Aneurysm of main left coronary artery

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SUMMARY A 57-year-old man presented with exertional chest pain, and was found to have a saccular, lobulated aneurysm of the left main coronary artery associated with severe atherosclerotic vascular disease. This is the third similar case reported and the first case of atherosclerotic origin. All symptoms were relieved by coronary artery bypass surgery.

Angiographic studies have shown that coronary artery aneurysms occur in 1 to 2.5 per cent of patients with coronary artery disease.¹⁻⁴ Multiple aetiologies have been reported, most frequently atherosclerotic,^{5,6} and/or congenital.⁵⁻⁷ Other reported causes include bacterial infection,⁶ syphilis⁶ septic embolism,⁷ trauma,^{3,8} dissection,⁹ polyarteritis nodosa,¹⁰ scleroderma,¹¹ Ehlers-Danlos syndrome,¹² Marfan's syndrome,⁹ metastatic tumour,⁷ cystic medionecrosis,¹⁰ and mucocutaneous lymph node syndrome.^{13,14}

We describe an aneurysm involving the main left coronary artery; to our knowledge, only three such angiographically documented cases have been previously reported in adults.¹⁵⁻¹⁷

Case report

This was the first hospital admission for a 57-year-old white man who had been in excellent health until one-and-a-half months before admission. At that time, he developed exertional chest pain associated with dyspnoea and relieved by rest. Because of increasing frequency and duration of this chest pain, in spite of medical treatment, he was admitted for cardiac catheterisation. There was no history of heart disease or hypertension. He had smoked cigarettes for 25 years. Both his father and mother had died of atherosclerotic heart disease at the ages of 65 and 73, respectively. Two brothers died of atherosclerotic heart disease at the ages of 50 and 52, and one sister, age 63, had had a myocardial infarction and was alive.

On physical examination, blood pressure was 120/80 mmHg, and pulse 50 per minute and

regular. All peripheral pulses were palpable. No jugular venous distension was noted and carotid upstrokes were normal. Lungs were clear and cardiac examination did not reveal any abnormality. The chest x-ray and electrocardiogram were within normal limits. The blood chemistry, including a two-hour postprandial serum glucose were normal. The cholesterol was 4 and triglycerides 1 mmol/l. The cardiac catheterisation was performed with retrograde left ventriculography and selective coronary angiography using Judkins catheters. A left main coronary artery lesion was noted superimposed on severe triple vessel disease. Multiple projections showed a lobulated, septated aneurysm limited to the left main coronary artery (Fig.).

The patient underwent quadruple saphenous vein coronary artery bypass surgery. Two weeks later, a postoperative cardiac catheterisation was performed and all four bypass grafts (left anterior descending, circumflex, intermediate, and posterior descending arteries) were found to be patent and functioning well. The postoperative course was uncomplicated.

Comment

The majority of coronary artery aneurysms have been reported to occur in the right coronary artery, with the circumflex being the next most frequently involved vessel and the left anterior descending artery the most often spared.^{1,4,6} To the best of our knowledge, the angiographic diagnosis of a left main coronary artery aneurysm in an adult has been reported three times previously.¹⁵⁻¹⁷ One case¹⁵ involved a young woman (23 years old), who

presented with exertional chest pain and a continuous, soft murmur. On catheterisation, she was found to have a saccular aneurysmal dilatation of the left main coronary artery, communicating with another intramuscular aneurysm sac. There were no other associated diseases and this lesion was felt to be congenital. The second case¹⁶ was a 33-year-old woman, who presented with a murmur

Fig. Selective left coronary angiogram in the right anterior oblique (upper) and left anterior oblique (lower) projections showing an aneurysm (arrow) of the main left coronary artery just proximal to its bifurcation.

and was found to have supravulvar aortic stenosis, congenital aneurysm of the left ventricular apex, and aneurysmal dilatation of the main left coronary artery. Her only symptom or associated finding was an embolic cerebral vascular accident. The third case¹⁷ does not give any clinical data. By contrast, the case reported here is of a middle-aged man with a single saccular septated aneurysm of the left main coronary artery associated with atherosclerotic coronary artery disease. No murmurs were present and no symptoms could be attributed to the aneurysm directly. The atherosclerotic vascular disease was sufficiently severe to account for the exertional chest pain that led to his admission. The 23-year-old woman,¹⁵ and the patient presented here underwent coronary bypass, with relief of their symptoms. An earlier report⁴ showed no deaths among 30 patients with coronary aneurysm 18 months after coronary bypass surgery. Markis and associates³ reported a 15 per cent annual mortality in a two-year follow-up of 20 patients treated medically. Several children have been reported with aneurysms of the left main coronary artery associated with mucocutaneous lymph node syndrome, a disease which seems to have a predilection for the main coronary arteries.^{13 14}

When examined histologically, weakening of the media was noted as a major cause of arterial dilatation leading to an aneurysm and/or ectasia.^{1 18 19} Swanton *et al.*¹ showed severe atherosclerotic involvement with extensive intimal fibrosis leading to weakening of the media in a case of coronary ectasia with atherosclerotic heart disease. Imahori *et al.*¹⁸ showed mucopolysaccharide deposition with intimal sclerosis in the media in Ehlers-Danlos syndrome. Medial involvement in syphilis, polyarteritis nodosa, Marfan's syndrome, and cystic medionecrosis has been well documented.²⁰ This weakening of the vessel media can easily be recognised as an aetiological factor leading to arterial dilatation.

The present case of a main left coronary artery aneurysm of probable atherosclerotic origin in an adult is, to our knowledge, the first to be reported.

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