



Giant Saphenous Vein Graft Aneurysms in a Patient with Rheumatoid Arthritis: A Case Report and Review of the Literature

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Abstract

Rheumatoid arthritis (RA) is the most common society chronic, erosive, autoimmune and inflammatory polyarthritis. Primarily as a joint diseases, but a variety of extra-articular involvement is a systemic disease. Saphenous Vein Graft Aneurysm (SVGA) are rare complications after coronary artery bypass grafting (CABG) and occur predominantly 10 to 20 years after the procedure. We report a case in which a 64-year old man with a history of coronary artery bypass grafting (CABG) 4 years ago and with a diagnosis of RA in remission who is taking methotrexate 10 mg once a week was admitted to hospital because of dyspnea and chest pain that was worsened in the preceding 4 months. The actual development of SVG aneurysm is unclear but known as risk factors include hypertension, saphenous vein graft trauma, hyperlipidemia and smoking. Although our patient was having none of these risk factors, multiple SVG aneurysms reaching large dimensions that have developed in the early period after CABG. We think that degenerative and inflammatory processes due to RA may have accelerated the development of giant SVG aneurysms.

Key Words: Rheumatoid arthritis, giant graft aneurysm, dyspnea, chest pain

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Introduction

Rheumatoid arthritis (RA) is a chronic inflammatory disorder that typically affects the small joints in your hands and feet. RA affects the lining of your joints, causing a painful swelling that can eventually result in bone erosion and joint deformity. Primarily as a joint diseases, but a variety of extra-articular involvement is a systemic disease (such as the skin, eyes, lungs and blood vessels) [1].

Saphenous Vein Graft Aneurysm (SVGA) are rare complications after coronary artery bypass grafting (CABG) and occur predominantly 10 to 20 years after the procedure at an the approximate ratio 1% [2]. The actual development of SVGA aneurysm is unclear but known as risk factors include hypertension, saphenous vein graft trauma, hyperlipidemia and smoking. Regarding the etiology, different mechanisms including atherosclerotic degeneration, vessel wall ischemia and changes in wall stress after the transposition of the vein into arterial circulation are discussed [2-4].

Saphenous vein graft aneurysm have been reported by several authors [5,6]. But we are the first time a case report of a giant and multiple saphenous vein graft aneurysm in patient with rheumatoid arthritis.

The Case

We report a case in which a 64-years old man with a history of CABG 4 years ago and with a diagnosis of RA in remission who is taking methotrexate 10 mg once a week was admitted to hospital because of dyspnea and chest pain that was worsened in the preceding 4 months. On evaluation at the hospital, it was decided to perform coronary angiography (CAG) which showed no atherosclerotic progression compared with the previous CAG. We did not find any lung pathology except a mass-like appearance in the pulmonary artery conus in the posteroanterior chest X-ray (Figure 1). Two and three dimensional Trans-thoracic echocardiography (Figures 2a and 2b) and Computed tomographic (CT) scan and Reconstructed computed tomographic coronary angiogram (Figures 3a, 3b, 3c and 3d) was performed respectively, which showed two giant SVGA arising from two previous saphenous graft and compressing main pulmonary artery.

