

CASE REPORT

Giant right coronary artery aneurysm presenting as a mediastinal mass

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Coronary artery aneurysms are commonly of atherosclerotic origin and are frequently asymptomatic. However, they may have varied presentations including angina, myocardial infarction, and sudden death. A case of a giant right coronary artery aneurysm presenting with acute myocardial infarction is presented, where the aneurysm appeared to be a mediastinal mass on transthoracic and transoesophageal echocardiography. Although computed tomography and magnetic resonance imaging of the heart suggested the correct diagnosis, definitive proof came from coronary angiography. Coronary artery aneurysms should be considered in the differential diagnosis of mediastinal masses.

Coronary artery aneurysm is a rare abnormality defined as coronary artery dilatation with a diameter of 1.5 times or more that of the adjacent normal coronary artery.¹ Ninety per cent of these aneurysms are of atherosclerotic origin, often occurring in relation to other atheromas in the coronary arterial tree and often associated with post-stenotic dilatation and ectasia.¹ Kawasaki disease is another important cause, which occurs usually in infants and children but where coronary artery aneurysms may be discovered much later in adulthood.²

Most coronary aneurysms are asymptomatic³ but they may present with angina, myocardial infarction (MI),⁴ or sudden death.⁵ Acute rupture into a cardiac chamber⁶ or pericardium⁷ may occur. Fistula formation into the right atrium or right ventricle has been reported rarely.⁶ The aneurysm may also compress surrounding structures.⁷

We present a case of a huge coronary artery aneurysm presenting with acute MI and appearing as a mediastinal mass on imaging.

CASE REPORT

A 69 year old man with an unremarkable medical history (except systemic hypertension) was admitted with prolonged ischaemic sounding chest pain. There were no abnormalities on physical examination. Although the initial ECGs were normal, 24 hours later the ECGs evolved to show a Q wave inferior wall MI. Creatine kinase and its MB fraction were increased confirming the MI. Total cholesterol was increased at 5.5 mmol/l. Thrombolysis was not undertaken, and the patient's symptoms settled quickly with supportive treatment. Subsequent recovery was uncomplicated.

On the routine transthoracic echocardiogram (TTE), recorded to assess post-MI left ventricular function, a spherical, partly cystic mass apposed to the outer wall of the right atrium was noted (fig 1). No blood flow was detected within the mass. A transoesophageal echocardiogram (TOE) suggested that the mass extended longitudinally along the outer surface of the heart but did not add to the TTE findings.

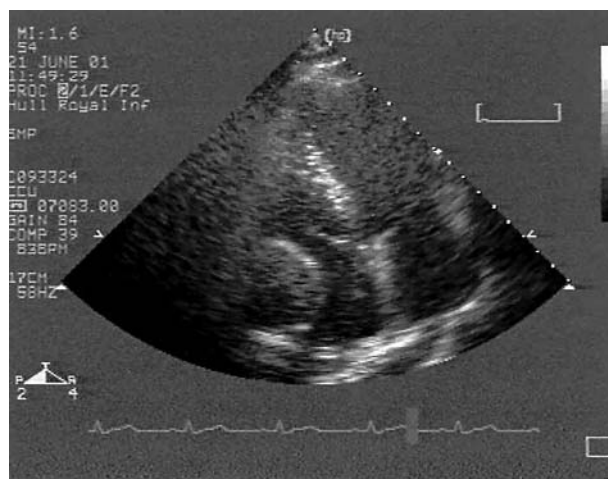


Figure 1 Spherical mass seen on transthoracic echocardiogram apposed to the right atrium in the apical four chamber view.

Computed tomography with angiography suggested the possibility of an aneurysm of the right coronary artery. Magnetic resonance imaging of the thorax showed this mass to be a huge aneurysm of the right coronary artery, with a diameter of 5.3 cm at its widest point, partly filled with a mixture of old and new mural thrombus. Left heart catheterisation confirmed a very large aneurysm in the mid right coronary artery (fig 2). Distally the artery was occluded. Multiple small aneurysms were also seen in the left anterior descending and circumflex arteries (fig 3). Left ventriculography showed mild inferior wall hypokinesia, but overall left ventricular systolic function was well preserved.

