

Case Report

Open Access

A Lifesaving Abdominal Pain: Unusual Presentation of Giant Coronary Artery Aneurysm among Multiple Aneurismatic Coronary Disease

Rosaria Di Matteo* and Valentina Scarponi

Emergency Department, San Filippo Neri Hospital, Rome, Italy

Abstract

Coronary artery aneurysms are rare with a prevalence estimated between 0.3-5% among people undergoing angiography. Giant coronary artery aneurysms (CAA) defined as having a diameter of 2 cm or greater are rare with a reported prevalence of 0.02%. Combination of giant coronary aneurysm with multiple fusiform aneurysms in the remaining coronary arteries is even rarer. Giant CAAs are prevalent in adult male and predominant in right coronary artery; the etiology is atherosclerotic or associated with Kawasaki disease, Takayasu arteritis, collagen vascular disease, IgG4-related coronary periarteritis or secondary to drug-eluting stent implantation. Complications could be thrombosis of the aneurismal sac with secondary acute coronary syndrome or rupture of the sac with fatal consequences, but patients can be completely asymptomatic. We describe an interesting case of a 58 year-old man who had multiple atherosclerotic CAA, one of which was a giant CAA of the right coronary artery presenting to us claiming abdominal pain without any kind of cardiac symptoms.

Keywords: Giant coronary artery aneurysms; Echocardiography; CT of the chest; Atherosclerosis

Case Report

A 58-year old caucasian man was referred to our Emergency Department due to a persistent and continuous abdominal pain localized in the right hypochondrium (NRS scale 7) claimed for seven days. He had a medical history of non -insulin dependent diabetes mellitus, arterial hypertension, smoking (almost 20 cigarettes/day), previous surgical intervention for peptic ulcer, no history of coronary artery disease or hypercholesterolemia. He had no history of infant fevers or inflammatory disease. His therapy was metformin 500 mg twice a day, repaglinide 2 mg three times a day, zefenopril in combination to idroclorotiazide once a day. He referred no drug allergies. Finally, he had no family history of cardiovascular disease. On admission he was hemodynamically stable with following vital signs: blood pressure of 120/70 mmHg without significant difference between right and left arm; a heart rate of 50/min, a respiratory rate 14/min, saturimetry 96%. The physical examination showed valid peripheral pulse status, height 170 cm and body weight 62 Kg, temperature of 36°C and GCS 15 without any neurological deficits. On better clinical examination no alteration findings, a Killip 1 score on the thorax auscultation and no pain evocated by the palpation of the abdomen wall, but a strange abdomen discomfort under a deep pressure on the right hypochondrium referred to the lower part of the right hemithorax too. Blood tests showed only hyperglycemia 270 mg/dl, HbA1c 8.0 g/dl and no increasing of p- troponine I in three serial measurements and normal value of cANCA, pANCA, PCR. ECG showed sinus bradycardia without ischemic signs. In the Emergency Department an 2D-Echocardiography showed a 45 mm diameter cystic-like mass in the pericardium next to the right atrium with no flow inside but with signs of light compression on the right cardiac atrial chamber. No global hypokinesia or pericardial effusion were found (Figure 1). The patient was admitted to the Emergency Medicine department and later to the Cardiology Department. The 2D echocardiogram, performed later by an expert cardiologist, revealed a left ventricular ejection fraction of 61%, no pericardial effusion and a large cystic mass adjacent to the right atrium with a compressive effect on it measured 4.2 x 3.8 cm. A successive transesophageal echocardiogram revealed two extracardiac masses in communication with each other and to the right coronary artery 4.7 x 4.4 cm and 1.9 x 3.5 cm respectively described as possible aneurysms with compressive effect on the right atrium. A contrast

enhanced computed tomography (CT) scan of the chest described a possible right cor triatrium (Figures 2a and 2b) and revealed several aneurysms both in the right and left coronary artery (Figure 3). At this point the differential diagnosis was between pericardial cystic



Figure 1: Echocardiogram.

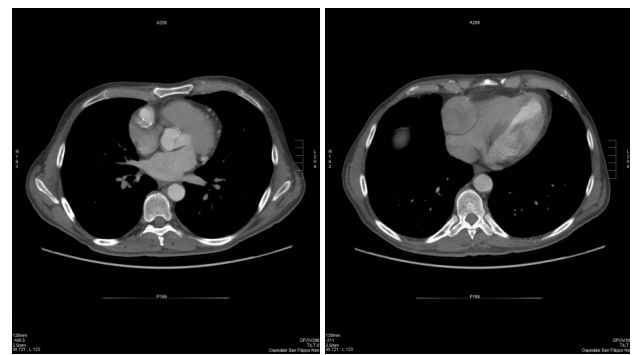


Figure 2: (a) Contrast enhanced computed tomography (CT) scan of the chest. (b) Imaging compatible with a cor triatrium.

