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Mediastinal Haemorrhage Secondary to Spontaneous Perforation of An Aneurysm of A Saphenous Vein Graft to Right Coronary Artery

Case Report

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Abstract

Mediastinal haemorrhage caused by rupture of a saphenous vein coronary artery bypass graft (CABG) is a potentially life-threatening complication following the grafting procedure. The classic presentation of an aneurysm of a saphenous vein graft (SVG) is the triad of chest pain, mediastinal mass, and a history of CABG. We report the case of a patient who presented with pleuritic chest pain, and mediastinal haemorrhage was detected on computed tomography angiogram. Our patient survived following emergency percutaneous coronary intervention and stenting of the SVG to the right coronary artery. The clinical suspicion and prompt diagnosis of this potentially life-threatening condition are crucial.

Keywords: Coronary Artery Bypass Grafting; Saphenous Vein Graft; Spontaneous Perforation; Mediastinal Haemorrhage; Life-Threatening Condition

Case Presentation

A 70-year-old man was admitted for further evaluation of a mediastinal mass seen on Computed Tomography (CT) angiogram (Figure 1) following presentation with acute pleuritic central chest pain and mild exertional dyspnoea. Fifteen years prior, he underwent Coronary Artery Bypass Grafting (CABG) with a left internal mammary artery graft to the left anterior descending artery and Saphenous Vein Graft (SVG) to the right coronary, PDA, and obtuse marginal arteries. He also had a history of end stage renal disease from chronic glomerular nephritis and underwent tumour resected kidney transplantation 10 years ago. Additionally, he previously had peripheral vascular disease with bilateral iliac stents and prostate cancer.

Upon admission, he was afebrile, and his blood pressure was 150/80 mmHg with no radio-radial and radio-femoral delays. His heart rate, respiratory rate, and oxygen saturation were 83 bpm, 20/min, and 97%, respectively. There was no elevation in the jugular venous pressure and no evidence of a heart murmur or rub. Respiratory examination was unremarkable.

Electrocardiography (ECG) showed old right bundle branch block with normal sinus rhythm. Troponin T test was negative, and D-Dimer was positive at 1.86. Chest radiograph showed a mediastinal widening, right basal pleural effusion, and cardiomegaly with no evidence of pneumothorax or consolidation. An echocardiogram

(ECHO) showed hyperdynamic systolic function, marked left ventricular hypertrophy, LVEF of 75%, normal right ventricular size, and function with no valvular pathology. Urgent CT with intravenous contrast enhancement showed a mass with an anteroposterior diameter of 77 mm, initially reported as possibly a lymphoid tissue or thymus with no evidence of thoracic aortic dissection in the anterior mediastinum. He remained afebrile but developed severe ongoing chest pain. The radiologist informed the treating medical team that the findings were consistent with a haemorrhage from the right coronary artery (RCA), which was previously stented and showed dilatation in its mid aspect. The patient was then transferred to a tertiary hospital where he successfully underwent emergency percutaneous coronary intervention and stenting of the SVG to the RCA.

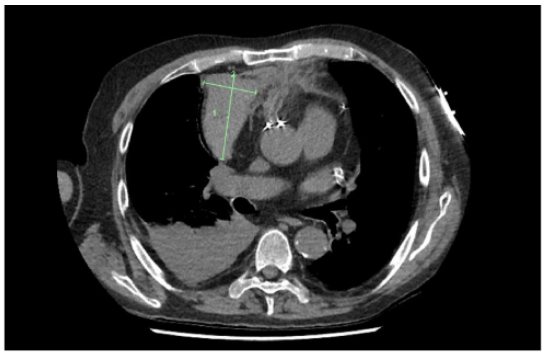

Figure 1: CT with intravenous contrast enhancement showing a mass with an anteroposterior diameter of 77 mm.

Discussion

Mediastinal haemorrhage from SVG rupture is a rare complication after CABG and is associated with a high mortality rate. It generally occurs about 10-20 years after CABG with an incidence of <1%. Commonly, saphenous vein rupture is associated with mediastinitis [1], bacterial infection of the vein [2, 3], vein laceration secondary to trauma from the sternal edge [3], poor vein quality [3], vein erosion by a mediastinal drainage tube [4], or false aneurysm vein formation [5]. Most reported cases of SVG aneurysm were treated before rupture either surgically or with percutaneous closure. Diagnosis is based on a combination of ECHO, coronary angiography, and CT or magnetic resonance angiography. Management options include coil embolization, covered stent grafts, coil embolization, vascular plug insertion, and ethylene vinyl alcohol copolymer injection [6].

Conclusion

In conclusion, SVG perforation, although uncommon, should be considered as a differential diagnosis of mediastinal mass or undiagnosed cardiopulmonary symptoms in patients with a history of CABG because the clinical manifestations overlap. Clinical suspicion of this potentially life-threatening condition is crucial.

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