Cement encasement of the pericardium: echocardiographic manifestation

Nasrien Ibrahim,[1] Angel Lopez-Candales[2]

[1]Department of Cardiology, University of Colorado, Aurora, Colorado, USA
[2]Department of Cardiology, University of Cincinnati Medical Center, Cincinnati, Ohio, USA

Correspondence to
Dr Nasrien Ibrahim,
nasrien.ibrahim@gmail.com

Accepted 18 August 2014

DESCRIPTION

A previously healthy 44-year-old woman with new bilateral pleural effusions had an echocardiogram ordered as part of the work up. It showed a small, free-flowing effusion circumferential to the heart. A mass was noted and it was adherent to the myocardium, mainly apically and anteriorly (figure 1A–C). The ventricular septum was hypermobile (video 1) and the right ventricular outflow tract was thickened (figure 2, videos 2 and 3). The velocity of the septum (figure 3A) was increased compared to the velocity of the lateral wall (figure 3B) and there was evidence for increased right–left ventricle interaction (figure 4), consistent with a constrictive pattern. The inferior vena cava and the hepatic veins were also dilated indicating volume overload (figure 5).

Positron emission tomography-CT scan demonstrated metastases to the femur, spine and brain. A hypermetabolic pericardial mass was noted, also consistent with metastatic disease (figure 6). The patient was diagnosed with T2N3M1, stage 4 lung adenocarcinoma. Given the extent of the disease and the unfortunate late diagnosis, a plan was made to begin palliative chemotherapy and radiation therapy. The patient died a few weeks later.

Echocardiography remains a good tool for the detection of pericardial disease.[1] Once a pericardial

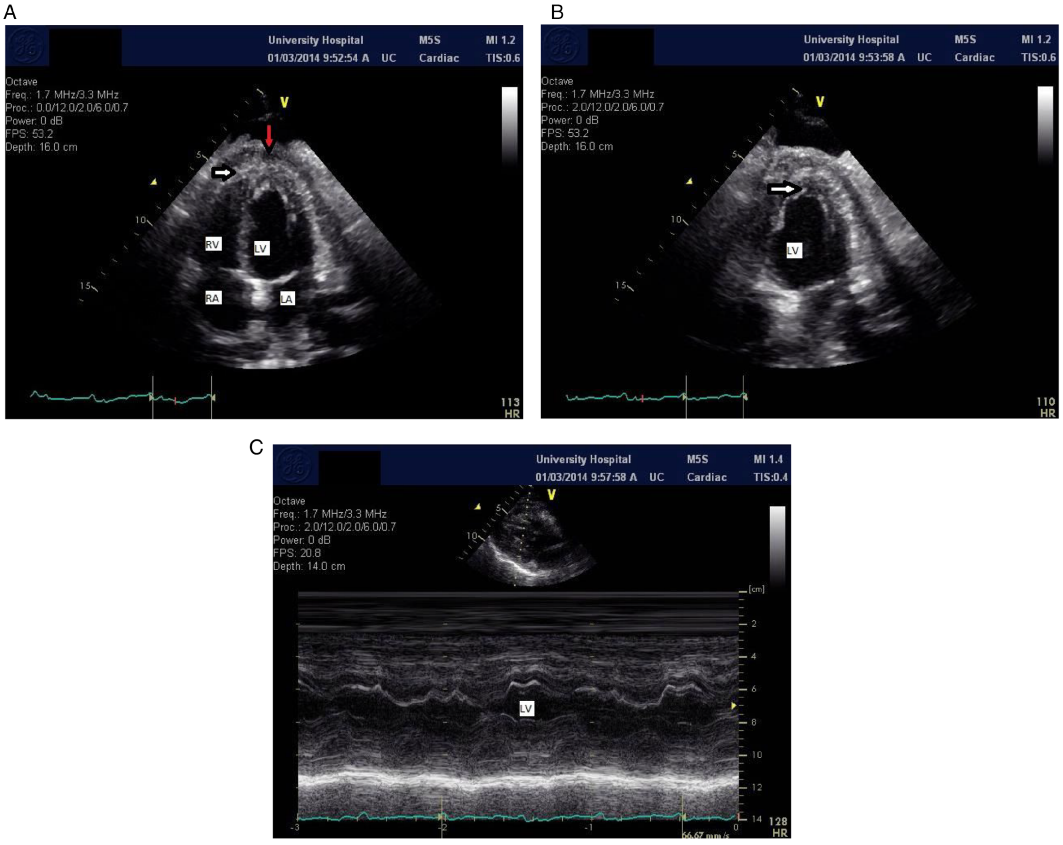
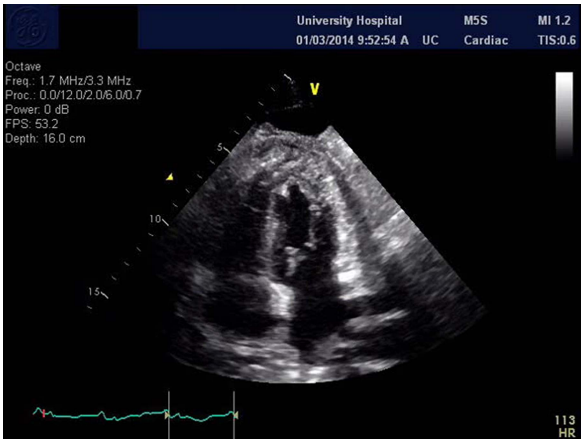
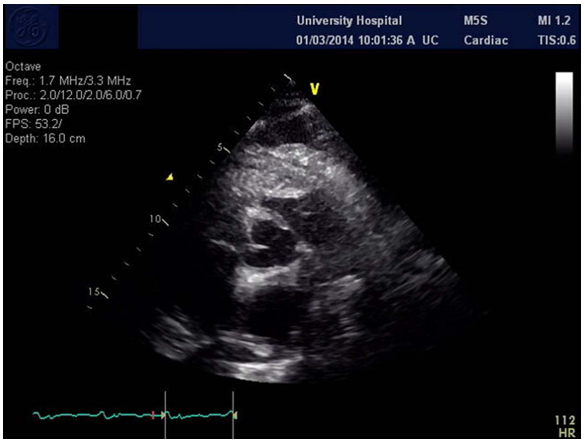