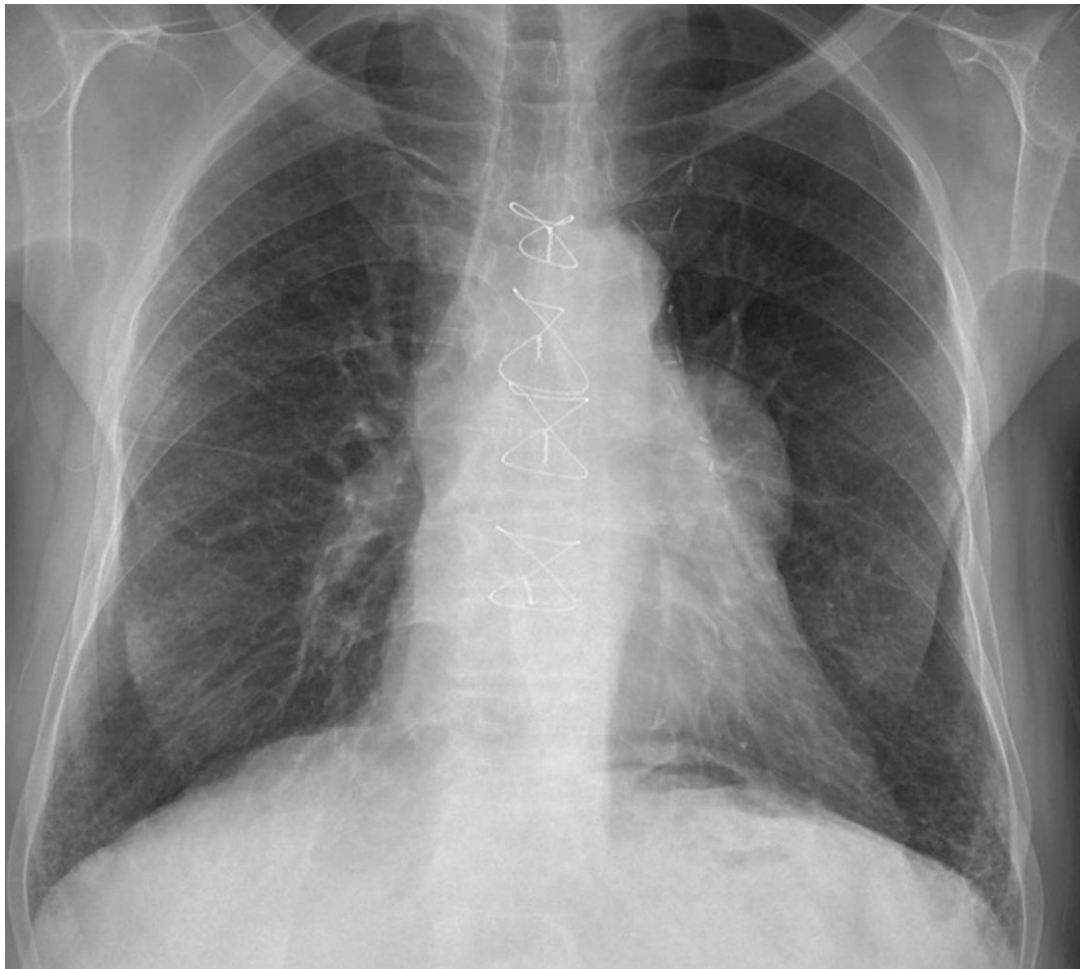
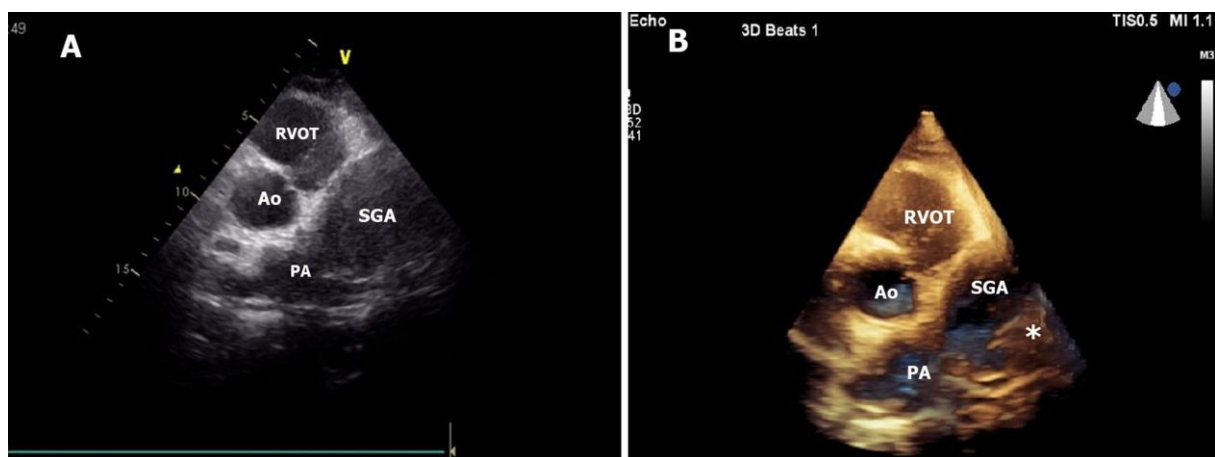
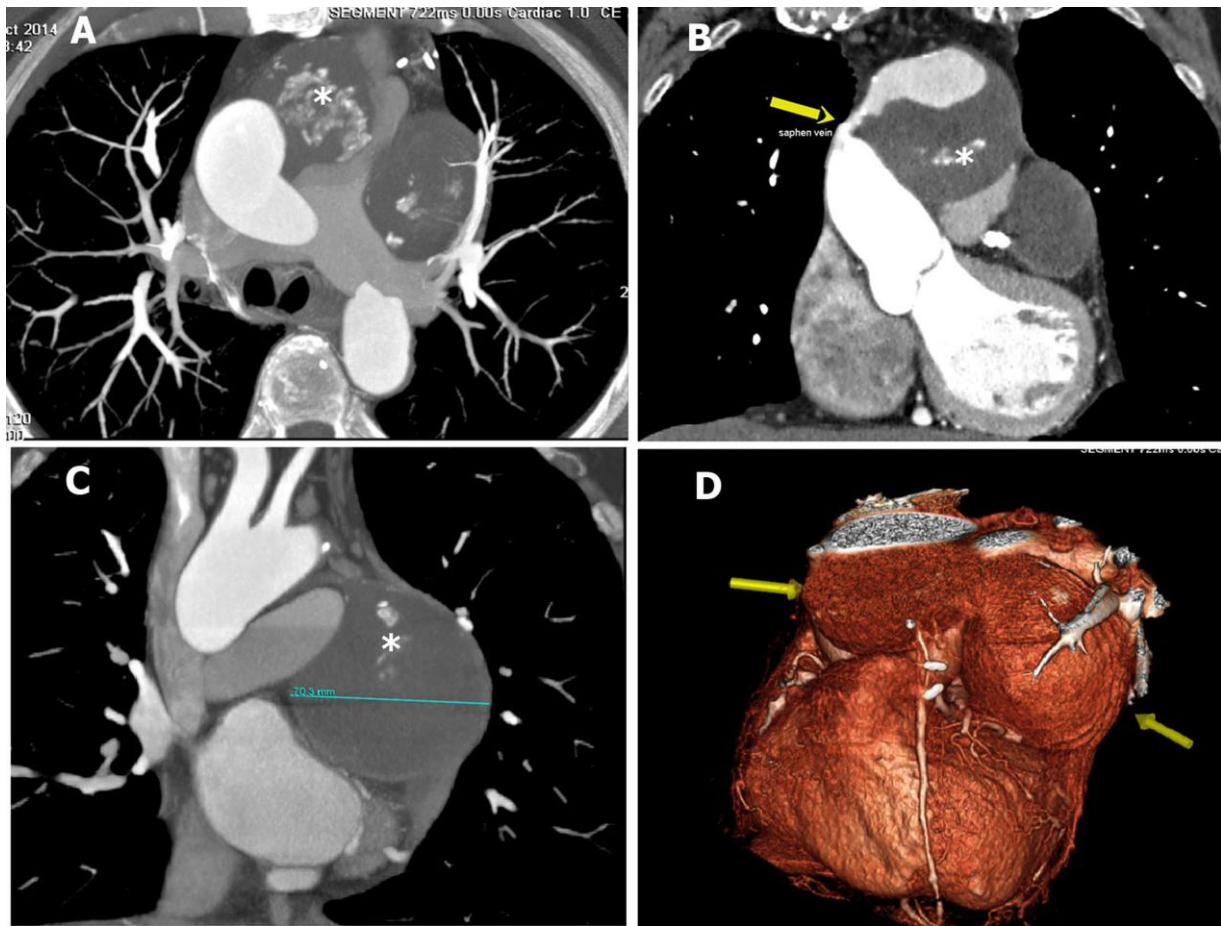


