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CASE REPORT

Can we medically follow coronary artery aneurysms?; A case report

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Abstract

Coronary artery aneurysm (CAA) is an enlargement of the coronary vascular lumen that can't be fixed and is at least 1.5 times the diameter of the normal coronary segment next to or connected to it. They are usually asymptomatic; their clinical presentation ranges from incidental findings on cardiac imaging to myocardial infarction (MI), and they may result in angina, MI, and sudden death, especially when they are very large. An aneurysm was seen in the middle segment of the left anterior descending artery (LAD) in the images obtained from the patient. After the council, coronary artery bypass grafting (CABG) was decided due to the risk of rupture, but the patient and his relatives did not accept the operation. In outpatient clinic visits every 3 months for 9 months, it was observed that her complaints regressed with medical treatment. There is still no clear treatment approach for CAAs and CABG, and percutaneous coronary intervention (PCI) may be preferred or medical therapy may be used.

Keywords: Coronary Artery Aneurysm, Aneurysmal Coronary Artery Disease, Left Anterior Descending Artery.

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INTRODUCTION

Aneurysmal coronary artery disease (ACAD) is divided into coronary artery aneurysm (CAA) and coronary aneurysmal ectasia (CAE). CAA is when the coronary artery lumen gets ≥ 1.5 times wider in one spot than the adjacent or contiguous normal coronary segment. This widening can't be fixed. CAA is found in 5% of patients undergoing CAG (2). CAA is most commonly observed in the right coronary artery (RCA) with a frequency of 40%, followed by the left anterior descending artery (LAD) with a frequency of 32% (3). CAAs are usually asymptomatic; their clinical presentation ranges from incidental findings on cardiac imaging to myocardial infarction (MI) and may result in angina, MI, and sudden death, especially when very large (4). Treatment options include medical and surgical excision, coronary artery bypass grafting (CABG), and percutaneous coronary intervention (PCI). However, in the absence of randomized trials or guideline recommendations, the treatment of these patients creates clinical uncertainty for the clinician (5).

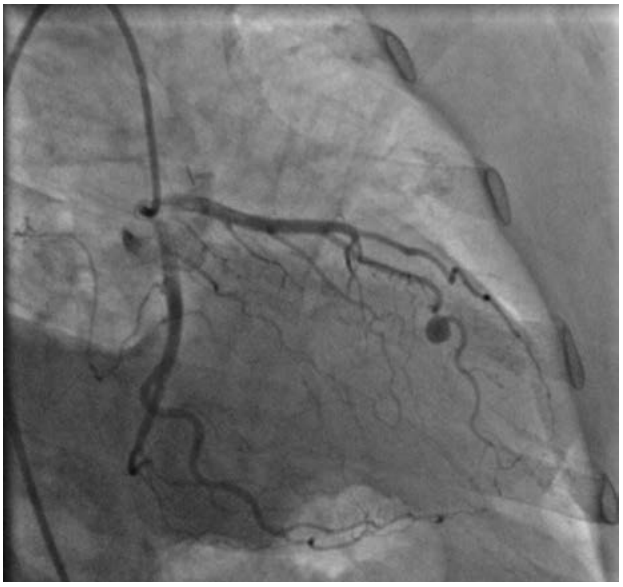
We aimed to contribute to the approach to CAA, a disease for which a clear treatment algorithm has not yet been established, with a case from our clinic.

