No Delayed Enhancement on Contrast Magnetic Resonance Imaging With Takotsubo Cardiomyopathy

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A 88-year-old woman was referred to our hospital because of severe chest pain. The ECG in leads II, III, aVF, and V1 through V5 showed ST elevation (Figure 1). The creatinine kinase and creatinine kinase MB were 324 and 18 IU/L, respectively. Emergency coronary angiography revealed 75% stenosis of the high lateral branch, but left ventriculography confirmed the presence of severe apical ballooning with basal hypercontraction. The left ventricle was observed as an ampulla (Figure 2), and the patient was diagnosed as having Takotsubo cardiomyopathy.

Cardiac MRI was performed on days 2 and 25. Steady-state (true FISP) cine MRI demonstrated basal hypercontraction, apical akinesis and ballooning, and thinning of the ventricular wall in its apical portion on day 2 (Figure 3A), but left ventricular dyskinesis and thinning of the ventricular wall improved on day 25 (Figure 3B).

After bolus injection of gadolinium-DTPA, delayed-enhancement imaging was performed with the inversion recovery technique. There was no hyperenhancement of the apical region either on day 2 or on day 25 (Figure 4).

This case demonstrated that in Takotsubo cardiomyopathy, the apical portion showing akinesis, thinning, and ballooning did not undergo irreversible damage as evaluated with a combination of functional cine images and delayed-contrast enhancement of cardiac MRI.

Figure 1. ECG on admission. The ECG exhibited ST-segment elevation in leads II, III, aVF, and V1 through V5.

Figure 2. Left ventriculography on the first hospital day. Takotsubo-like severe apical akinesis and basal hyperkinesis were observed. A, Diastole; B, systole.
Figure 3. A, True FISP cine images (long-axis view) showing apical ballooning and basal hypercontraction on day 2. B, Apical akinesis improved on day 25.

Figure 4. After gadolinium-DTPA injection, no late hyperenhancement of the apical portion was observed on either day 2 or day 25.
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