DISCUSSION

There are many causes of coronary artery aneurysms. Apart from the two common causes mentioned above, others can be grouped under the headings of connective tissue disease, infections, tumours, and congenital, iatrogenic, and traumatic causes. These include systemic lupus erythematosus, polyarteritis nodosa, Takayasu's arteritis, Marfan's syndrome, the Ehlers-Danlos syndrome, Lyme borreliosis, syphilis, septic emboli, and primary cardiac lymphoma. Coronary artery aneurysms can also occur after percutaneous coronary intervention, implantation of intracoronary Cook stents, and directional coronary atherectomy.⁸ Blunt traumatic chest injury can produce aneurysms in the coronary arteries.⁸ Coronary artery aneurysms have also been reported in association with the idiopathic hypereosinophilic syndrome and coronary artery angiodyplasia.⁸

Abbreviations: MI, myocardial infarction; TOE, transoesophageal echocardiogram; TTE, transthoracic echocardiogram

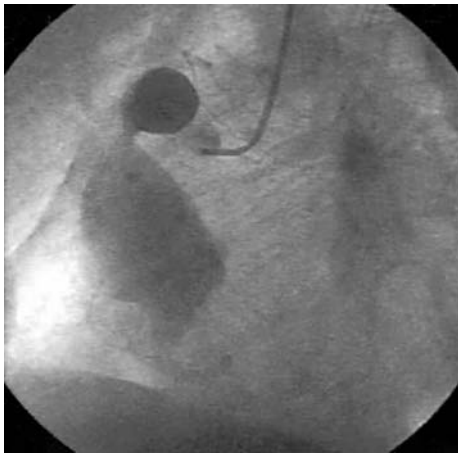


Figure 2 Huge aneurysm seen in the mid right coronary artery on left heart catheterisation.

Our patient had no evidence of generalised atheromatous disease in his coronary arteries suggesting that his aneurysms had a non-atheromatous cause. Although there was no history in his childhood to suggest Kawasaki disease this was thought to be a likely cause in view of the multiple sites affected. The inferior wall MI was thought to have been the result of distal embolisation of thrombus from the aneurysm.

Non-invasive imaging with echocardiography (TTE and TOE) and computed tomography was suggestive of the diagnosis but not diagnostic. The diagnostic test was the angiogram.

The best management strategy for coronary artery aneurysms is unclear.¹ Little is known about the prevalence of distal embolisation and the effects of antiplatelet and anticoagulation in this situation.⁴ It is recommended that patients be managed individually according to the location of the aneurysm and the clinical context.¹ We opted to manage our patient conservatively, since he was completely asymptomatic, he had no coronary significant atheromatous disease to predispose him to ischaemia, and there were several aneurysms. Although there is a risk of rupture with giant coronary artery aneurysms related to Kawasaki disease it occurs mainly during the acute stage of the disease. Since the MI was felt to have been an embolic event warfarin treatment was started.

Several cases of coronary artery aneurysms have been previously described. Our case is rare⁹ and interesting because of its unusual presentation as a mediastinal mass. Coronary artery aneurysms should be considered in the differential diagnosis of mediastinal masses.

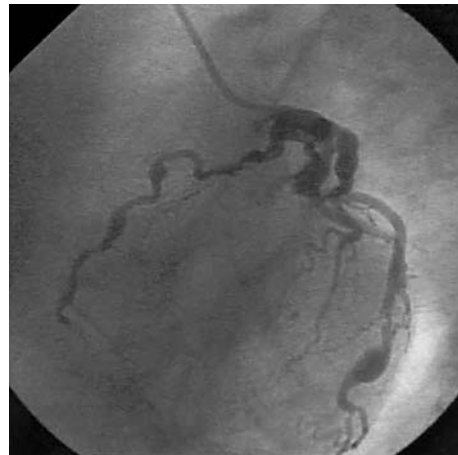


Figure 3 Multiple small aneurysms seen in the left anterior descending and circumflex arteries.

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