Mitral annular caseous necrosis: insights from multimodality imaging

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A 77-year-old man was investigated following a syncopal episode, the finding of a systolic murmur on examination and a calcified lesion on chest x-ray (Panel A). Transthoracic echocardiography demonstrated a well-demarcated, bright, homogeneous mass in the mitral valve annulus (Panel B). He was referred for further imaging with a presumed diagnosis of a cardiac tumour.

Real-time three-dimensional transoesophageal echocardiography (TOE) localized the mass and detailed mitral valve anatomy. Mitral valve geometry was distorted—the posterior aspect of the annulus, posterior leaflet, and mitral coaptation zone were displaced anteriorly (Panel C, see Supplementary material online, Video S1). These features, in addition to left ventricular hypertrophy and a prominent basal interventricular septum, provided the substrate for systolic anterior motion of the anterior mitral valve leaflet and dynamic outflow tract obstruction (Panel D) with resultant mitral regurgitation (Panel E, see Supplementary material online, Video S2).

Computed tomographic (CT) images showed the elongated lesion in the mitral annulus to be of uniform high attenuation, prior to the administration of intravenous contrast, with rim calcification (*) (Panel F). The attenuation value did not change on the enhanced CT, supporting its non-vascular nature (Panel G). Further characterization with cardiac magnetic resonance imaging demonstrated a homogeneous low-signal lesion with no central or peripheral enhancement after gadolinium administration (Panel H, see Supplementary material online, Video S3), consistent with central liquefaction and confirming caseous necrosis of the mitral annulus, a rare severe form of the more commonly encountered mitral annular calcification.

Caseous necrosis typically occurs in the posterior mitral annulus and should be considered in the differential diagnosis of a left atrioventricular groove mass, which includes thrombosed coronary sinus, circumflex artery abnormality, tumour, or mitral annular abscess. Complimentary multimodality cardiac imaging allows differentiation from these other lesions.


References

The list of references is available in the online version of this paper.