CARDIAC MAGNETIC RESONANCE ASSESSMENT OF PROGRESSIVE MYO-PERICARDITIS DUE TO COBALT CARDIOTOXICITY

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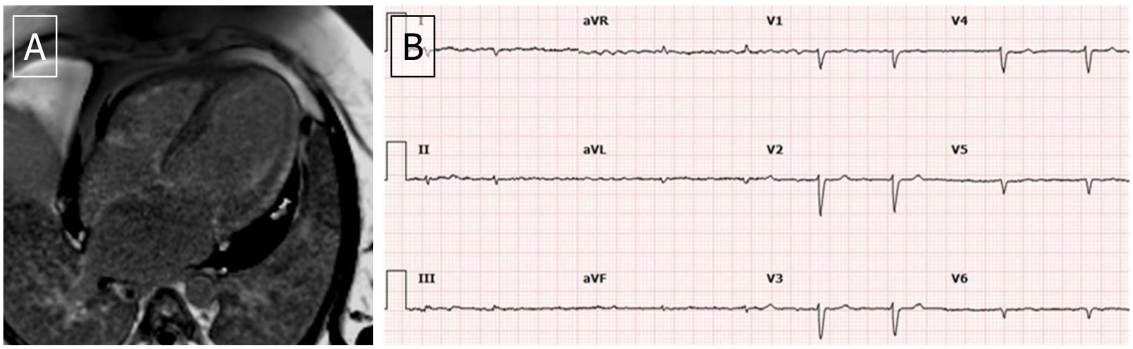
A 48-year-old man was referred with a 3-year history of recurrent pericardial effusion requiring drainage, and progressive heart failure. Past medical history was unremarkable other than bilateral hip replacement with metal-on-metal implants for arthritis at 39-years of age.

ECG showed low voltages (**panel B**). Bloods, including an extensive rheumatology work up, were unremarkable apart from persistently mildly elevated troponin T (40ng/l, normal <14ng/l). Initial cardiac magnetic resonance (CMR) showed biventricular dysfunction with subepicardial infero-lateral and midwall septal late enhancement (LGE, **panel A**). FDG-PET showed mild diffuse cardiac uptake and corresponding to the hip prostheses (**panel H**). Endomyocardial biopsy showed myocyte hypertrophy, focal fibrosis and endocardial thickening with no evidence of active myocarditis or amyloid. Repeat CMR at 15 months showed chronic pericardial effusion, a now severe biventricular dysfunction (**Panel C, Supplementary Video 1**), mildly raised native T2 (55ms @ 1.5T, normal 40-51ms, **panel D**) and native T1 (1080ms, normal 970-1050ms, **panel E**), left ventricular apical thrombus on early gadolinium enhancement (**panel F, arrow**) and a striking progression of LGE (**panel G**). Myocardial T2* was normal (45ms) and liver T2* was mildly reduced (10ms).

Serum chromium and cobalt levels were extremely elevated [1279 nmol/L (normal<134 nmol/L) and 5647 nmol/L (normal<118 nmol/L), respectively] and subsequent mass spectrometry of the myocardial biopsy confirmed very high myocardial levels [17.2 ug/g (normal<0.6 ug/g) and 4.7 ug/g (normal<0.5 ug/g), respectively].

CMR can demonstrate the typical features of this rare but recognised complication of metal-on-metal hip prostheses, in this case with a striking progression of LGE.

Presentation



15 months follow up