Diagnostic assessment and follow-up of cardiac sarcoidosis in a patient presenting with ventricular tachycardia

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A 48-year-old male patient was admitted with palpitations and presyncope due to new onset ventricular extrasystole following respiratory tract infection. On admission the patient presented with symptomatic sustained ventricular tachycardia (Panel A) which was terminated by amiodarone. Initial blood tests showed mild leucocytosis, no increase in C-reactive protein, and troponine I, but significantly elevated pro-BNP (1148 pg/mL). Echocardiography demonstrated moderately reduced left-ventricular ejection fraction (LVEF) with apical accentuated wall motion abnormalities and reduced circumferential and longitudinal strain (Panel B). Coronary artery disease was excluded by invasive cardiac catheterization and right-heart biopsy revealed non-necrotizing granulomas in accordance with sarcoidosis (Panel C). Sarcoidosis was further confirmed by chest X-ray and pulmonary CT scan, demonstrating typical hilar adenopathy, reticular opacities, and interstitial fibrosis (Panels D and E). Cardiac magnetic resonance imaging (CMR) revealed a significantly reduced LVEF of 30% with regional wall motion abnormalities, slightly impaired right ventricular function, and increased signal in the T2-weighted images suggesting myocardial oedema (Panel H; arrow). Late-gadolinium enhancement showed extensive areas of epicardial/intramycardial fibrosis, including the right ventricle (Panel F and G; arrows). Corticoid treatment was started leading to a rapid clinical improvement, accompanied by an increase in LVEF (43%) and reduction in inflammation as seen in the T2-weighted CMR sequences (Panel I). This case illustrates that CMR provides a robust tool for the assessment of both cardiac function and inflammatory activity during follow-up in cardiac sarcoidosis.