Figure 1 (A) Apical four-chamber view demonstrating a mass encasing the myocardium apically and anteriorly (white arrow). Small pericardial effusion is also seen (red arrow). (B) Apical two-chamber again demonstrating the encasing mass (arrow). (C) M-mode through the LV demonstrating increased movement of the LV. LA, left atrium; LV, left ventricle; RA, right atrium; RV, right ventricle.

To cite: Ibrahim N, Lopez-Candales A. *BMJ Case Rep* Published online: [*please include* Day Month Year] doi:10.1136/bcr-2014-205276



Video 1 Apical 4-chamber view showing the mass encasing the myocardium apically and anteriorly. The hypermobility of the septum is also demonstrated.



Video 3 Parasternal short axis view again showing the mass encasing the right ventricular outflow tract. Pericardial effusion also demonstrated.

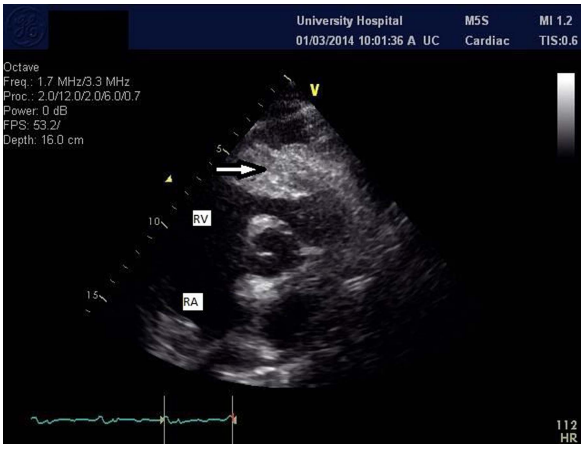


Figure 2 Parasternal short access demonstrating the mass also encasing right ventricular outflow tract (arrow; RA, right atrium; RV, right ventricle).

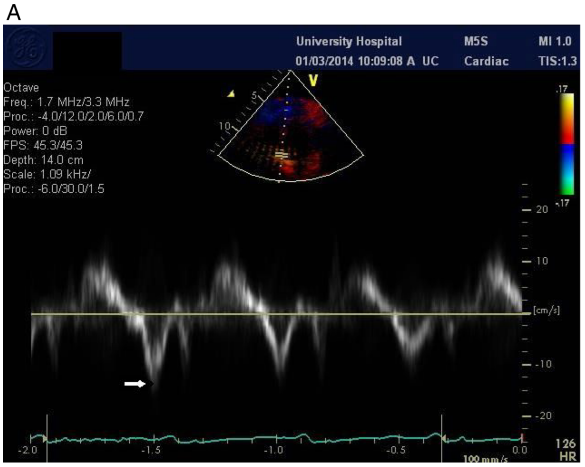
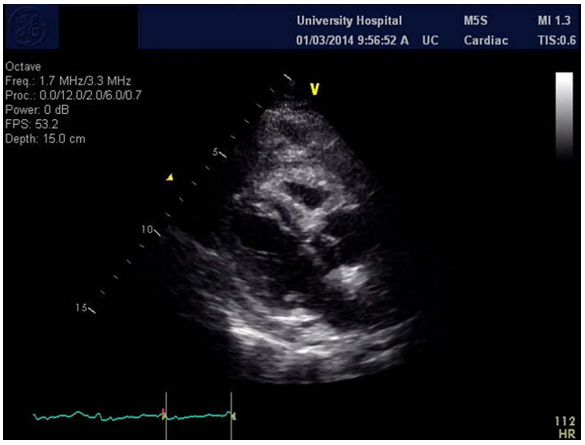


