



Giant saccular aneurysm of the left main coronary artery

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Abstract

Coronary aneurysms represent anomalies identified in 0.15%–4.9% of patients undergoing coronary angiography. At present, there is no uniform definition of this pathology. Aneurysms of the left main coronary artery (LMCA) are extremely uncommon, with an incidence of 0.1%. It has been demonstrated that atherosclerosis is the main cause of these anomalies in adults, and Kawasaki disease in children and adolescents. Other causes include connective tissue disorders, trauma, vasculitis, congenital, mycotic, and idiopathic. These dilated sections of the coronary artery are not benign pathology because they are subject to spasm, thrombosis, and subsequent distal embolism, spontaneous dissection and rupture. Treatment options include anticoagulation, custom-made covered stents, reconstruction, resection, and exclusion with bypass. Our report on an old case illustrates the giant saccular LMCA aneurysm leading to myocardial ischemia due to coronary steal phenomenon.

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Keywords: Coronary aneurysm; Coronary artery disease; Coronary angiography

1 Introduction

Coronary artery aneurysms (CAA) represent anomalies identified in 0.15%–4.9% of patients undergoing coronary angiography. At present, there is no uniform definition of this pathology. The term “aneurysm” refers to both diffuse, i.e., over 150% dilation of the largest diameter of a coronary artery and limited spherical or saccular dilation.^[1] They are most commonly found in the right coronary artery (RCA) and, to lesser extent, in the proximal portion of the left anterior descending (LAD), or left circumflex artery. Aneurysms of the left main coronary artery (LMCA) are extremely uncommon, with an incidence of 0.1%.^[1] It has been demonstrated that atherosclerosis is the main cause of these anomalies in adults and Kawasaki disease in children and adolescents. Other causes include trauma, polyarteritis nodosa, systemic lupus erythematosus, syphilis, and idiopathic.^[2] Many complications are related with CAA including rupture, thrombosis, embolization, dissection, mechanical obstruction, and erosion into surrounding structures with or without fistula formation. Eventually, they are a potential

cause of myocardial ischemia and infarction. The management of coronary artery aneurysm is not yet well established, owing to its rarity and unpredictable natural history. Treatment options include anticoagulation, custom-made covered stents, reconstruction, resection, and exclusion with bypass.^[3,4]

Our report on an old case illustrates the potential complication of LMCA aneurysm and presents its management.

2 Case Report

An 80-year-old woman was admitted with chest pain. The patient has experienced exertional chest pain for the last three days. Her medical history was unremarkable and physical examination was normal. Her ECG showed negative T waves in leads V2–V5. Cardiac enzyme levels at presentation and in hospital follow-up were normal. Echocardiography revealed a hypokinetic interventricular septum and left ventricular anterior wall and demonstrated a giant coronary artery aneurysm involving the left main coronary artery at the parasternal short axis view. The myocardial perfusion scan showed inducible ischemia in the basal anterior wall of the left ventricle. Left coronary angiography revealed a 3.0 × 2.0 cm saccular CAA originating from a distal bifurcation of the LMCA (Figure 1). There were no significant lesions in the coronary arteries. Because of the inability to visualize the distal segment of the LAD due to entrapment of contrast media in the CAA, a

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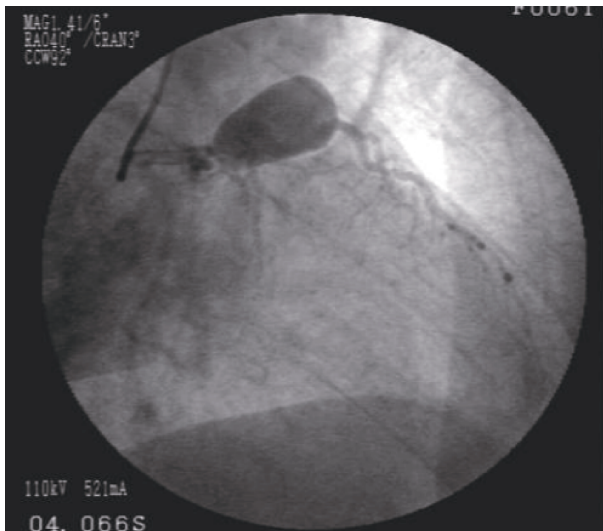


Figure 1. Coronary angiography showed 3.0×2.0 cm saccular aneurysm originating from distal bifurcation of left main coronary artery.