*Corresponding author: Rosaria Di Matteo, Emergency Department, San Filippo Neri Hospital, Rome, Italy, Tel: +39 06 3060 0651; E-mail: rosariadimatteo@libero.it

Received December 07, 2015; Accepted December 17, 2015; Published December 24, 2015

Citation: Di Matteo R, Scarponi V (2015) A Lifesaving Abdominal Pain: Unusual Presentation of Giant Coronary Artery Aneurysm among Multiple Aneurismatic Coronary Disease. J Clin Case Rep 5: 673. doi:10.4172/2165-7920.1000673

Copyright: © 2015 Di Matteo R, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

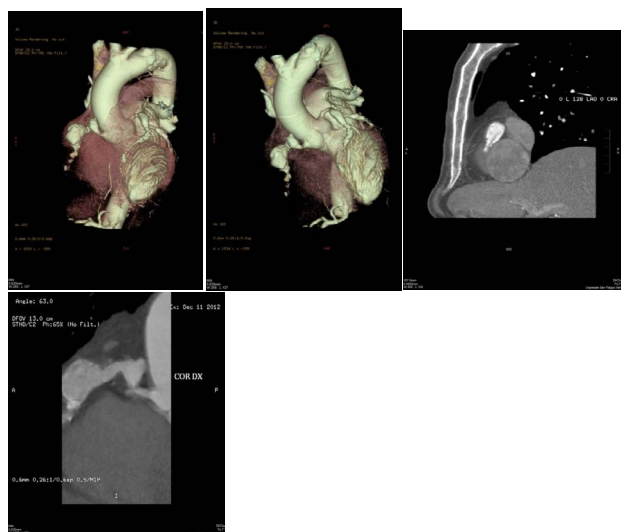


Figure 3: Coronary CT angiography. Diagnosis of giant aneurysm of the right coronary artery among multiple aneurysms of the coronary arteries.

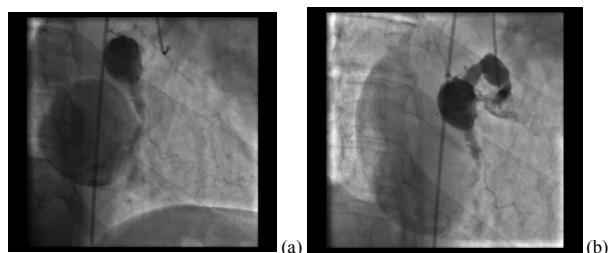


Figure 4: (a) Coronary angiography showing the giant aneurysm of the right coronary artery. (b) Coronary angiography showing multiple aneurysms of the coronary artery.



Figure 5: Contrast enhanced computed tomography (CT) scan of the cerebral circulation revealed an enlargement of the proximal part of the posterior communicating artery.

lesion, cor triatrium, multiple aneurysms of coronary arteries. At this point the diagnosis was characterized by the coronary angiography. It showed a left coronary artery with several aneurysms, aneurysms of the left anterior descending and marginal branches MO1 and MO2 with 80% and 70% respectively stenosis at the beginning of the coronary dilatations; finally a large aneurysm of the right coronary artery with a diameter of 4.5 cm (Figures 4a and 4b). A contrast enhanced computed tomography (CT) scan of the cerebral circulation excluded cerebral aneurysms and showed an infundibular enlargement of the proximal part of the posterior communicating artery (Figure 5) No surgical indication was suggested and the patient were discharged without any symptom and with medical therapy.

Discussion

The CAAs are rare with a prevalence of 0.3-5% among patients undergoing angiography and giant CAAs defined as dilatation more than 4 cm in diameter are rarer with estimated prevalence of 0.02% [1,2]. The incidence of CAA is 1.4% as revealed from a study on 7101 coronary angiographies in Germany [3] and 694 autopsies in USA and 1.5% [4] on 1000 autopsy of atherosclerotic heart performed in Russia [5]. Ethnic differences exist in the prevalence of the CAA as revealed by a study conducted on 302 patients affected by Kawasaki disease: Asian ethnicity 10.3% vs Caucasian ethnicity 6.9% vs African ethnicity 1.2%. [6]. The differences in the different studies can be also due to different definition of coronary artery aneurysm that would be considered a dilatation of the artery equal or greater of twice the diameter of adjacent normal artery. CAA can be saccular or more frequently fusiform and are more common in man. Causes of coronary artery aneurysms can be atherosclerosis (50% of cases), Kawasaki disease (1 year of age), [7] polyarteritis nodosa (onset middle-age with incidence of aneurysms 9%) [8], systemic lupus erythematosus (black childbearing age woman) [9], Takayasu arteritis disease (Asian woman) [10], congenital malformation, Behcet disease [11], use of cocaine and finally hypersensitivity vasculitis caused by drug-eluting stents [12]. The middle age is the common age at the diagnosis due to atherosclerotic clinical manifestations. Common symptoms are angina pectoris, dyspnea, chest pain due to acute myocardial infarctions and sudden death due to rupture. Sometimes aortic or cerebral artery aneurysms are contemporary present in the same patient and there is a close correlation with atherosclerosis and hypertension. The prognosis of patients with coronary atherosclerosis and patients with atherosclerotic CAA is not different from except for those with larger or giant CAA probably due to the dimension of the dilatation and the possible complications. Coronary aneurysms were an independent predictor of mortality, and overall 5-year survival in patients with aneurysms was only 71% as showed by Baman et al. [13].