Figure 3 (A and B) Tissue Doppler of the velocity of the septum versus the lateral wall. The velocity of the septum (A) was increased compared to the velocity of the lateral wall (B) (arrows).



Video 2 Parasternal long axis view again showing the mass encasing the right ventricular outflow tract.

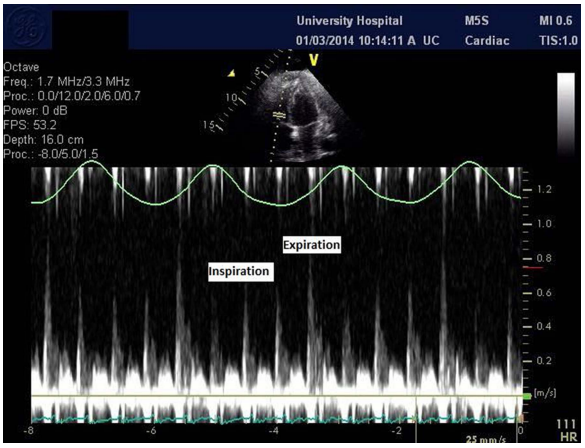


Figure 4 There was evidence for increased right–left ventricle interaction as demonstrated by the respiratory variation in flow velocities across the tricuspid valve.

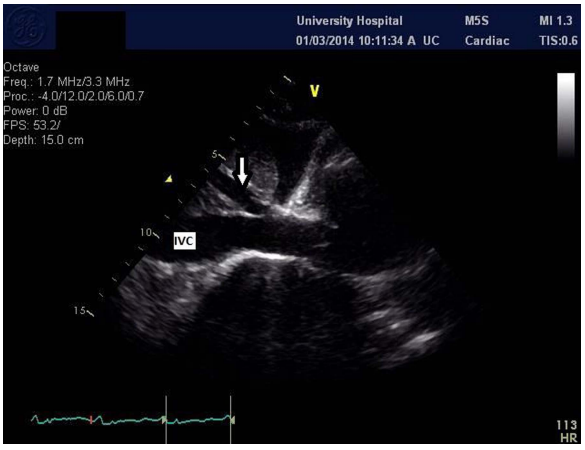


Figure 5 The inferior vena cava (IVC) and the hepatic veins (arrow) were also dilated demonstrating a volume-overloaded state.

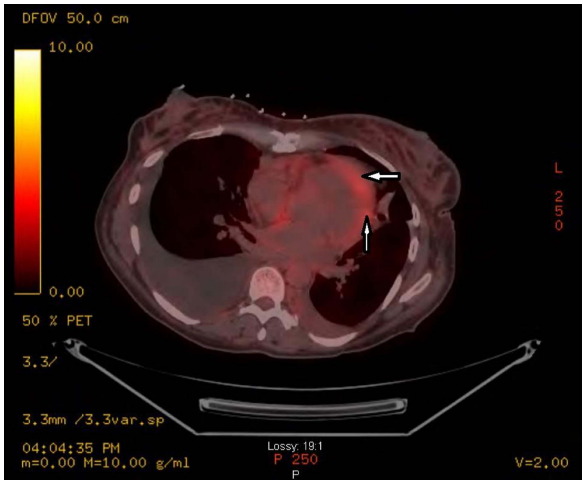


Figure 6 Positron emission tomography-CT scan showing a hypermetabolic pericardial mass consistent with metastatic disease (arrows).

mass is detected by echocardiography, the prognosis is usually grave.[2 3] Despite the presence of some unique and distinctive echocardiographic findings that are highly suggestive of pathological cardiac involvement, cardiac CT and cardiac MRI are always required for confirmatory purposes.[1]

Competing interests None.

Patient consent Not obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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