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Images in Cardiology

Huge saphenous vein graft aneurysm presenting as non-ST elevation myocardial infarction and compressing the heart



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ABSTRACT

Coronary artery bypass grafting (CABG) surgery maintains an important role in the treatment of coronary artery disease. The huge saphenous vein graft aneurysm (HSVGA) is rare and occurs as a late complication after CABG. Here, we reported a case of HSVGA presenting as non-ST elevation myocardial infarction.

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A 63-year-old male was admitted to our clinic with chest pain for three hours. He had a history of coronary artery bypass grafting (CABG) operation 18 years ago. On physical examination, there was a systolic ejection murmur over the right lower sternal border. Electrocardiography revealed sinus rhythm and there were negative T waves in leads D2–D3–aVF. Troponin-I levels were elevated. The patient was diagnosed as non-ST-elevated myocardial infarction and transferred to the coronary intensive care unit. Transthoracic echocardiography showed a large cardiac mass compressing inferior vena cava, right atrium, and right ventricle (Video 1). Eventually, there was a significant stenosis with a peak/mean gradient pressure of 12.3/4.97 mmHg on tricuspid valve

(Fig. 1B–D). Coronary angiography showed an aneurysm of the saphenous vein graft (SVG) to the distal right coronary artery (Fig. 1D). Subsequently, a thorax computed tomography (CT) scan of the chest was required to determine the relation of the aneurysm with other structures. Thorax CT examination revealed a 10.68 × 9.65 cm mass, felt to be a huge SVG aneurysm and compressing the right side of the heart (Fig. 2A and B). Fig. 2A, B, and D showed the mural thrombus of aneurysm. According to decision of heart council, surgical approach was planned for patient and removal of the aneurysm was successfully performed. Pathological examination of the specimen indicated a true aneurysm.

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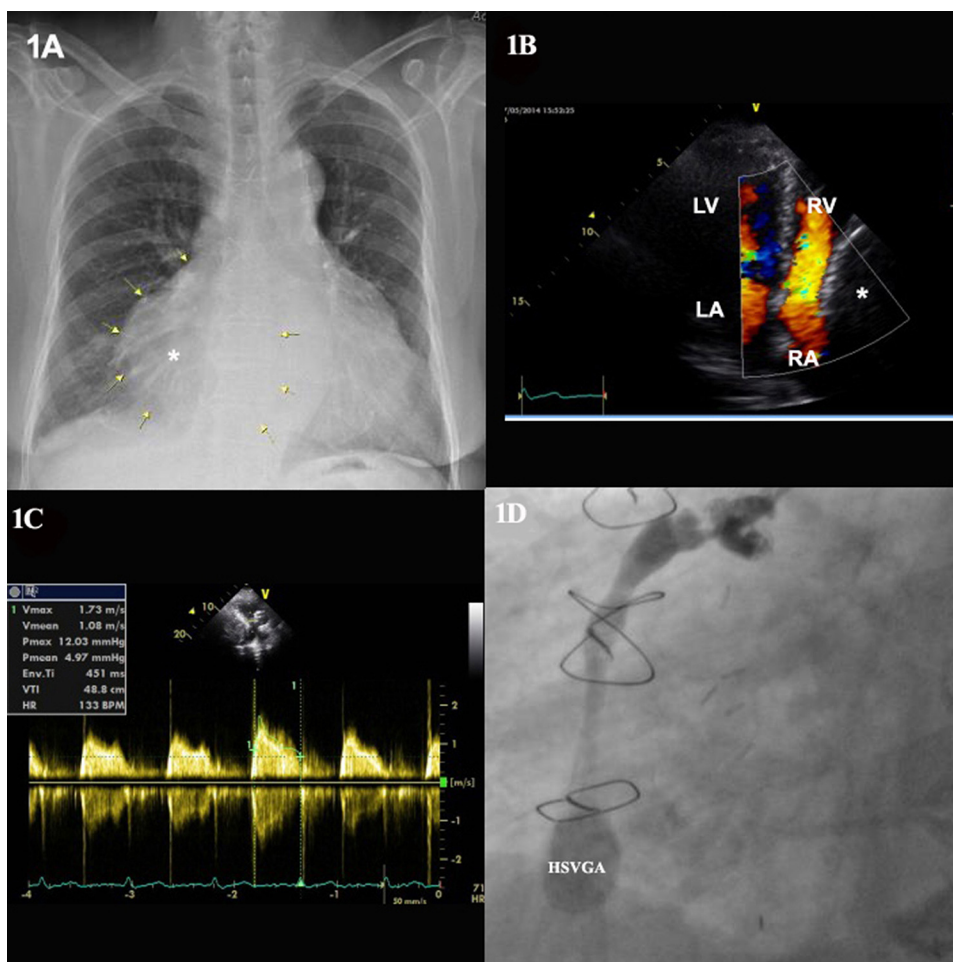


Fig. 1 – A mass abutting the right mediastinal contour on chest X-ray (Panel A). Transthoracic echocardiography images of mass compressing the right atrium and ventricle (Panel B). An extracardiac mass was causing a significant stenosis with a peak/mean gradient pressure of 12.3/4.97 mmHg on tricuspid valve (Panel C). Selective coronary angiogram images of HSVGA in right oblique projection (Panel D). * HSVGA. HSVGA: huge saphenous vein graft aneurysm; RA: right atrium; RV: right ventricle; LA: left atrium; LV: left ventricle.

