Surprising patient qualification for vascular surgery: A "twin heart syndrome"

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Patients admitted for vascular surgery often need preoperative transthoracic echocardiography (TTE) due to multi-morbidity caused by atherosclerosis and hypertension. We present a rare clinical case of echocardiographic finding in a patient qualified for surgery for a thoracoabdominal aortic aneurysm.

A 59-year-old male with hypertension, atrial fibrillation, and a history of nicotine abuse was referred for periprocedural echocardiography before endovascular implanting of the T-branch stent graft for thoracoabdominal aortic aneurysm (confirmed on computed tomography). The patient was referred for TTE due to a newly detected systolic murmur [1]. The standard long-axis parasternal echocardiographic view showed an atypical round-shaped mass with a lumen (11.2 × 9.6 cm with 4.8 × 4.1 cm lumen) localized in the posterior mediastinum (Figure 1A). The ascending aorta was not enlarged in the same view. In the short-axis parasternal view, it looked like a mirror image of the left ventricle, but it was slightly more prominent, and its contractile function could be appreciated (Figure 1B). Left ventricular wall thickening, moderate aortic stenosis, and pericardial effusion were also noted (10 mm).

Post-operatively, the patient required treatment in the intensive care unit due to significant blood loss. After equilibration of the hemoglobin level, the patient still required catecholamines. Due to the fluid present in the pericardial sac before the procedure, control TTE was performed. Follow-up echocardiography revealed a pericardial effusion with no signs of cardiac tamponade. The stent graft presented as a hyperechoic scaffold inside the hypoechoic thick layer of clot around the aorta (Figure 1C–D). On the 10th day after surgery, the patient was discharged home. After two months, control computed tomography was performed, showing the hyperechoic stent graft of the 110 mm descending aorta with a thick layer of clot around it (Supplementary material, *Figure S1*).

According to the latest 2024 European Society of Cardiology guidelines for managing peripheral arterial and aortic diseases [2], thoracic aortic aneurysms occur in 5–10/100 000 person-years. In approximately 30% of cases, they are localized in the descending aorta. Giant aortic aneurysms exceeding 10 cm and involving both the thoracic and abdominal aorta, because of their size and localization, mainly cause symptoms like dyspnea or dysphagia [3–5]. Asymptomatic and uncomplicated cases of giant aneurysms, such as in our patient, are sporadic. TTE is considered a first-line diagnostic approach for aortic diseases in general. Although echocardiography is crucial for diagnosing ascending aortic aneurysms, it should not be only used for assessing the descending aorta. The descending aorta aneurysms must be assessed using cardiac computed tomography or magnetic resonance. TTE images of our patient's aneurysm resembling a reflection of the left ventricle are not only incidental findings but also remind us that, despite its extensive dimensions, descending aorta aneurysms may be asymptomatic. We believe that this "twin heart syndrome" demonstrates that echocardiography might sometimes be helpful as part of multimodal imaging of the descending aorta. Although TTE assessment of the descending aorta faces technical diffi-

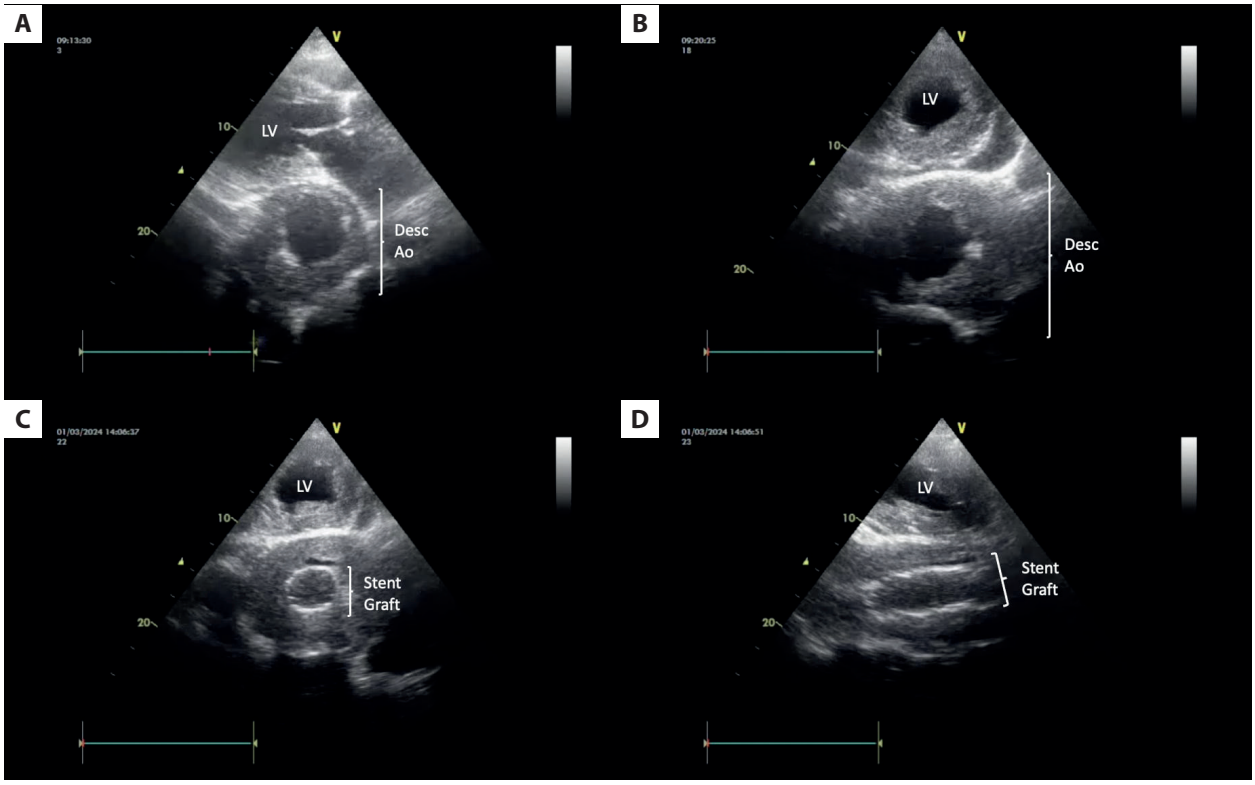

Figure 1. Echocardiography. Parasternal long (**A**) and short (**B**) axis view — before to surgery. Short axis view — after surgery (**C**). Modified 2 chamber view — after surgery (**D**)

Abbreviations: Desc Ao, descending aorta; LV, left ventricle

culties, it may lead to faster aneurysm diagnosis, resulting in quicker management and better outcomes.

Supplementary material

Supplementary material is available at https://journals.viamedica.pl/polish_heart_journal.

Article information

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