

IMAGES AND VIDEOS

Is this a satellite orbiting uncharted territory?

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Summary

A 27-year old female i.v. drug user presented to our institution with chest pain. She had a history of bicuspid aortic valve endocarditis with aortic root abscess repaired with bioprosthetic aortic valve replacement and pericardial patch reconstruction of the left ventricular outflow tract and non-coronary sinus 6 weeks previously.

Echocardiographic and cardiac CT imaging confirmed three foci of breakdown of the pericardial patch repair with active bleeding into a large posterior pseudoaneurysm (92 mm diameter) compressing the left atrium and pulmonary artery. Following multidisciplinary discussion, the consensus was to attempt urgent percutaneous closure of the defect, given the prohibitive surgical risks.

The procedure was performed under fluoroscopic and 3D-transoesophageal guidance. TOE demonstrated the pericardial patch breaches and active bleeding into the large pseudoaneurysm (Figs 1 and 2). Initial deployment

of an Amplatzer atrial septal defect occluder resulted in significant flow reduction, but there remained two small peri-device leaks (Fig. 3).

During an attempt to implant an additional smaller Amplatzer vascular plug (AVP-2) to rectify this, the initial device dislodged and embolised into the pseudoaneurysm. This was felt irretrievable and unlikely to be clinically significant given its containment. The embolised device freely floated within the pseudoaneurysm, uniquely akin to a satellite orbiting in space (Video 1). The secondary device was removed and initial breach was satisfactorily closed with a 15-mm-sized Amplatzer atrial septal defect occluder (third device). This was confirmed to be well-seated on real-time 3D imaging (Video 2), with negligible residual leak on TOE (Fig. 4). This is the first published case of percutaneous cardiac device embolization into a pseudoaneurysm cavity that we are aware of.

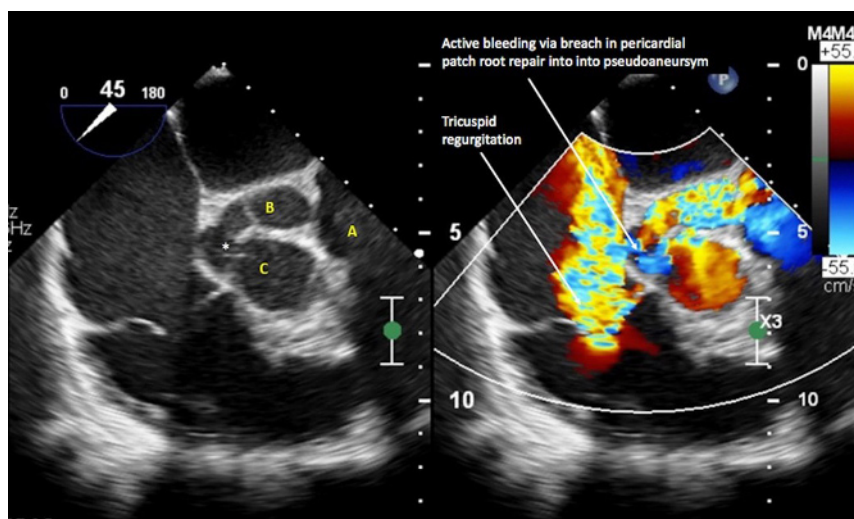


Figure 1

TOE mid-oesophageal aortic valve short axis view at 45° (left) with corresponding color Doppler overlay (right). Large pseudoaneurysm (A) seen at the aortic valve level with a channel connecting the pseudoaneurysm (B) to the bioprosthetic aortic valve (C) through one of the three pericardial patch breaches (*).

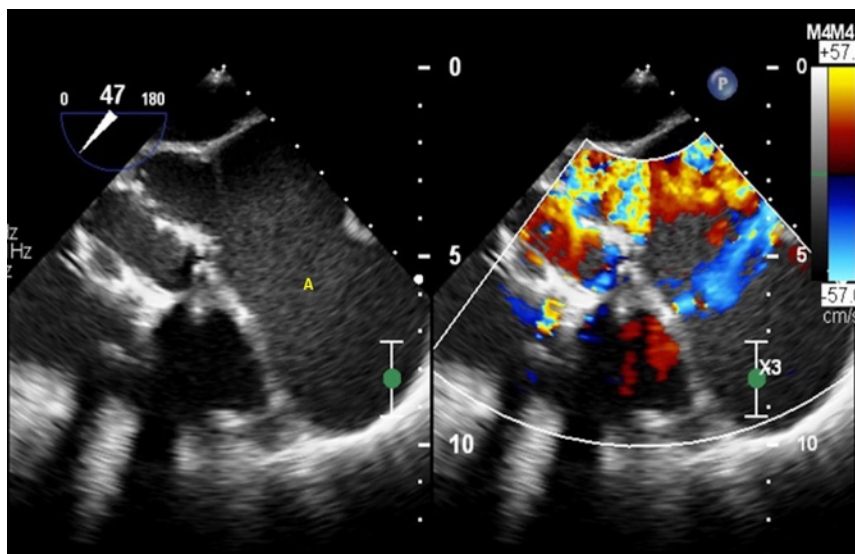


Figure 2

TOE modified mid-oesophageal aortic short axis view (47°) shows the large pseudoaneurysm (A, 92 mm diameter, left) with corresponding color Doppler overlay (right) shows that the pseudoaneurysm expands in systole and results in flow into the pseudoaneurysm.

