

IMAGES IN INTERVENTION

Transcatheter Closure of Aortic Anastomosis Leak Resulting in Patent Cabrol Shunt After Aortic Replacement

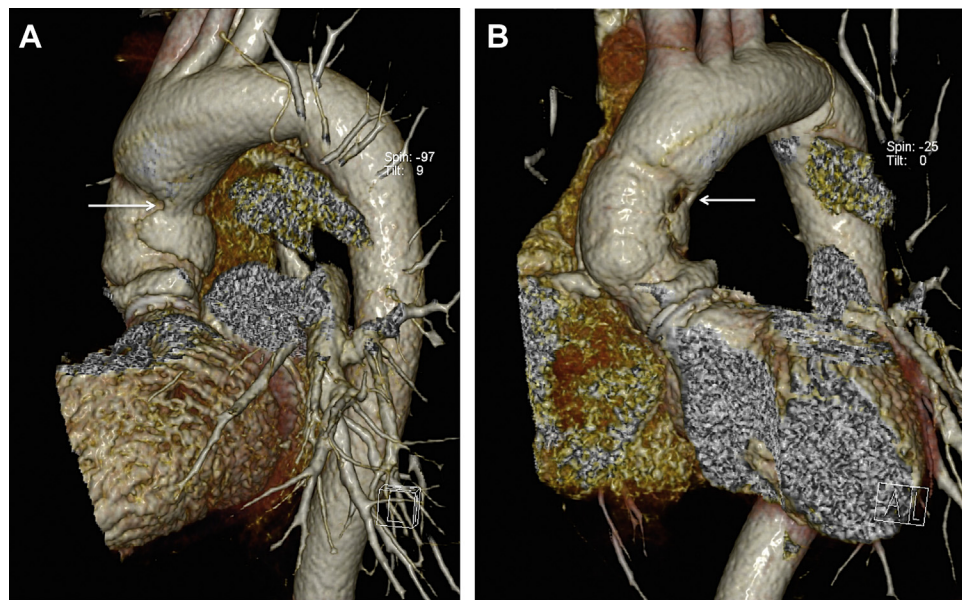


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A 50-year-old woman with aortic valve stenosis and ascending aorta dilatation underwent composite aortic valve and root replacement (the Bentall's & Cabrol's procedure) 8 months before. During the follow-up, computed tomography

angiography demonstrated a 4-mm × 7-mm oval leak at the distal anastomosis of the aortic prosthesis to aorta (Figure 1). There was an aorta-to-right atrium fistula caused by the patent Cabrol shunt through the leak. The patient had manifested with symptoms of

FIGURE 1 Reconstruction CTA of the AAL

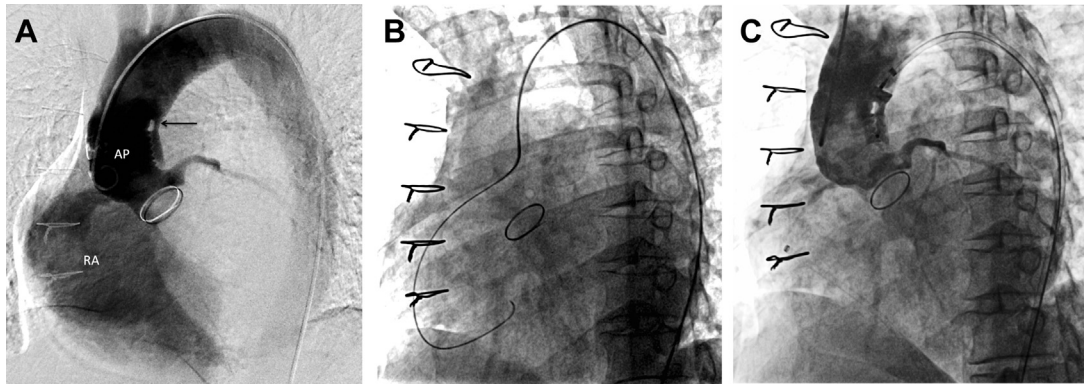


(A) The long axis of the AAL (arrow). (B) The short axis of the AAL (arrow). AAL = aortic anastomosis leak; CTA = computed tomographic angiography.