Supplementary Video 1 related to this article can be found, in the online version, at [doi:10.1016/j.ihj.2015.11.037](https://doi.org/10.1016/j.ihj.2015.11.037).

SVG aneurysms are a rare complication following coronary artery bypass grafting with an estimated rate of <1%. The incidence of significant SVG aneurysm is probably underestimated because of the asymptomatic character.¹ The clinical presentations of the symptomatic SVG aneurysms are new onset of angina, atypical chest pain, myocardial infarction, or sudden death due to rupture of aneurysm.² The main pathophysiological mechanisms for clinical presentation are the compression of an aneurysm to the adjacent structures, ischemic steal syndrome, distal embolization, or

rupture. The treatment options of SVG aneurysms are various from conservative to re-do surgery. The conservative strategy is unsafe because of rupture risk. Re-do surgery seems to be the preferred treatment options according to literature.³ However, in old patients with various co-morbidities, however, coiling and Amplatzer plugs may be alternative treatment options.⁴ Because of the lack of randomized controlled trials, treatment should be individualized. Therefore, clinicians should be aware of such rare and late complications of CABG surgery. The management of such patients should be discussed by a heart team. Treatment options should be discussed with the patients' characteristics and co-morbidities.

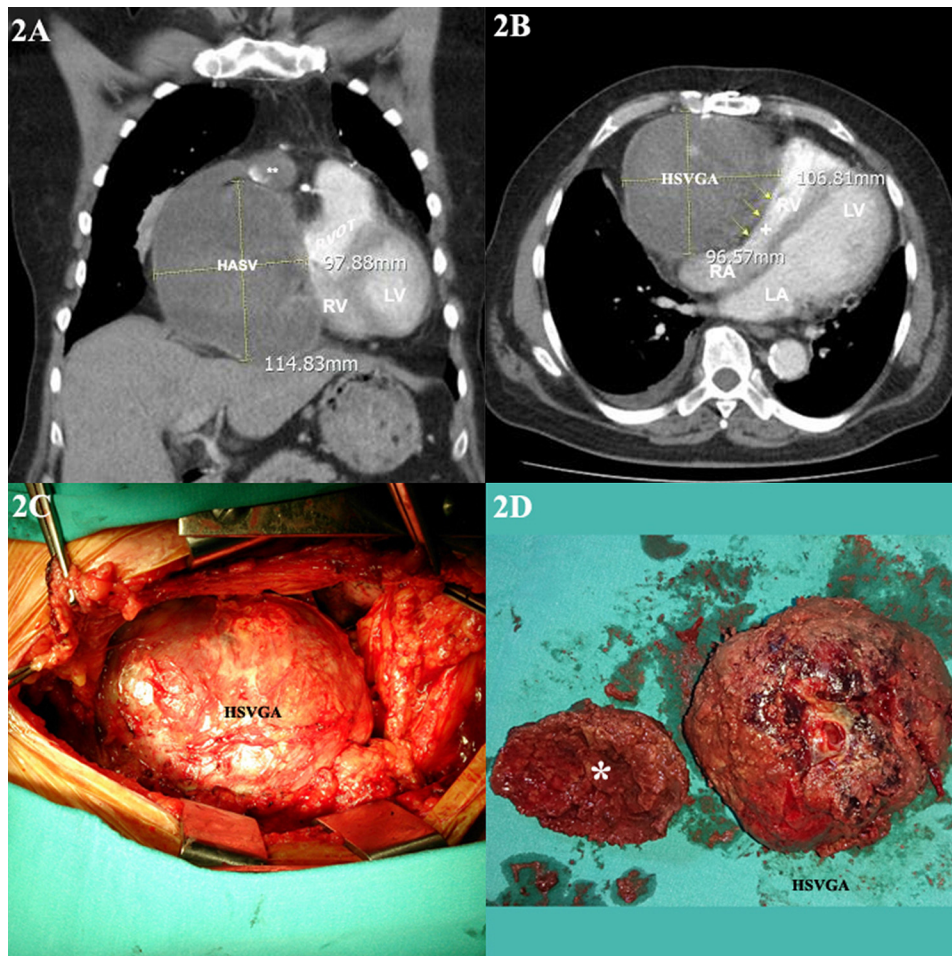


Fig. 2 – Chest computerized tomography images of HSVGA (Panels A and B). Extracted materials after surgery (Panels C and D). * tricuspid annulus; * thrombus. HSVGA: huge saphenous vein graft aneurysm; RA, right atrium; RV, right ventricle; LA, left atrium; LV, left ventricle.

Conflicts of interest

The authors have none to declare.

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