A 72-year-old man with bronchial asthma and atrial fibrillation was admitted to our clinic because of dyspnea. There had been no cardiac symptoms until 6 days earlier, when he noticed mild dyspnea that had developed rapidly. A chest radiograph showed pulmonary congestion. The ECG demonstrated significant ST-segment depression in leads V₂ to V₅, which suggested subendocardial ischemia. Blood analysis revealed a marked increase in total white blood cell (21 720/mm³) and eosinophil (9122/mm³) counts. The creatine kinase-MB level of 41 U/L suggested myocardial damage. By echocardiography, the thicknesses of the left ventricular septum and posterior wall were 11 and 12 mm, respectively; systolic wall motion was preserved. Although myocardial scintigraphy with ²⁰¹Tl showed no apparent image defect (Figure 1A), positive myocardial accumulation of ⁹⁹mTc pyrophosphate was clearly demonstrated (Figure 1B). From image fusion of the midventricular short-axis tomograms obtained by the dual image acquisition, this accumulation appeared to localize mainly in the whole endomyocardial layer except in the lateral wall, where the hot tracer distributed transmurally (Figure 1C). These findings were compatible with the histological findings in endomyocardial biopsy specimens taken from the ventricular septum during the acute phase. Prominent accumulation of eosinophils in the edematous endocardium and sporadic damage of myocytes with slight eosinophil infiltration in the subendomyocardial layer were observed (Figure 2). There was no evidence of necrotizing vasculitis. The diagnosis was Löffler’s endomyocarditis associated with hypereosinophilic syndrome.¹ Prednisolone (40 mg/d) dramatically improved the patient’s condition and lowered the number of peripheral eosinophils. The observed findings are somewhat similar to those of hypersensitivity myocarditis.² In these conditions, dual SPECT imaging during the acute phase can demonstrate the endomyocarditis.

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References

Figure 1. SPECT images showing (A) no apparent image defect with $^{201}$Tl, (B) positive accumulation of $^{99m}$Tc pyrophosphate, and (C) its endocardial accumulation by the dual image acquisition. Ant indicates anterior; Sep, septal; Lat, lateral; and Inf, inferior.

Figure 2. Accumulation of eosinophils in the endocardium and sporadic damage of myocytes with slight eosinophil infiltration in the subendocardial layer (hematoxylin-eosin staining; magnification $\times 25$ and $\times 50$).
Dual SPECT Imaging of Löffler's Endomyocarditis in the Acute Phase
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