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FIGURE 2 Transcatheter Closure of the AAL



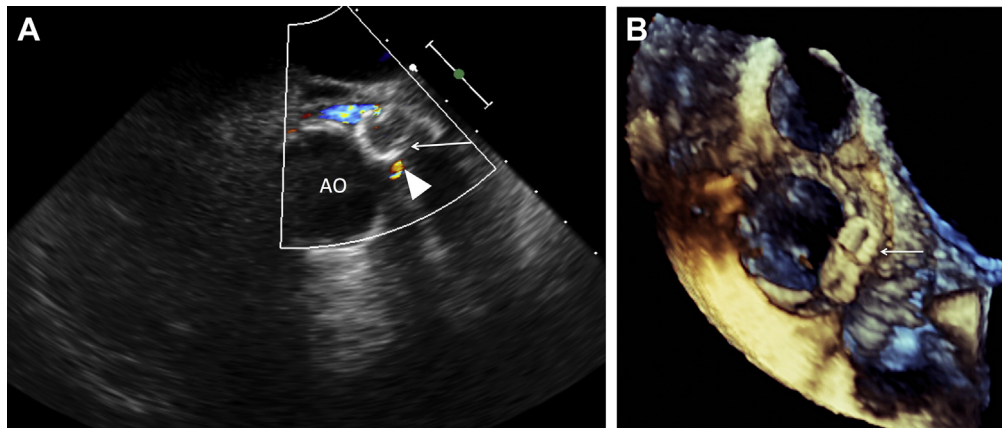
(A) Aorta-to-right atrium fistula caused by the anastomosis leak (**arrow**). **(B)** A guidewire was advanced into the right atrium through the leak. **(C)** The leak was occluded by an Amplatzer Vascular Plug III. AAL = aortic anastomosis leak; AP = aortic prosthesis; RA = right atrium.

congestive heart failure for 2 months. The cardiac function was New York Heart Association (NYHA) functional class III.

Transcatheter closure of aortic anastomosis leak (AAL) was attempted in the catheterization laboratory. The short axis of the AAL and the shunt were shown through aortic angiography in the left anterior oblique projection (**Figure 2A**). Under the guidance of a 5-F JR 4.0 catheter, a 260-cm 0.035-inch guidewire was passed through the leak into the right atrium in a retrograde approach (**Figure 2B**). The guidewire was then snared, establishing a femoral arteriovenous loop. Several attempts with a 7-F TorqVue (AGA Medical, Saint Paul, Minnesota)

sheath to cannulate the ascending aorta in an antegrade manner failed. Hence, the sheath was passed through the leak using a retrograde approach. Considering the oval shape of the leak, a 14-mm × 5-mm Amplatzer Vascular Plug III (AGA Medical) was deployed coaxially to the leak. Post-occlusion angiography showed the AAL was occluded well (**Figure 2C**). After implanting the occluder, the symptom of dyspnea improved immediately. There was only a trivial residual leak around the occluder on transesophageal echocardiography (**Figure 3**), and the B-type natriuretic peptide level dropped from 294 pg/ml to 61 pg/ml. The cardiac function was improved to NYHA functional class I.

FIGURE 3 Post-Procedure Transesophageal Echocardiography



(A) Trivial residual leak (**arrowhead**) around occluder (**arrow**). **(B)** Post-occlusion 3-dimensional echocardiography; **arrow** indicates the occluder. AO = aorta.

The AAL is a knotty complication after aortic surgery. Repeat operation, though it is an effective treatment, is associated with high morbidity and mortality rates (1-3). Transcatheter closure might be an alternative option for such intractable cases.

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KEY WORDS aortic anastomosis leak, complications, transcatheter closure