

IMAGES IN INTERVENTION

Percutaneous Plugging of an Ascending Aortic Pseudoaneurysm

Ravinay Bhindi, MBBS, PhD, FRACP, FESC, James Newton, MBChB, MRCP,
Neil Wilson, MBBS, FRCP, Oliver J. Ormerod, DM, FRCP

Oxford, United Kingdom

A 76-year-old woman presented to hospital with a 1-month history of progressively worsening central chest pain. Her medical history was remarkable for a previous aortic valve replacement with an ascending aortic interposition graft 10 years earlier.

A computed tomography (CT) scan showed a large ascending aortic pseudoaneurysm with aortic communication through a defect at the superior aspect of the structure, below the level of the innominate vessels. Given the position of the pseudoaneurysm, the risk of repeat sternotomy was thought too high. Furthermore, the abdominal aorta was severely diseased and tortuous, making potential delivery of a covered stent difficult. It was therefore decided to attempt to close the mouth of the defect percutaneously.

Vascular access was achieved via the right brachial artery, and aortography demonstrated moderate dehiscence at the posterior aspect of the superior margin of the interposition graft (Fig. 1A, Online Video 1). Adjuvant intracardiac echocardiography (ICE) was performed with the imaging catheter in the superior vena cava and demonstrated a leak from the true aortic lumen into the false cavity (Fig. 1B). A 6-F Judkins right catheter was used with a 0.035-inch exchange length wire to enter the defect, and contrast injection through the catheter further defined the anatomy of the

cavity (Fig. 1C). Balloon sizing was performed with a 10-mm Cristal balloon (Fig. 1C), and a 7-F Amplatzer Torque sheath was then used to deliver a 10-mm Amplatzer atrial septal defect device. This resulted in immediate reduction in flow into the defect by repeat aortography and ICE (Figs. 1D and 1E; Online Videos 2 and 3). A repeat CT scan 2 days later confirmed obliteration of the defect and thrombosis of the cavity (Fig. 1G).

Focal percutaneous sealing of ascending thoracic aneurysms has been successfully used previously by others (1); however, to our knowledge this is the first case to use the brachial access approach in the setting of previous aortic graft surgery with adjuvant ICE imaging. In cases where surgical correction is deemed too high-risk and stent coverage not feasible, such an approach can be considered.

Reprint requests and correspondence: Dr. Ravinay Bhindi, John Radcliffe Hospital, Department of Cardiology, John Radcliffe Hospital, Oxford, Oxfordshire OX3 9DU, United Kingdom. E-mail: ravinay.bhindi@cardiov.ox.ac.uk

REFERENCE

1. Kanani RS, Neilan TG, Palacios IF, Garasic JM. Novel use of the Amplatzer septal occluder device in the percutaneous closure of ascending aortic pseudoaneurysms: a case series. *Catheter Cardiovasc Interv* 2007;69:146–53.

▶ APPENDIX

For supplementary videos, please see the online version of this article.

From the Department of Cardiology, John Radcliffe Hospital, Oxford, United Kingdom.

Manuscript received February 20, 2008; revised manuscript received March 21, 2008, accepted April 3, 2008.

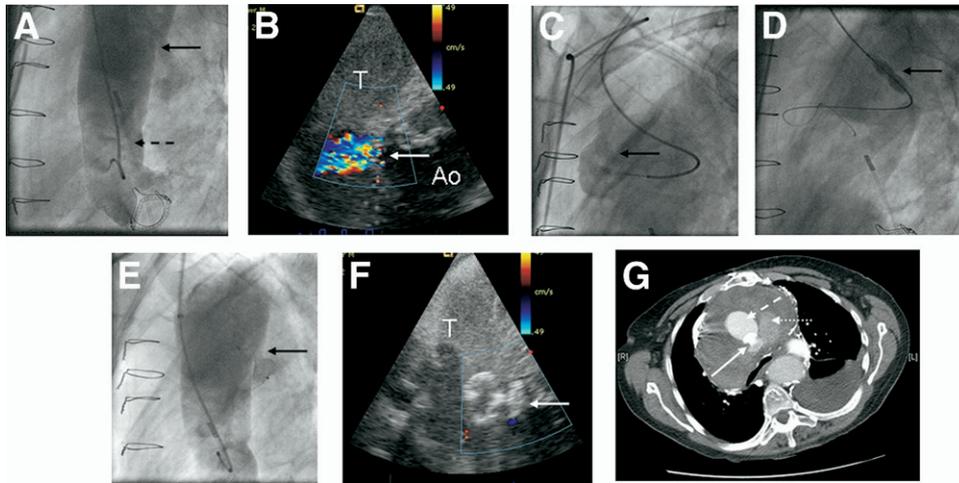


Figure 1. Images Illustrating Percutaneous Closure of the Aortic Pseudoaneurysm

(A) Ascending thoracic aortography performed via the right brachial artery demonstrates a leak (**filled arrow**) into a pseudoaneurysm cavity. An intracardiac echocardiography (ICE) probe (**dashed arrow**) is shown position in the superior vena cava. (B) The ICE appearances of the pseudoaneurysm cavity, which are partly thrombosed (T). Blood flow is seen flowing through the defect in the aortic wall (**arrow**), from the true aortic lumen (Ao) into the false cavity. (C) Contrast opacification of the pseudoaneurysm cavity (**arrow**) via a right Judkins catheter placed inside the defect demonstrates its large size. (D) Balloon sizing (**arrow**) of the defect, demonstrating the position of the orifice of the cavity. (E) An Amplatzer atrial septal defect (ASD) device (**arrow**) is shown deployed across the defect with a repeat aortogram showing no significant filling of the pseudoaneurysm. (F) An ICE demonstrating position of the device across the defect with abolition of flow on color flow Doppler. Organizing thrombus (T) is also seen within the pseudocavity. (G) Computed tomography scan demonstrating thrombosis of the pseudocavity (**round dotted arrow**) with the ASD occlusion device (**filled arrow**) seen in position (the true lumen of the ascending thoracic aorta is shown by the **dashed arrow**).