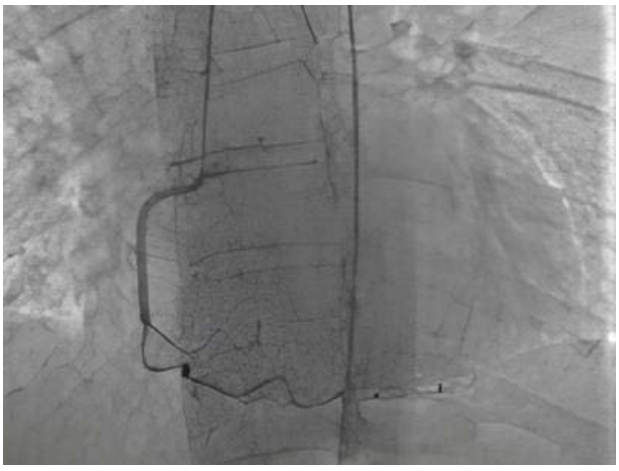
CASE REPORT

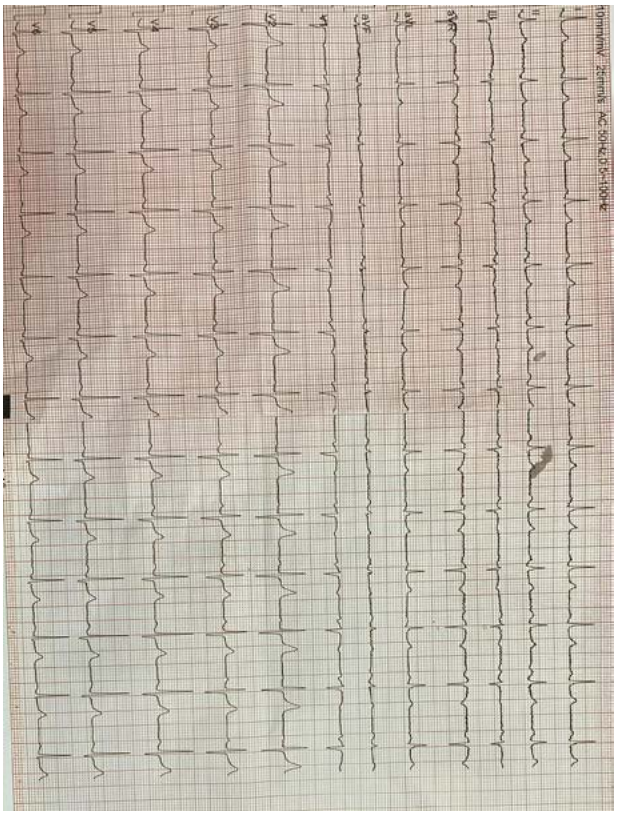
A 52-year-old woman presented to the emergency department with chest pain and was admitted to the coronary intensive care unit with Canadian Cardiovascular Society Angina Grade 3 angina. In the anamnesis of the patient, it was learned that she had no history of Kawasaki disease or any other connective tissue disease and no history of CAG or PCI, but she had active breast malignancy and was receiving chemotherapy. Precordial auscultation and physical examination findings were normal; heart rate was 76 beats/min (Figure 1). After admission to the intensive care unit, acetylsalicylic acid 100 mg, clopidogrel 75 mg, atorvastatin 40 mg, metoprolol 50 mg, and silazapril 5 mg were initiated. Biochemical parameters determined from blood samples obtained from the proximal vein of the upper extremity were urea 23 mg/dl, creatinine 1.18 mg/dl, alanine aminotransferase (ALT) 26 U/L, aspartate transferase (AST) 30 U/L, sodium 135 mmol/L, potassium 4.5 mmol/L, albumin 4.3 g/dl, and glucose 87 mg/dl. On the hemogram, white blood cell (WBC) was 6.92 x 10 3 /uL, hemoglobin (Hb) was 11.7 g/dl, platelet (PLT) was 218 x 10 3 /uL, neutrophil (NEU) was 5 x 10 3 /uL, and lymphocyte (LYM) was 1.53 x 10 3 /uL. On transthoracic echocardiographic imaging, the left ventricular ejection fraction (LVEF) was 50% and the left atrial diameter was 30 mm. After premedication, the patient was taken to the catheterization laboratory, and a Judkins left coronary catheter (JL) was selectively inserted into the LIMA through a 6-French (F) sheath from the right femoral artery. The images obtained showed an aneurysm in the middle segment of the LAD (Figure 2), and the right coronary artery (RCA) was observed to be normal (Figure 3). After the council, CABG was decided due to the risk of rupture, but the patient and his relatives did not accept the operation. Spironolactone/hydrocortiazide was added to the existing treatment, and the patient was transferred to the ward. The patient had no complaints in the ward follow-up; medical treatment was organized, and he was discharged. In outpatient clinic visits every 3 months for 9 months, it was observed that her complaints regressed with medical treatment.

DISCUSSION

The majority of reported cases have had CAG and computed tomography diagnoses because CAAs are typically clinically silent and incidentally seen on cardiac examinations. Having obstructive atherosclerotic disease at the same time, on the other hand, can cause both exertional angina and acute coronary syndrome. Similarly, thrombosis in the lumen of large aneurysms can cause distal embolization and MI. In our case, CAA presented clinically as class 3 angina, and an aneurysm in the middle segment of the LAD was detected by CAG.







In adults, CAA is predominantly of atherosclerotic origin; however, other causes include Kawasaki disease, autoimmune diseases, trauma, infections, dissection, congenital malformation, and angioplasty (7). Our patient did not have any of the existing etiologic factors but was under chemotherapy treatment for breast cancer. Due to the uncertainty of etiologic factors, a treatment method for incidentally found CAAs has not yet been established. For patients with angina or an acute MI who need intervention for aneurysmal coronary artery disease, both percutaneous and surgical revascularization come with technical challenges. In addition, most published studies have evaluated the results of PCI in symptomatic patients presenting with acute MI, whereas the results of PCI in asymptomatic patients with CAA are limited to small case series (8). Also, PCI of the aneurysmal or ectatic culprit vessel in people who have had an acute MI is linked to lower procedural success and a higher rate of no-reflow and distal embolization (9). In addition, patients who survived acute MI after PCI of an aneurysmal vessel had higher mortality and higher rates of stent thrombosis during follow-up (10). The ideal surgical approach is not yet available. However, the most common surgical practice is to open the CAA, suture its afferent and efferent vessels, and finish with bypass grafting if necessary (11). Although the medical treatment approach is mostly preferred in asymptomatic patients, there are no studies with an optimal outcome yet. However, the higher rates of death and cardiovascular events in two separate studies with 5-year and 49-month follow-ups in which these patients were compared with the normal population suggest that the medical treatment approach should be considered as an option (12, 13). Our patient was discharged with ACEI, spironolactone, and antiplatelet treatment, and her complaints regressed.

As a result, there is still no clear treatment approach for CAAs; CABG and PCI may be preferred, but it should be kept in mind that they can also be followed with medical treatment. Our knowledge on this subject will become more clear with future studies.

Informed Consent: Informed consent was obtained from the patient.

Declarations

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