Giant Aneurysms of Saphenous Venous Grafts Presenting with Recurrent Heart Failure

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Abstract

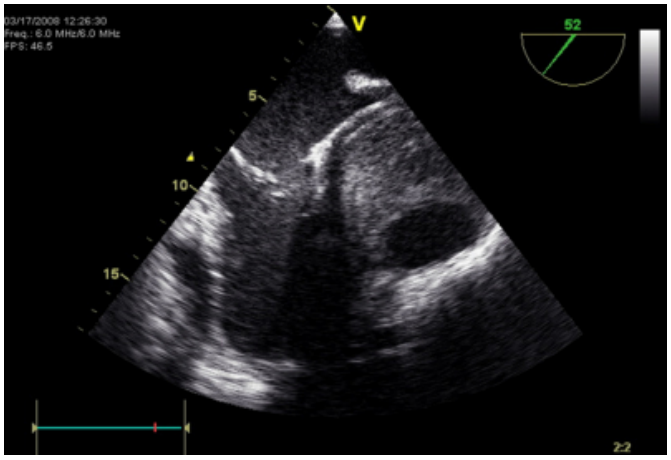
Saphenous venous graft (SVG) aneurysm is a rare complication of coronary artery bypass surgery (CABG) with an incidence of less than 1%[1]. We report a case of giant SVG aneurysms with an unusual presentation of recurrent heart failure.

CASE REPORT

A 62 year old man who had CABG 30 years prior and redo CABG 3 years prior presented with dyspnea and anasarca. He required recurrent admissions for heart failure despite optimal medical therapy. On admission, he had hypotension and acute renal failure requiring hemodialysis and pressor support for 48 hours. He underwent further diagnostic evaluation to determine the etiology of recurrent heart failure. Transesophageal echocardiogram revealed an EF of 35% and left atrial and left ventricular compression by an extrinsic mass (Figure 1).

Figure 1

Figure 1 Transesophageal echocardiagram midesophageal 2 chamber view showing a mass adjacent to the left atrium and left ventricle



CT scan of the chest showed an extracardiac mass measuring 10cm, compressing the left atrium and ventricle (Figures 2 and 3).

Figure 2

Figure 2 Axial section of CT Chest with contrast showing an extracardiac mass compressing the left atrium

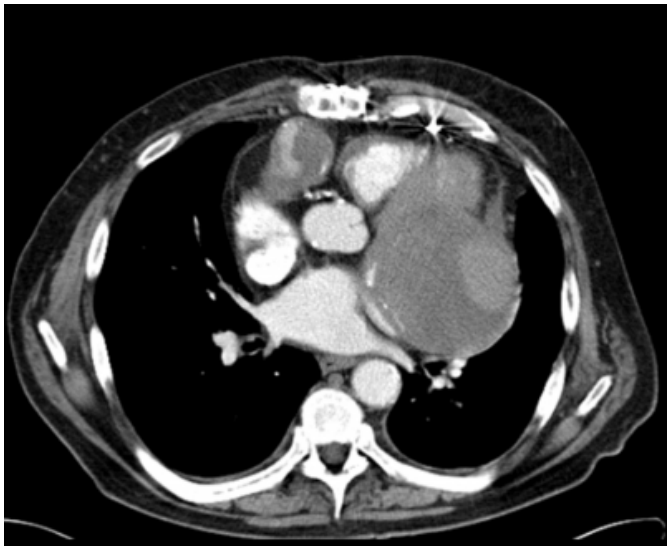
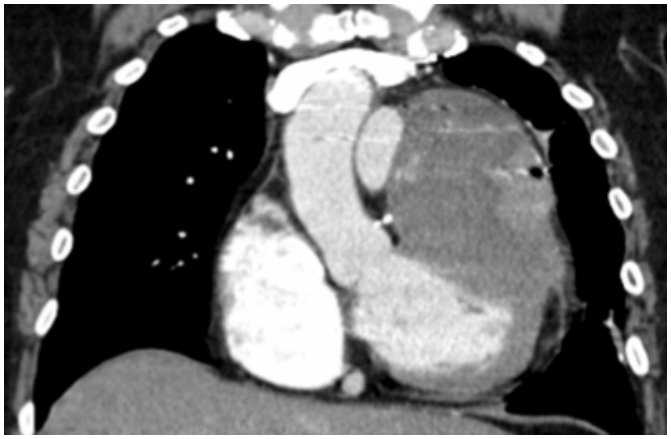


