Progression of mitral annulus calcification to caseous necrosis of the mitral valve: complementary role of multi-modality imaging

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A 66-year-old male was found on echocardiography to have an echogenic discrete mass in the region of posterior mitral valve annulus (Panels A–D). In order to evaluate this area further, a cardiac MRI (Panels E and F) was performed and demonstrated a 20x20 mm mass in the posterior left ventricular myocardium between the coronary sinus and posterior mitral valve leaflet. No evidence of vascular flow was seen within the mass, and its tissue characteristics—notably low signal on proton density-weighted fast-spin echo—were most consistent with calcium, thus confirming the diagnosis of prolific mitral annular calcification.

Around the same time, a non-gated contrast-enhanced CT (Panel G) demonstrated a homogeneous hyperdense mass in the area of the inferior mitral valve annulus with 300 Hounsfield unit (HU). Five years later, a repeat CT for cancer surveillance (Panel H) showed the transformation of this area into a more heterogeneous calcification pattern notable for decreased signal within the centre of the mass (70 HU). This pattern is consistent with caseous necrosis, a rare calcification pattern which has central necrosis, and on pathology appears pale or caseous (i.e. ‘cheese like’).

This case illustrates the complementary role of different imaging modalities. Whereas echocardiography was used to initially detect this mass and to assess its functional significance, the use of cardiac MRI was used to exclude other potential aetiologies and to confirm the presence of calcium. Conventional CT imaging further confirmed the calcified nature of the mass and most optimally demonstrated the transformation into caseous necrosis.

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