Full calcium jacket: massive idiopathic myocardial calcification by cardiovascular magnetic resonance and cardiac CT

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A 57-year-old gentleman with a history of persistent atrial fibrillation for the past year was admitted with heart failure attributed to poor control of the heart rate. Chest X-ray revealed a marked calcification of the cardiac silhouette. The echocardiogram was inconclusive because of a very deficient echocardiographic window. The CMR scan revealed several intramyocardial masses widespread all over the segments of the left ventricle. They restricted the thickening of the underlying myocardium, mainly in the basal segments. They were hypo-intense on the SSFP cine images and on T1- and T2-weighted images. Contrast techniques showed no enhancement in gadolinium first-pass perfusion images and no late gadolinium enhancement (LGE) in the masses themselves; however, there was late enhancement in the underlying myocardium, in a non-ischaemic distribution. The ejection fraction was mildly depressed. As the tissue characterization suggested calcified masses, a 64-row multidetector CT was performed. It confirmed a massive myocardial calcification that affected extensively the myocardium of the left ventricle, the mitral annulus and also the left atrium wall and the pulmonary veins. The continuity among the areas of calcification created a kind of shell in which the heart was encased, a full calcium jacket. The pericardium, the right cavities and coronary arteries were preserved from this extensive calcification. An exhaustive systemic study was done; renal, lung, and metabolic diseases were ruled out, no extra-cardiac calcification was found and the calcium serum levels were normal. In view of the results, the pathological process was labelled as an idiopathic calcification of the left heart.

Figure: Chest X-ray showed a marked calcification of the cardiac silhouette (Panel A, arrows). On CMR imaging (Panel B) T1-weighted images (upper panels) and T2-weighted images (medium panels) showed hypo-intense intramyocardial masses (arrows). In the LGE images (bottom panels), the masses showed no enhancement; however, there was late enhancement in the underlying myocardium, in a non-ischaemic distribution. CT scan images (Panel C) confirmed a massive myocardial calcification that affected the myocardial of the left ventricle, the mitral annulus, and the left atrium wall.

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