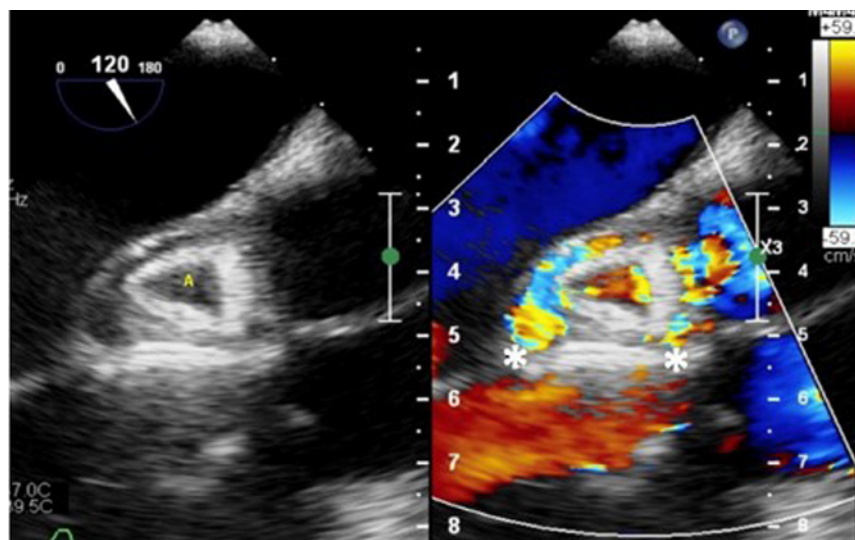


Figure 3

Initial deployment of an Amplatzer AVP-2 Vascular Plug (A) device resulted in significant reduction of flow, but there remained two small leaks (*) on either side of device.

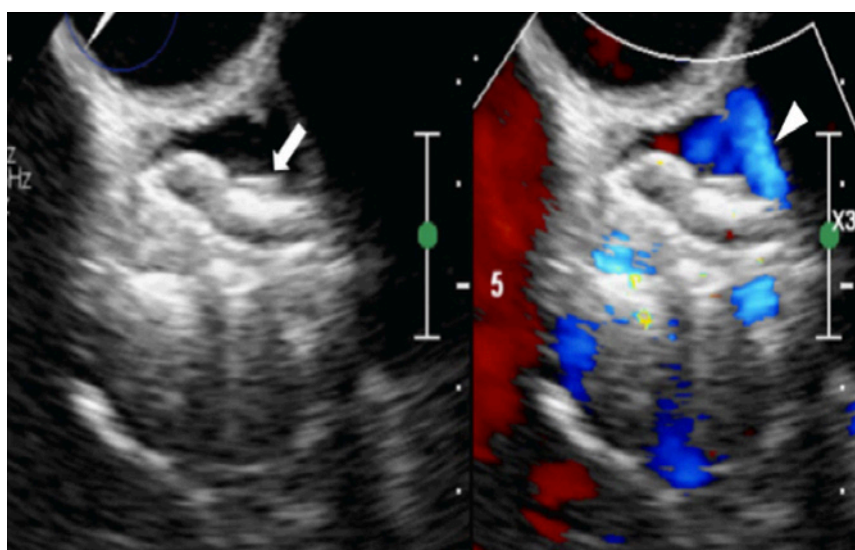


Figure 4

Minimal residual leak with TOE color Doppler following deployment of the third device.

Video 1

3D-TOE cine showed embolised Amplatzer AVP-2 device freely floating within the pseudoaneurysm cavity, akin in appearance and motion to a satellite orbiting in space.

View Video 1 at <http://movie-usa.glencoesoftware.com/video/10.1530/ERP-19-0061/video-1>.

Video 2

The initial breach was satisfactorily closed with a 15-mm-sized Amplatzer atrial septal defect occluder (third device) confirmed to be well-seated on real-time 3D imaging, with the three components visible (two cribriform closure disks and one thick central neck/waist).

View Video 2 at <http://movie-usa.glencoesoftware.com/video/10.1530/ERP-19-0061/video-2>.

Declaration of interest

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of this article.

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Patient consent

Written consent was obtained from the patient.

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