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https://doi.org/10.1053/j.jvca.2022.06.029

Ascending Aortic Pseudoaneurysm Fistulating into the Right Atrium: Vital Diagnosis via Intraoperative Transesophageal Echocardiography

To the Editor:

THORACIC AORTIC PSEUDOANEURYSM is a rare complication after cardiovascular surgery, with an incidence <0.5%.[1,2] A 54-year-old man presented with a large pseudoaneurysm (7.6 cm × 6.4 cm) of the proximal ascending aorta after undergoing an aortic valve replacement for bicuspid aortic valve disease (Fig 1). The patient complained of shortness of breath and fatigue. The patient was taken to the operating room for repair. An intraoperative transesophageal echocardiogram demonstrated a contained transmural rupture of the ascending aortic wall with continuous-flow jets from the aortic lumen toward the pseudoaneurysm in the upper esophageal ascending aortic short-axis view (Fig 2A, Video 1). The absence of intimal flaps excluded the diagnosis of type A aortic dissection. An organized thrombus also was identified in the posterior aspect of the pseudoaneurysm. With the multiplane angle rotated to 62°, an aberrant high-velocity jet into the right atrium through a fistula arising from the pseudoaneurysm was observed (Fig 2B, Video 2). Bicaval venous cannulation for cardiopulmonary bypass was used as a result. Direct inspection during surgery confirmed that the pseudoaneurysm developed at the aortic cannulation site used for the original aortic valve replacement. The fistula was located on the roof of the right atrium.

A preoperative computed tomographic angiogram was required to provide detailed information about the location of the aortic rupture and surrounding cardiac anatomy.[3] However, the narrow fistula vertical to the scanning plane in the current report was overlooked. The fistula could have been misdiagnosed as a motion artifact due to the phasic circular and pendular motions of the ascending aorta coinciding with cardiac contractions.[4] A simple repair of the ascending aortic rupture may not have addressed the unrecognized fistula between the pseudoaneurysm and the right atrium.

Conflict of Interest

None.

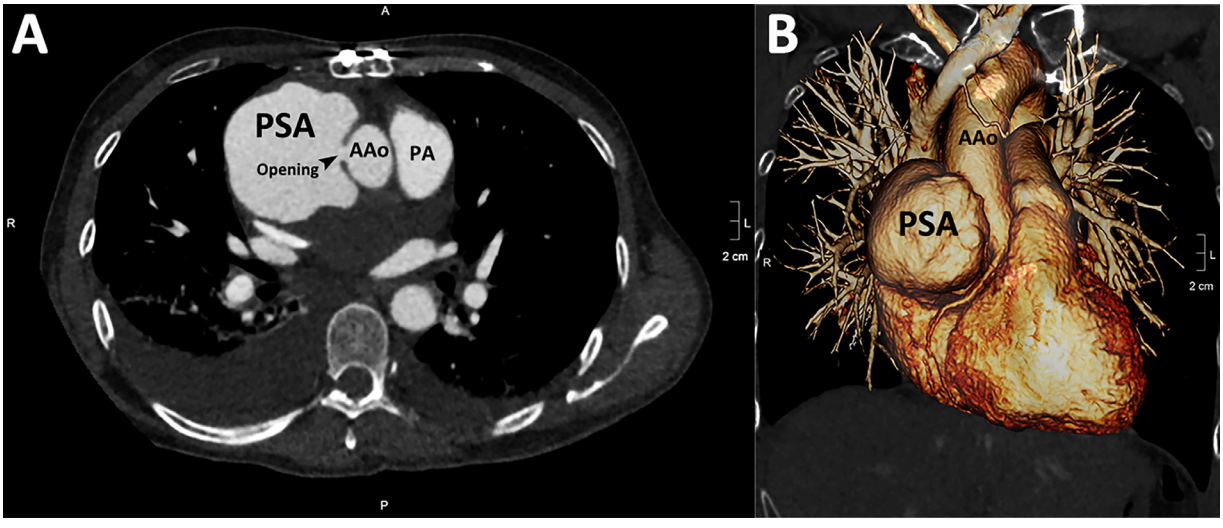

Fig 1. (A) Computed tomographic angiography and (B) three-dimensional reconstruction revealed an ascending aortic pseudoaneurysm (7.6 cm × 6.4 cm) with bilateral pleural effusion. AAo, ascending aorta; PA, pulmonary artery; PSA, pseudoaneurysm.