Figure 1. Chest X-ray, mass appearance of pulmonary conus



Figures 2a and 2b. Two-dimensional and Real-time three-dimensional echocardiography. Ao: Aorta; RVOT: Right ventricular outflow tract; PA: Pulmonary artery and SGA: Saphenous graft aneurysm. Asterisks show thrombosis.



Figures 3a, 3b, 3c and 3d: Different Computed tomographic. Arrows show Saphenous vein graft aneurysm and asterisks show thrombosis.

Discussion

The increased reporting of SVGA in recent years can be explained by higher life expectancy of CABG patients and increasing use of diagnostics. SVGA are often incidentally identified on imaging, but cases of rupture, fistula formation with neighboring anatomy, and hemodynamic compromise resulting from compression of adjacent cardiac and vascular structures have been reported [7,8]. SVGA are reported predominantly in men, who account for 87% of cases, likely relating to the higher incidence of atherosclerotic coronary disease in that population [9]. Our case, literature is compatible with gender and clinical presentation is compression of neighboring anatomy structure.

SVGA typically arise remotely from the initial bypass surgery, being identified an average of 13 years after CABG, although 2 cases have been reported 6 months after surgery [4,10]. It usually affects the body of the graft. The early aneurysmal degeneration is thought to be caused by weakening of the wall by continued surgical injury with erroneous suture placement and tension. Also, infection at the insertion site leads to inflammation and wound dehiscence, assisting in the formation of pseudoaneurysm. Additionally, undetected venous varicosities with impaired elastic tissue integrity also contribute to the development of the aneurysm. Although it is not known in our case a saphenous vein graft injury, it was developed in the early period SVGA.

The mechanism responsible for aneurysmal dilatation of aortocoronary SVGA is poorly understood. But varicosities may predispose to aneurysm formation. Hypertension, hypercholesterolemia, and a long history of smoking may have led to atherosclerotic degeneration and aneurysm formation [2-4]. Our patient did not have one of these risk factors, but existing chronic inflammatory disorder rheumatoid arthritis. We think that degenerative and inflammatory processes due to RA may have accelerated the development of giant and multiple SVGA aneurysms in our case.

In conclusion, SVGAs represent a rare and typically late complication of CABG with the potential for significant morbidity and mortality. Multimodality imaging is often required to establish to diagnose. CABG performed in these patients may cause many a number of these complaints. Additionally, as in our case other diseases can cause similar symptoms. We should keep in mind the possibility of this late complication when following CABG patients using SVGA.

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