We presented a rare case of giant CAA associated with multiple aneurysms of remaining coronary arteries in a caucasian adult patient presenting to us for abdominal pain referred to the right hypochondrium. The physical examination and ECG and blood tests were not useful to the diagnosis, but the echocardiography performed in the Emergency room during the physical examination was instrumental to draw our attention to a cardiac disease and not an abdominal problem. The cystic pericardial mass compressing the right atrium revealed at a bedside transthoracic echocardiography suddenly oriented the diagnosis to a potential life threatening cardiac pathology and excluded an abdominal origin of the pain. This underlines again the crucial and fundamental importance of the use of echocardiography or generally US in emergency room during the physical examination of patients to arrive at a diagnosis. The patient underwent CT scan of the chest to distinguish pericardial cyst from other possible pericardic masses. A possible diagnosis of cor triatrium was done. But to improve the differential diagnosis a coronary CT scan and a coronary angiography were done showing the definitive diagnosis of right coronary artery aneurysm in a multiple aneurismatic coronary disease. To check the possible association to other artery aneurysms a CT scan of cerebral circulation was performed. The probable etiology of CAA in our patient was the atherosclerosis and according to the literature data he was hypertensive and has cardiovascular risk factor for atherosclerosis and discharged in good condition with a medical conservative therapy.

The possible treatments of CAA is cardiothoracic surgical intervention consisting in different approaches such as reconstruction,

resection, isolation and contemporary coronary artery bypass using, percutaneous intervention as alternative for high perioperative risk patients or medical treatment consisting of conservative approach and use of anticoagulant and antiplatelet drugs. According to the few data of the literature is still unclear if an aggressive approach can positively influence the prognosis. Small and asymptomatic aneurysms can be treated with a conservative medical therapy. In case of giant CAA data suggested the surgical exclusion or resection if symptomatic, but a conservative medical treatment can be considered acceptable if asymptomatic even if antiplatelet and anticoagulant drugs has a certain hemorrhagic risk.

Conclusion

In conclusion we suggest to include CAA in differential diagnosis in case of patient presenting with cardiac symptoms or abdominal pain localized in the right hypochondrium. In both cases the bed-side emergency echocardiography can help in the diagnosis distinguish pericardial masses, possible compressive effect causing referred pain or pericardial effusion expression of tamponade from CAA rupture. We underline the important role of US in emergency department and focalized the attention to a rare, but life threatening disease that needs early diagnosis and treatment.

References

1. Nichols L, Lagana S, Parwani A (2008) Coronary artery aneurysm: a review and hypothesis regarding etiology. *Arch Pathol Lab Med* 132: 823-828.
2. Pahlavan PS, Niroomand F (2006) Coronary artery aneurysm: a review. *Clin Cardiol* 29: 439-443.
3. Gronke S (2005) Charakterisierung der dilatativen Koronaropathie bei Patienten mit und ohne stenosierende koronare Herzkrankheit. *Dtsch Med Wochenschr* 139: 629-633.
4. Daoud AS, Pankin D, Tulgan H, Florentin RA (1963) Aneurysms of the coronary artery. Report of ten cases and review of literature. *Am J Cardiol* 11: 228-237.
5. Rozenberg VD, Nepomnyashchikh LM (2005) Pathomorphology of atherosclerotic coronary artery aneurysms and heart architectonics. *Bull Exp Biol Med* 139: 629-633.
6. Porcalla AR, Sable CA, Patel KM, Martin GR, Singh N (2005) The epidemiology of Kawasaki disease in an urban hospital: does African American race protect against coronary artery aneurysms? *Pediatr Cardiol* 26: 775-781.
7. Yeu BK, Menahem S, Goldstein J (2008) Giant coronary artery aneurysms in Kawasaki disease—the need for coronary artery bypass. *Heart Lung Circ* 17: 404-406.
8. Kastner D, Gaffney M, Tak T (2000) Polyarteritis nodosa and myocardial infarction. *Can J Cardiol* 16: 515-518.
9. Matyoshi Ah, Dhond MR, Islett LJ (1999) Multiple coronary aneurysms in a case of systemic lupus erythematosus. *Chest* 116: 1116-1118.
10. Endo M, Tomizawa Y, Nishida H, Aomi S, Nakazawa M, et al. (2003) Angiographic findings and surgical treatments of coronary artery involvement in Takayasu arteritis. *J Thorac Cardiovasc Surg* 125: 570-577.
11. Ozeren M (2004) True and pseudo aneurysms of coronary arteries in a patient with Behcet's disease. *Eur J Cardiothoracic Surg* 25: 465-467.
12. Satran A (2005) Increased prevalence of coronary artery aneurysms among cocaine users. *Circulation*; 111: 2424-2429.
13. Baman TS (2004) Risk factors and outcomes in patients with coronary artery aneurysms. *Am J Cardiol* 93:1549-51