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Paracardiac Masses Caused by a Right Coronary Artery Aneurysm and a Saphenous Vein Graft Aneurysm

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Summary: Two unusual cases of large aneurysms, one located in the native right coronary artery and the other in a saphenous vein graft, are reported. Their size and mode of presentation as asymptomatic paracardiac masses on chest x-ray films make them unique. It is proposed that these entities be considered as part of the differential diagnosis of paracardiac masses.

Key words: coronary artery aneurysms, abnormal chest x-rays, differential diagnosis, management

Introduction

Aneurysms of the coronary arteries are quite unusual and have an estimated incidence of about 1.5% at necropsy or coronary arteriography. Coronary artery aneurysms are more common in individuals less than 20 years of age, especially if angina pectoris or an acute myocardial infarction have occurred.

Previously reported cases of saphenous vein graft aneurysms or native coronary artery aneurysms have differed distinctively in size and presentation from the cases to be discussed.

Case Reports

Case No. 1

A 77-year-old, previously healthy woman was admitted with pneumonia to a local hospital. She was found to have a mass adjacent to the right heart border on the routine chest x-ray film (Fig. 1). Further evaluation of this mass with computed tomography (CT) revealed a large fluid-filled sac within the pericardium (Fig. 2). There were no symptoms.

Magnetic resonance imaging of the chest identified the "fluid filled sac" to be most likely a large aneurysm of the right coronary artery (RCA), 1 cm distal to its ostium.

Cardiac catheterization revealed a normal left coronary artery. The catheter dropped down into a large area as the right coronary ostium was cannulated. Contrast material was not injected. A contrast aortogram revealed shunting of contrast from the right coronary cusp into the aneurysm.

At cardiac surgery, a 12 X 14 cm aneurysm of the right coronary artery was identified, displacing the right atrium posteriorly. The coronary sinuses were normal. The aneurysm was resected and the right coronary artery was bypassed. Pathologic examination revealed a large coronary aneurysm filled with thrombus.

Case No. 2

A 61-year-old hypertensive, hyperlipidemic female patient, with a history of coronary artery bypass surgery 8 years previously, was admitted for hip surgery to a local hospital. A preoperative chest x-ray film (Fig. 3) revealed an abnormal mass distorting the left cardiac border. A CT-guided aspiration of the mass revealed blood. Serial chest x-ray films had revealed a gradual increase in size of the mass. The chest was explored and an aneurysm of the saphenous vein graft was identified. Accelerated hypertension during the surgery precluded any further intervention. Later, the patient recovered and was transferred to Emory University Hospital for further treatment.

Cardiac catheterization revealed a very large aneurysm of the saphenous vein graft to the left anterior descending coronary artery (Fig. 4). The patient underwent cardiac surgery, which showed a 6.2 X 3.4 cm aneurysm of the saphenous vein graft. The aneurysm was resected and the left internal mammary artery was implanted to the left anterior descending artery. Pathologic examination of the excised aneurysm showed chronic inflammatory changes and calcification of the vascular intima with organized thrombus. The patient recovered fully.
Discussion

The most widely accepted definition of a coronary artery aneurysm is dilatation of more than 1.5 times the diameter of the adjacent normal segment of the largest coronary artery.\(^3\) In a series of 8,422 patients, only 20 patients were identified with discrete aneurysms, most of which were <2 cm in diameter.\(^5\) The two aforementioned case reports are unique because of the exceptional size of the right coronary artery and saphenous vein graft aneurysms—12 × 14 cm and 6.2 × 3.4 cm, respectively.

The major causes of aneurysms of the coronary arteries include atherosclerosis, trauma, angioplasty, artherectomy, and mycotic, Kawasaki, and congenital diseases. The aneurysm of the right coronary artery was believed to be congenital, because microscopy revealed a normal arterial wall.

The saphenous vein aneurysm had degenerative changes with calcification and chronic inflammation.

Most coronary artery aneurysms reported in the literature have been diagnosed by coronary arteriography performed for other reasons. Rarely do coronary aneurysms present with myocardial ischemia and infarctions from thrombosis and embolic events involving the aneurysm,\(^4,6\) with rupture into vari-
ous cardiac chambers, or with abnormal paracardiac masses on echocardiograms and noninvasive imaging of the chest. In both of our patients, the incidental finding of a paracardiac mediastinal mass was striking and required further workup. In Case No. 2, diagnostic aspiration was attempted under CT guidance because a saphenous vein graft aneurysm was not entertained in the differential diagnosis secondary to its rarity. Surgery is the treatment of choice in cases in which the size of the aneurysm poses significant risk, such as rupture, or if symptoms are present. In our cases, surgery was indicated because of the size of the aneurysms and the potential for rupture.

Conclusion

Two unusual cases of aneurysms of the coronary circulation are presented in order to broaden the differential diagnosis of the individuals with paracardiac masses.

References