A 66-year-old female with obesity and a history of coronary artery bypass graft surgery 35 years ago presented with a 3-month history of chest discomfort, dyspnoea, right hypochondrium pain, and peripheral edema. On physical examination there was a systolic ejection murmur over the left upper sternal border.

Chest X-ray revealed a mass abutting the left mediastinal contour (Figure 1A). Echocardiogram showed a large, partially thrombosed extracardiac mass compressing the right ventricular outflow tract (RVOT) and main pulmonary artery, causing significant stenosis with a systolic peak gradient pressure of 74 mm Hg (Figure 1B–1D and Movies I and II in the online-only Data Supplement).

Chest computed tomography identified the mass as a giant aneurysm measuring 7 × 8 cm in size with a large intramural thrombotic component. The aneurysm was arising from a wide neck at the site of previous venous graft attachment anterior to the proximal ascending aorta and was abutting the posterior aspect of the sternum (Figure 2).

Cardiac magnetic resonance sequences were consistent with computed tomography findings. Cine images allowed a real-time view and demonstrated that the aneurysm was compressing the RVOT, leaving it with a minimal diameter at 1 cm, originating a peak velocity of main pulmonary artery flow estimated at 3.5 meters per second, and producing right ventricular hypertrophy secondary to pressure overload (Movies III and IV in the online-only Data Supplement).

Surgical resection of the saphenous vein graft (SVG) aneurysm was recommended. Preoperative coronary angiogram showed significant multivessel disease and occluded
Patient underwent successful removal of the aneurysm and redo coronary bypass surgery with both mammary artery and saphenous vein grafts. Histopathologic examination of the resected mass confirmed the finding of a true aneurysm of the saphenous vein graft partially filled with thrombus.

SVG aneurysm is a very rare complication after coronary bypass surgery. True aneurysms tend to occur late postoperatively and affect the proximal anastomosis of the graft, whereas pseudoaneurysms present earlier and can affect any part of the graft. Depending on the location of the venous graft and the size of the aneurysm, they can present in a variety of ways—from an incidental mediastinal mass to myocardial ischemia or even rupture.

Previous reports of a SVG aneurysm compressing pulmonary artery, right atrium, or right ventricle have been previously recorded. However, to the best of our knowledge, this case is the first in the literature to document right-sided heart failure secondary to severe RVOT and main pulmonary artery stenosis resulting from a compression by a SVG aneurysm, and to provide a multimodality real-time noninvasive imaging study that has also confirmed the presence of an elevated systolic peak gradient across those structures.

Disclosures

None.

References

Giant Saphenous Vein Graft Aneurysm Compressing Right Ventricular Outflow Tract and Main Pulmonary Artery
Rodrigo Fernández-Jiménez, Aleksander Kempny, Matina Prapa, Mohamed Amrani, Richard Trimlett, Anselm Uebing, Gerhard-Paul Diller, Konstantinos Dimopoulos, Tarun Mittal, Lorna Swan and Michael A. Gatzoulis

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