64-slice multidetector computed tomography coronary angiography was performed. It showed a saccular CAA at the bifurcation of LAD and circumflex artery (Figure 2). Due to ischemic symptoms and its risk of rupture, surgical resection of CAA was recommended. However, she refused the surgery. At the eight month follow-up she was free of angina. Her current medications included nitrate, beta blocker, aspirin, ACE inhibitor and statin.

3 Discussion

LMCA aneurysms are exceedingly rare clinical entities, encountered incidentally in approximately 0.1% of patients

who undergo routine angiography.^[1] Isolated CAA are very infrequent, and usually present as incidental findings at routine coronary angiography. The sizes of CAAs vary and may be fusiform, or saccular. Most CAAs occur as a consequence of atherosclerosis, but other causes include congenital malformation, Kawasaki disease, traumatic injury, polyarteritis nodosa, systemic lupus erythematosus, Ehlers–Danlos syndrome, scleroderma, Marfan syndrome, and Takayasu’s arteritis. The primary complication is myocardial ischemia or infarction, with rupture being rare.^[2] Percutaneous coronary intervention or bypass surgery is the first treatment choice for a CAA in settings of acute coronary syndromes.^[3,4] The rarity of giant coronary aneurysms makes it difficult to standardize treatment or firmly establish guidelines supporting medical versus surgical management in elective settings. Consequently, there are no guidelines or consensus as to the ideal approach in patients with coronary artery aneurysms. Management options of CAA include three options: surgical ligation of the CAA accompanied by distal bypass surgery; percutaneous stenting with covered stents; and conservative medical management with continued antiplatelet therapy. A variety of surgical management options of CAA, including thrombectomy, coronary artery reconstruction, and coronary artery bypass grafting, with or without aneurysm ligation, are described.^[5] Nevertheless, the current case demonstrated that CAA might have potential for thromboembolism and risk of acute myocardial infarction. Many investigators have hypothesized that abnormal flow within an aneurysm predisposes patients to thrombus formation and distal embolization, even in the absence of obstructive coronary disease.^[6]

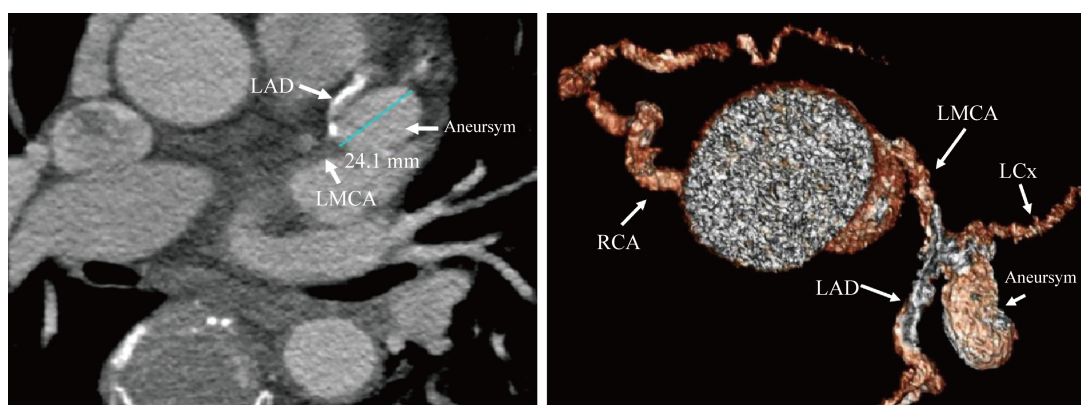


Figure 2. Multidetector computed tomography coronary angiography showed giant saccular aneurysm. LMCA: left main coronary artery; LAD: left anterior descending; LCx: left circumflex coronary artery; RCA: right coronary artery.

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