A 26-year-old female presented with a 1-month history of chest pain, low-grade fever, and dyspnoea. The pericardial friction rub was audible. Electrocardiogram and chest X-ray were normal; mild monocytesis, and slightly elevated C-reactive protein were observed. The separation of pericardial layers up to 6 mm due to non-homogeneous fluid (Panel A, arrows) was observed on the transthoracic echocardiography (Supplementary data online, Movie S1). Interventricular septum (IS) bounce towards RV during early diastole was evident. A 1.5 T cardiovascular magnetic resonance (CMR) SSFP sequence showed irregularly thickened (up to 7 mm) pericardia, with a small amount of fluid in between (Panel B, arrows; Supplementary data online, Movie S2). On a T2 fat-sat sequence, a hyperintense signal in the pericardia, corresponding with oedema (Panel C, arrows, arrowheads point to the fluid), was observed. LGE showed mild pericardial enhancement (Panel D, arrows) with a hypointense effusion signal in between (Panel D, arrowhead). The pericardia had irregular fine filling defects that projected into an effusion (compatible with granulomatous pericarditis). Pronounced mediastinal lymphadenopathy (Panel E, arrows), bilateral pleural effusions, and slight dilatation of the pulmonary artery (Panel E) were observed on T2 haste images. A chest CT was consistent with previous findings and showed no signs of heart calcifications (Panel F). Mycobacterium tuberculosis (TB) infection of the pericardium (causing effusive constrictive pericarditis) and tracheobronchial lymph nodes (LNs) was confirmed after video-mediastinoscopy and an examination of excised LNs. Follow-up CMR after 3 months of the specific anti-TB treatment revealed no evidence of pericardial thickening, nearly complete resorption of effusion (Supplementary data online, Movie S3 and almost no signs of oedema in the pericardia (Panel H, T2 fat-sat). The IS bounce had almost vanished, but pronounced mediastinal lymphadenopathy was present.

In summary, tomographic imaging modalities (CMR/CT) are very useful for comprehensive structural and functional assessment of the myocardium and pericardium along with perfect visualization of other thoracic structures and for safe (in case of CMR) ionizing radiation free follow-up.

Supplementary data are available at European Heart Journal — Cardiovascular Imaging online.