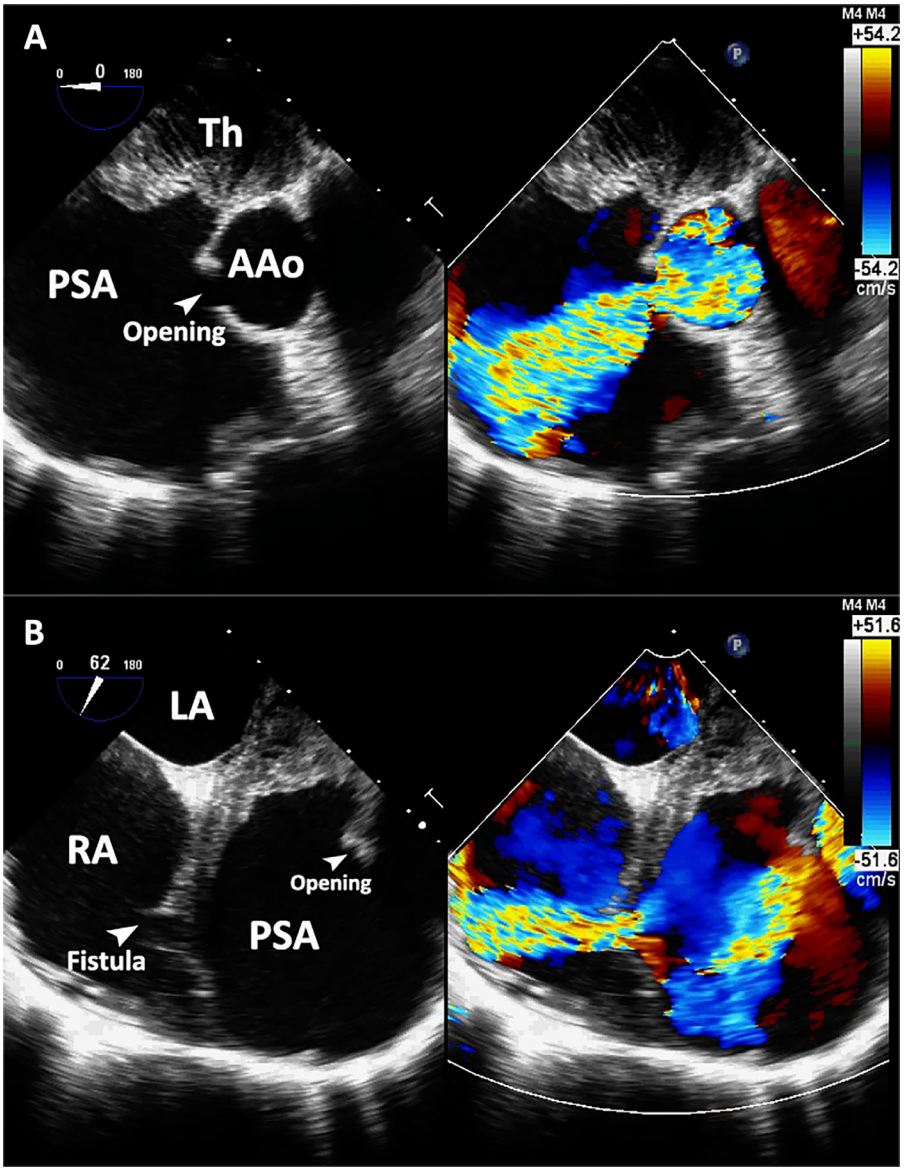

Fig 2. (A) Upper esophageal ascending aortic short-axis view demonstrated continuous-flow jets directed from the ascending aorta into the pseudoaneurysm, with an organized thrombus in the posterior pseudoaneurysm. (B) With the multiplane angle rotated to 62°, the fistula between the pseudoaneurysm and right atrium was observed, with blood flow between ascending aorta, pseudoaneurysm, and right atrium. AAo, ascending aorta; LA, left atrium; PSA, pseudoaneurysm; RA, right atrium; Th, thrombus.

Acknowledgements

The work was supported by National Natural Science Foundation of China (grant No. 82071991).

Supplementary materials

Supplementary material associated with this article can be found in the online version at doi:10.1053/j.jvca.2022.07.010.

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https://doi.org/10.1053/j.jvca.2022.07.010