Multimodality imaging of caseous calcification of mitral annulus

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A 73-year-old woman presented with sinoatrial block. Transthoracic echocardiography revealed a tumor-like mass (2.5 cm × 3.0 cm) located in the mitral annulus (Fig. 1(A)). Caseous calcification of the mitral annulus was suspected, which was supported by computed tomography (CT) and magnetic resonance imaging (MRI) (Fig. 1 (B-D)). Mitral valve replacement was performed using a 25-mm Mosaic Ultra bioprosthesis (Fig. 2 (A and B)).

Figure 1: (A) Two-dimensional echocardiogram, apical 4-chamber view, showing an echo-dense, spherical, tumor-like mass (2.5 cm × 3.0 cm) located in the peri-annular posterior region. Doppler echocardiogram findings indicated moderate mitral stenosis with a transmitral mean pressure gradient of 5 mmHg. (B) Computed tomography scan findings showing a homogeneous hyper-dense mass in the region of the posterior mitral valve. (C) Computed tomography scan findings (3D image). (D) Cardiac magnetic resonance T1-weighted imaging. It revealed no tissue signals from the mass in T1- and T2-weighted images. The combination of low T1- and T2-weighted tissue signals is unusual for a cardiac mass, and such findings suggest calcification.

Figure 2: (A) Intraoperative photograph showing the posterior mitral leaflet involved with the soft mass. The lesion was incised along the annulus. (B) Intraoperative photograph showing the toothpaste-like content of the cavity, which was debrided. Posterior leaflet preserving mitral valve replacement was then performed utilizing a 25-mm Mosaic Ultra bioprosthesis.