Comprehensive cardiovascular magnetic resonance for monitoring the response to therapy in pericardial tuberculosis

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A Caucasian 25-year-old man with cardiac tamponade underwent urgent pericardiocentesis with the removal of 100 ml of siero-ematic effusion. Smear microscopy detected acid-fast bacilli, and pericardial tuberculosis was confirmed by positive culture for Mycobacterium tuberculosis. One-week after pericardiocentesis, cardiovascular magnetic resonance (CMR) was performed (upper panel). Short-axis cine steady-state free precession (Panel A), black-blood T1-weighted (Panel B), and T2-weighted, short-T1-inversion-recovery (Panel C) fast spin-echo images showed markedly thickened pericardial layers, which were fused anteriorly (red arrows, maximum thickness 10 mm), while remained separated by abundant pericardial effusion (asterisks) inferiorly (white arrows). Diffuse oedema and late gadolinium enhancement (LGE) were visualized on T2-weighted (Panel D) and post-contrast T1-weighted fast gradient-echo inversion-recovery (Panel D) images, respectively. Horizontal long-axis cine images showed diastolic ‘bouncing’ of interventricular septum, indicating an increased ventricular interdependency (Supplementary data online, Video S1). CMR using the same protocol was repeated after 1 year of antituberculosis regimen including isoniazid, rifampicin, pyrazinamide, and ethambutol (lower panel). Cine (Panel E) and morphological (Panels F and G) images disclosed the resolution of structural and tissue abnormalities of pericardial layers in association with disappearance of pericardial effusion. In particular, oedema and LGE of pericardial layers were not any longer visualized on T2-weighted (Panel G) and post-contrast T1-weighted (Panel H) images, respectively. These changes were paralleled by the normalization of diastolic motion of interventricular septum on cine horizontal long-axis images (Supplementary data online, Video S2), indicating an improved compliance of the pericardium. Pericardial tuberculosis is a rare extrapulmonary manifestation in immunocompetent patients with multi-facet presentations ranging from acute pericarditis to cardiac tamponade and constrictive pericarditis. CMR is useful in monitoring the response to therapy with particular respect to the morphological, tissue and functional abnormalities.

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

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