathy, was then suggested. Six weeks later, CMR and echocardiogram showed disappearance of the segmental wall motion abnormalities with full recovery of the systolic function (Panels F, G), confirming the diagnosis of stress cardiomyopathy.

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Echocardiography-CMR correlations in midventricular stress cardiomyopathy

![Figure 1](image)

**Figure 1.** Echocardiographic and CMR features at the acute phase of mid-ventricular stress cardiomyopathy (Panels A, B, C, D, E) and six weeks later (Panels F and G).

Videos of CMR and echocardiography at the acute phase and 6 weeks later are available at the online version of the journal (Supplementary data).

In our case, CMR was very useful to differentiate stress cardiomyopathy from myocarditis or myocardial infarction with normal coronary arteries. In patients with stress cardiomyopathy, there is usually no delayed hyperenhancement, which is consistent with viable myocardium and the complete recovery seen in our patient. This case illustrates the complementary role of echocardiography and CMR for the diagnosis and follow-up of patients with stress cardiomyopathy. Echocardiography remains the first-line examination for the detection of stress cardiomyopathy, but CMR is a valuable tool and should be considered as a current complementary examination.

**Appendix A. Supplementary data**

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.acvd.2010.05.007.

**Conflict of interest statement**

None.