A 17-year-old man was admitted for new onset of fatigue with dyspnoea. He did not present fever or a recent history of flu-like symptoms. The results of the physical examination and ECG were unremarkable except for a sinus tachycardia at 116 b.p.m. Echocardiography demonstrated severe global hypokinesia of both ventricles with left ventricular ejection fraction (LVEF) of 10%. Laboratory tests revealed a troponin I level of 0.02 ng/mL (normal 0.00–0.015 ng/mL), C-reactive protein of 145 UI/L, creatine kinase of 54 UI/L (normal 0.015–1.015 ng/mL), and uric acid of 57 mg/L (normal 1.4–4.7 mg/L). Cardiac magnetic resonance imaging revealed diffuse myocardial involvement. The patient condition worsened rapidly and he underwent emergency heart transplantation. Pathology of the explanted heart revealed a diffuse giant cell myocarditis (GCM) occurring predominantly in the delayed enhanced areas as demonstrated by CMR (haematoxylin–eosin-stained specimen, original ×40; Panel C, septal specimen; Panel D, lateral LV wall specimen). Higher magnification of the most infiltrated areas demonstrated foci of dense lymphocytic infiltrates with numerous giant cells without evidence of ischaemic myocardial injury, particularly, in the endocardial area of the lateral basal wall (haematoxylin–eosin stain, original ×400, Panel E, midwall area of the septum; Panel F, endocardial area of the lateral basal wall). A 2 year follow-up by routine endomyocardial biopsy has shown no recurrence of GCM or rejection.

On these DE images, the signal of the diffusely infiltrated myocardium by GCM was nulled, the different patterns of focal hyper-enhanced areas being relevant for the most infiltrated areas when compared with histology.