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A RARE CASE OF A GIANT RIGHT CORONARY ARTERY ANEURYSM

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Abstract

We report the case of a 34-year-old female patient with a giant thrombus-filled aneurysm of the right coronary artery presenting as a spherical cardiac mass on echocardiography. The cardiac mass was found to be an 8-cm right coronary artery aneurysm on cardiac magnetic resonance imaging, which also revealed a 3.5-cm proximal left coronary aneurysm and a very small aneurysm at the origin of the obtuse marginal coronary artery. Due to the extent and size of the right coronary aneurysm, a decision for surgical intervention was made. Resection of the right coronary artery aneurysm with vein graft replacement and a bypass to the left anterior descending followed by subsequent exclusion of the aneurysm was successfully performed.

Introduction

Coronary artery aneurysms (CAAs) are a rare and life-threatening cardiovascular abnormality. Multiple aneurysms and giant (greater than 5 cm) aneurysms are even more rare.¹ A CAA is defined as the dilation of the normal coronary diameter to 1.5 times the size of a normal adjacent coronary artery segment. It can resemble an acute coronary syndrome with thrombosis of the aneurysmal sac and subsequent ischemic symptoms from compromised blood flow. However, other serious complications such as rupture of the sac and direct compressive effects within the thoracic cavity can also cause serious morbidity and even be fatal for some patients. We herein present the case of an asymptomatic patient with a giant RCA aneurysm.

Case Report

In May 2014, a 34-year-old female with a past medical history of colon cancer presented with shortness of breath. A routine echocardiogram showed an incidental finding of an 8 x 6-cm spherical mass compressing the lower right atrium and mid free ventricular wall. The patient underwent cardiac magnetic resonance imaging, and the mass was identified as a large aneurysm (7.6 x 5.7 cm) containing thrombus (Figure 1) that was likely arising from the right coronary artery (RCA) and compressing the right atrium and right ventricle. The aneurysm extended from the proximal RCA to the distal RCA. Coronary angiography showed no significant atherosclerotic disease or stenosis but confirmed the presence of the large RCA aneurysm

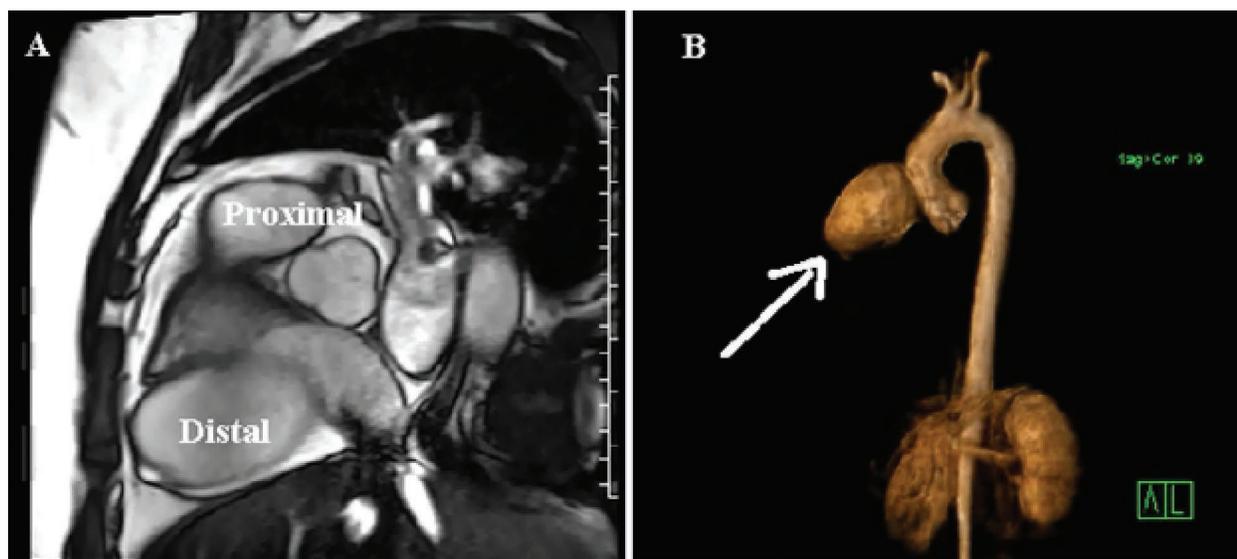


Figure 1. (A) Magnetic resonance imaging shows the proximal and distal aneurysm of the right coronary artery (RCA). (B) Cardiac computed tomographic scan (three-dimensional reconstruction) shows the aneurysmatic dilation of the RCA (arrow).

