OMCR

Oxford Medical Case Reports, 2015;11, 358–359

doi: 10.1093/omcr/omv062
Clinical Image

CLINICAL IMAGE

Unsuspected large left ventricular pseudoaneurysm: rapid bedside diagnosis by contrast-enhanced echocardiography

Jobanpreet S. Sehmi[1,*], Jason Dungu[2], Simon W. Davies[1], Rajdeep Khattar[3], Roxy Senior[3], and Navtej Chahal[3]

[1]Department of Cardiology, Royal Brompton Hospital, London, UK, [2]Department of Cardiology, Basildon and Thurrock University Hospitals NHS Foundation Trust, Essex, UK, and [3]Department of Cardiology and Echocardiography Laboratory, Royal Brompton Hospital, London, UK

*Correspondence address. Department of Cardiology, Royal Brompton Hospital, Sydney Street, South Kensington, London SW36NP, UK. Tel: +44-20-7351-8209; Fax: +44-20-7351-8604; E-mail: joban.sehmi@gmail.com

An asymptomatic 72-year-old man with cardiomegaly was referred to our centre for assessment. His medical history comprised metastatic colonic cancer and granulomatosis with polyangiitis.

Transthoracic echocardiography was performed. In the apical four-chamber view, a large cavity was identified adjacent to the apex, measuring 45 × 54 mm (Fig. 1A and Supplementary Video 1). All apical segments of the left ventricle were thin and akinetic. On colour Doppler, bidirectional blood flow due to swirling of blood was observed within the cavity (Fig. 1B and Supplementary Video 2). Contrast-enhanced echocardiography established the site of rupture within the thinned apical wall of the left ventricle, measuring 15 mm in width, communicating freely with a large, thrombus-free pseudoaneurysm (Fig. 1C and Supplementary Video 3). Cardiovascular magnetic resonance imaging confirmed the finding of an apical pseudoaneurysm (Fig. 1D and Supplementary Video 4). Late gadolinium enhancement was limited to the apical segments in a transmural distribution. The remaining segments of the left ventricle were functioning and viable with no evidence of inducible ischaemia. Coronary angiography demonstrated unobstructed arteries.

In this case, the likely primary event was an unrecognized myocardial infarction, followed by ventricular wall rupture contained within pericardial tissue. Possible mechanisms for the myocardial infarction include acute coronary artery occlusion with spontaneous recanalization, coronary thromboembolism and coronary vasculitis.

This patient's case was discussed in a multidisciplinary team meeting. The consensus view was that the risk of rupture of the pseudoaneurysm was small. Furthermore, the patient's survival was estimated to be 1 year due to his metastatic colonic cancer. Consequently, medical treatment was advised.

The natural history of left ventricular pseudoaneurysms is not known. If left untreated, left ventricular pseudoaneurysms predispose to ventricular rupture, thromboembolism, compression of local structures and arrhythmia. Most pseudoaneurysms require surgical intervention [1] or percutaneous closure [2]. When a left ventricular pseudoaneurysm is chronic, there are limited outcome data to guide the need for surveillance and timing of intervention.

This case illustrates the value of contrast-enhanced echocardiography as a low cost adjunct to complex imaging modalities, to rapidly distinguish left ventricular pseudoaneurysms from other cardiac pathology.

No ethical approval is required. The patient provided written consent. R.S. is nominated as the guarantor of this work.

Received: August 13, 2015. **Revised:** September 14, 2015. **Accepted:** September 15, 2015

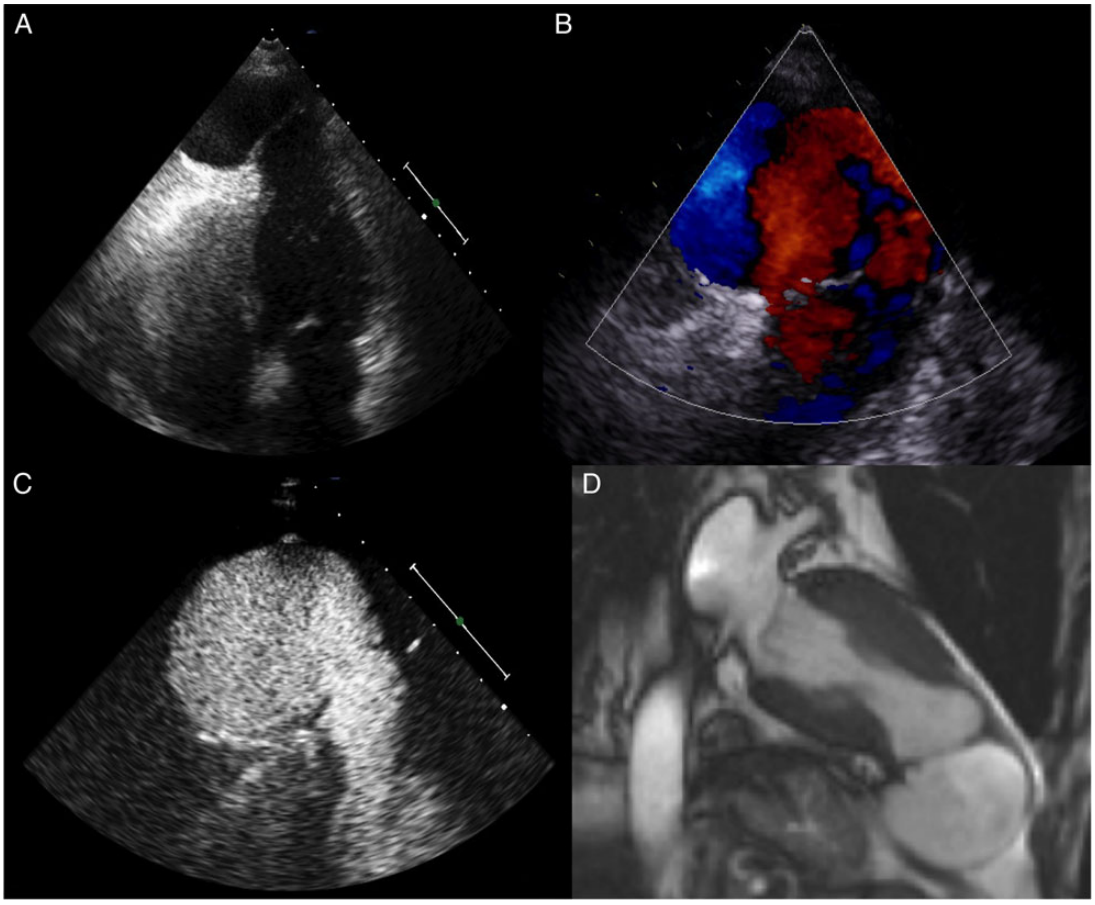

Figure 1: (**A**) Transthoracic echocardiogram; four-chamber view. (**B**) Colour Doppler showing bidirectional flow of blood within the left ventricular pseudoaneurysm. (**C**) Contrast-enhanced transthoracic echocardiogram, zoomed on the left ventricular pseudoaneurysm. (**D**) Cardiac magnetic resonance image; vertical long-axis view of the heart.

SUPPLEMENTARY MATERIAL

Supplementary material is available at *Oxford Medical Case Reports* online.

CONFLICT OF INTEREST STATEMENT

None declared.

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