Figure 3

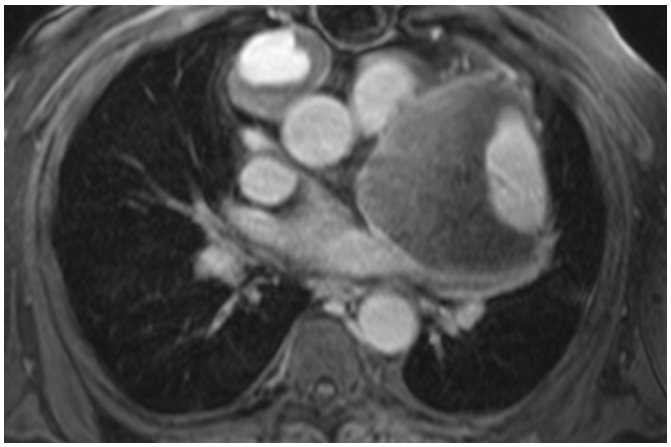
Figure 3 Coronal section of CT Chest with contrast showing an extracardiac mass compressing the left ventricle



MRI with gadolinium revealed aneurysm of the SVG to the left circumflex coronary artery, measuring 10x9x14cm, indenting the left sided chambers. A second aneurysm measuring 5.2x3.9x5.6cm arising from the SVG to right coronary artery was noted, compressing the right ventricle. The aneurysm of the SVG to circumflex had an intraluminal filling defect consistent with thrombus within the aneurysmal sac (Figure 4).

Figure 4

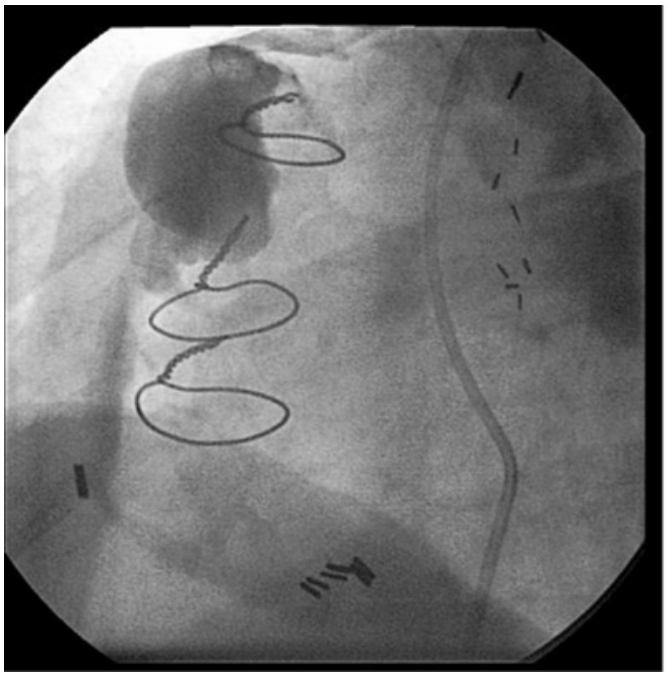
Figure 4 Contrast enhanced MRI axial scan showing aneurysm of the SVG to the left circumflex coronary artery with intraluminal thrombus on the left and aneurysm of SVG to the right coronary artery on the right



Coronary angiogram further confirmed findings of the two SVG aneurysms. The aneurysm of the SVG to right coronary artery was associated with reduced distal flow (Figure 5).

Figure 5

Figure 5 Angiogram showing aneurysm of SVG to RCA



He underwent surgical repair of both giant aneurysms and placement of a new left radial artery graft from aorta to right coronary. Post operative trans-esophageal echocardiography showed relief of pressure effects from the aneurysms on both ventricles. He had an uncomplicated post operative recovery. There were no further episodes of heart failure during 1 year of post-operative follow up.

DISCUSSION

Aneurysms of the saphenous vein grafts, though rare must be considered in the differential diagnosis of mediastinal masses in post-CABG. In this patient, giant SVG aneurysms presented as mediastinal masses causing compression of the cardiac chambers, which likely contributed to recurrent heart failure. Resection of the aneurysms was followed by relief of pressure effects and resolution of heart failure.

Saphenous vein graft aneurysms are thought to result from progression of degenerative atherosclerotic disease. Hyperlipidemia and hypertension are predisposing factors[2].

Clinical presentation is usually secondary to incidental mediastinal mass, angina or myocardial infarction due to progressive lumen occlusion, fistula formation, distal embolization and compression of surrounding structures, including grafts and coronary arteries[3].

CT scan can be used to confirm the diagnosis, assess size of the aneurysm and evaluate for intraluminal thrombus[4].

Additional imaging modalities including echocardiography[5], magnetic resonance imaging[6] and coronary angiography can provide complementary information[2].

Therapeutic options include surgical exclusion or resection of the aneurysm with or without revascularization[7]. Percutaneous coil embolization and covered stent placement are options for patients who are not surgical candidates[8,9] .

CONCLUSION

Saphenous vein graft aneurysm is a rare late complication following CABG. A high index of suspicion is needed for accurate diagnosis and prompt treatment to avoid potentially life threatening complications.

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