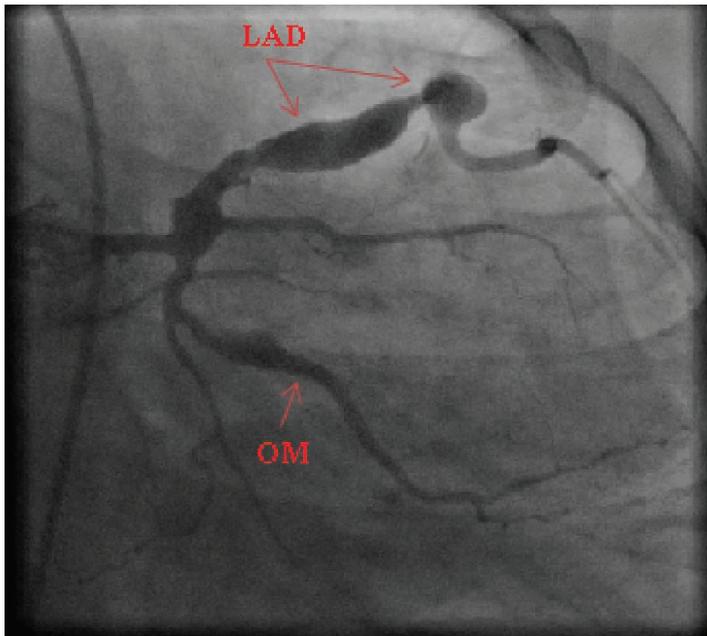


Figure 2. Coronary angiography revealing two aneurysms (arrows) of the left anterior descending coronary artery.

with some calcifications measuring 8.3 x 5.3 x 5.4 cm. It also revealed an additional 3.5-cm aneurysm in the proximal part of the left coronary artery and a small aneurysm at the origin of the obtuse marginal artery (Figure 2). Given the extent of the primary aneurysm, the patient was referred to cardiac surgery (Figure 3). A reversed saphenous vein interposition graft was placed from the ascending aorta to the posterior descending artery. A bypass to the left anterior descending with left internal mammary artery was also done. The RCA aneurysmal sac was resected and sent to pathology showing myxoid degeneration of the media. The patient tolerated the procedure well and was soon discharged on postoperative day five.

Discussion

The CAA was first described postmortem by Morgagni in 1761.² Because a CAA is a rare finding, no consensus surgical approach has been determined. In asymptomatic patients, surgery is recommended by some authors if the diameter of the aneurysm exceeds at least three to four times the diameter of its original size. Coronary aneurysms are most often atherosclerotic in origin but can also be nonatherosclerotic as in connective tissue diseases like Kawasaki. Other underlying conditions include cocaine abuse³ or trauma.⁴

The majority of patients are asymptomatic, and the aneurysms are found incidentally during angiography. However, slow flow within the aneurysm may lead to thrombus formation with vessel occlusion and myocardial infarction.⁵ Other rare presentations include acute rupture with hemopericardium and tamponade or compression of the adjacent cardiac chambers, both requiring prompt surgical intervention.⁶

Conclusion

The prognosis of CAAs depends on the presence and severity of concomitant artery disease. Coronary artery aneurysms remain a rare pathology, and their management should be individualized depending on size, location, and clinical context. Successful revascularization may be performed in patients with ischemic heart disease and multiple CAAs.

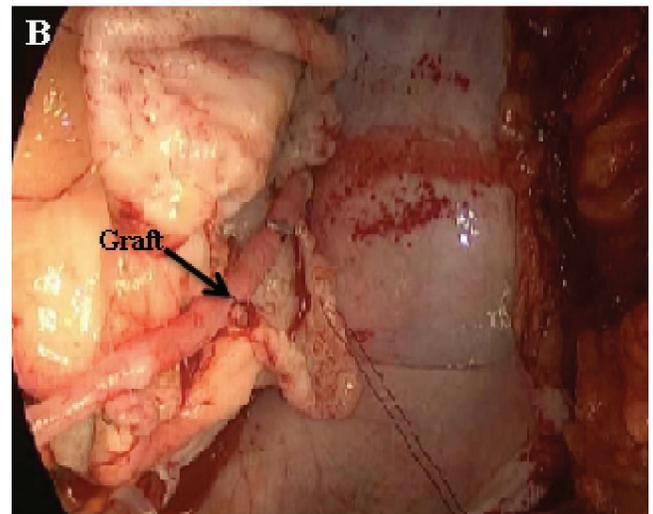
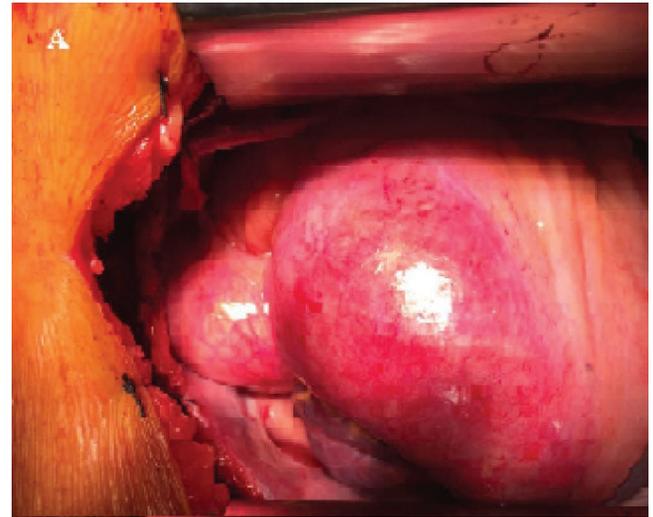


Figure 3. (A) Intraoperative view of the aneurysm, and (B) intraoperative view of the graft.

Conflict of Interest Disclosure: The authors have completed and submitted the *Methodist DeBakey Cardiovascular Journal Conflict of Interest Statement* and none were reported.

Keywords: giant coronary artery aneurysm, right coronary artery, coronary artery bypass

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