Second Left Ventricular Aneurysm Newly Developed in a Patient With Untreated Cardiac Sarcoidosis

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Figure 1. Cardiac cine magnetic resonance imaging shows 2 aneurysms at the middle anterior and basal posterior segments (arrows) in the left ventricular long-axis view.

A 53-year-old man was referred to our hospital because of developing exertional dyspnea (NYHA functional class II). His electrocardiogram (ECG) had already shown a negative T wave in leads II, III, aVF, and V₁₋₃ at a physical checkup 2 years before. In cardiac catheterization, left ventriculography had revealed a ventricular aneurysm at the basal posterior segment despite normal coronary arteries. Because no symptoms were apparent, however, a wait-and-see approach had been undertaken for 2 years.

On admission to our hospital, an ECG showed a negative T wave in leads II, III, aVF, and V₁₋₄. Cardiac cine magnetic

resonance imaging (MRI) revealed that there was a second aneurysm that was newly developed at the middle anterior segment, in addition to the first aneurysm (Figure 1). An MRI late gadolinium enhancement was present in both of the aneurysms and in the enlarged right ventricle transmurally, whereas a T2-weighted MRI showed normal myocardial signal intensity. Fluorine-18 fluorodeoxyglucose (¹⁸F-FDG) positron emission tomography (PET) images obtained after a period of 12 h of fasting showed high FDG accumulation in the basal and apical regions of the left ventricle corresponding to the aneurysms and the hilar lymph nodes (Figure 2). We suspected cardiac sarcoidosis because of the

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Figure 2. ^{18}F -FDG PET shows regionally enhanced accumulation in the left ventricle (maximum standardized uptake value [SUVmax]=4.4, ∇), the basal posterior and mid anterior segments corresponding to the aneurysms (arrows), and the right hilar focal uptake (*) before steroid therapy (Upper row) in the coronal view. The marked reduction of the accumulation (SUVmax=0.5) after steroid therapy is exhibited (Lower row). ^{18}F -FDG PET, fluorine-18 fluorodeoxyglucose positron emission tomography.

regional myocardial delayed-enhancement without reference to coronary distribution in MRI^{1,2} and uptake in ^{18}F -FDG PET,³ and the patient underwent cardiac catheterization. No significant stenosis in the coronary artery was detected and left ventriculography revealed the 2 aneurysms and a severely impaired contraction with an ejection fraction of 25%. An endomyocardial biopsy was performed and it showed a non-caseous epithelioid granuloma with giant cells, supporting the diagnosis of cardiac sarcoidosis.

The treatment was started with oral prednisolone of 30 mg/day, and 4 weeks later, ^{18}F -FDG PET imaging showed marked attenuation of the uptake (Figure 2), but MRI showed less changes in the aneurysms and delayed enhancement 1 year later. No recurrence has been detected by ^{18}F -FDG PET in the subsequent 2 years with a reduced dose of prednisolone. Cardiac sarcoidosis can be an uncommon cause of cardiomyopathy,^{4,5} but the existence of a type of cardiac sarcoidosis, which is noticed first by a ventricular aneurysm, should be more widely known. MRI late gadolinium enhancement has been reported to be useful to identify myocardial fibrosis in non-ischemic cardiomyopathy.^{6,7} The combination of ^{18}F -FDG PET and MRI is recommended to detect cardiac involvement of sarcoidosis.

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