CASE REPORT

Multiple idiopathic arterial aneurysms masquerading as aortic dissection

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SUMMARY

We report the case of a 58-year-old lady who presented with abdominal pain and backache. Although initial evaluation was strongly suggestive of abdominal aortic dissection, she was ultimately found to have multiple arterial aneurysms. Work-up for underlying vasculitis was negative. Surgical repair was planned and the patient was referred to a cardiovascular surgeon. This case highlights the importance of careful radiological assessment in patients with suspected aortic dissection.

BACKGROUND

Aortic dissection holds a unique position in the spectrum of atherosclerotic cardiovascular disease. It is a rare disorder with an estimated incidence of only 5–30 cases per million persons per year; yet it carries a grave prognosis, with a death rate of 90% at 3 months in untreated cases.¹ Typically, death occurs through acute aortic regurgitation or catastrophic aortic rupture. The unfortunate combination of rarity of appearance of a frequently non-specific presentation² with chest or back pain has resulted in frequent misdiagnosis of this deadly condition. Not surprisingly, many patients succumb to aortic dissection before receiving medical care; in up to 28% of patients, the diagnosis is made postmortem.³ It is therefore essential to maintain a high index of suspicion for aortic dissection in patients with risk factors and a compatible clinical presentation. The second but equally crucial step in the diagnosis of aortic dissection is the employment of appropriate imaging techniques to confirm the diagnosis and to define the extent of involvement. This case report emphasises the importance of this second step. Although initial investigation was suggestive of an aortic dissection, further evaluation revealed multiple arterial aneurysms as the correct diagnosis. While multiple idiopathic aneurysms are unusual in their own right, it is rarer still for such aneurysms to masquerade as aortic dissection.

CASE PRESENTATION

A 58-year-old previously healthy woman presented with continuous abdominal pain and backache since the past fortnight. There were no associated gastrointestinal symptoms. Also, there was no history of cardiac illness. She denied a history of substance abuse and had never smoked. There was no significant family history.

At admission, the patient was haemodynamically stable. General physical examination revealed normal peripheral pulses, with impalpable arterial walls. There was no clinical evidence of peripheral

vascular insufficiency. Cutaneous stigmata of vasculitis including digital ulceration and infarcts were absent. There was no evidence of marfanoid features or joint hypermobility. Cardiac and abdominal examination was unremarkable. Neurological examination ruled out peripheral neuropathy.

INVESTIGATIONS

Routine laboratory tests showed mild anaemia and an elevated erythrocyte sedimentation rate (ESR) (haemoglobin 8.4 g/dl, ESR: 105 mm/h). Renal and liver function tests and serum amylase were all within normal limits. Serum C reactive protein was negative (<6 mg/l). Fasting lipid profile was also normal (total cholesterol 142 mg/dl, low-density lipoproteincholesterol 64 mg/dl). Ultrasonography performed to determine the cause of abdominal pain demonstrated aneurysmal dilatation of the abdominal aorta. Echocardiography was subsequently performed and revealed an undulating flap within the descending aorta, enclosing a lumen with slow, sluggish flow, suggestive of an aortic dissection (figure 1). CT of the abdomen was done to precisely delineate the location and extent of the suspected aortic dissection. It showed a fusiform dilatation at the origin of the coeliac artery measuring 4.0×3.3 cm, consistent with an aneurysm of the coeliac artery (figure 2). Another smaller aneurysm measuring 1.9×1.4 cm was also seen at the origin of the superior mesenteric artery. There was no evidence of dissection in the CT. Coronary and mesenteric angiography was then performed to look for other aneurysms; it revealed an aneurysm of the left anterior descending artery in the coronary circulation in addition to the previously detected aneurysms (figure 3). There was no evidence of concomitant atherosclerotic stenosis of the epicardial arteries. The inferior mesenteric and renal arteries appeared to be anatomically normal. Evaluation for underlying vasculitis including anti-nuclear and antineutrophil cytoplasmic antibodies was negative. Blood cultures performed in view of possible mycotic aneurysms were also persistently sterile. Unfortunately, direct biopsy of the affected vessels could not be performed as the patient was referred to a cardiovascular surgeon and lost to follow-up.

DIFFERENTIAL DIAGNOSIS

- ▶ Multiple idiopathic arterial aneurysms affecting the coeliac and superior mesenteric arteries and the left anterior descending artery in the coronary circulation.

To cite: Naha K, Vivek G, Shetty RK, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2012-008030

Figure 1 Subcostal short axis view of the descending aorta showing a central brisk flow (red) and sluggish flow in the periphery (blue) as indicated by the white arrow in (A). (B) A long axis view with evidence of a mobile flap in the descending aorta (blue arrow).

TREATMENT

Keeping in mind the large size of the coeliac artery aneurysm and, consequently, the likelihood of failure of percutaneous endovascular stenting, it was decided to opt for surgical repair. The patient was therefore referred to a cardiovascular surgeon.

Figure 2 Contrast CT mid-sagittal view showing a large aneurysm arising from the ostio-proximal coeliac artery encroaching into the lumen of the descending aorta (blue arrow).

OUTCOME AND FOLLOW-UP

The patient was referred to a cardiovascular surgeon for surgical repair. She was subsequently lost to follow-up.

DISCUSSION

Multiple arterial aneurysms have been associated with a variety of disorders including atherosclerosis,⁴ vasculitides such as polyarteritis nodosa⁵ and Behcet's disease,⁶ infective mycotic aneurysms⁷ and inherited conditions associated with a weakening of the arterial wall such as the Marfan and Ehler-Danlos syndromes.⁸ By comparison, idiopathic multiple arterial aneurysms are relatively unusual, being restricted to case reports from the paediatric age group.⁹ Concomitant aortic dissection and multiple arterial aneurysms have been reported; as expected, the patient in question suffered from Marfan's syndrome—a known risk factor for both these disorders.¹⁰ Coexistent coeliac artery aneurysm with aortic dissection has also been reported. In one case, the underlying disease was fibromuscular dysplasia¹¹; in the second case, the aetiology was most likely atherosclerosis as the patient was an elderly man.¹²

A careful review of the medical literature failed to reveal any cases of multiple aneurysms simulating aortic dissection; to the best of our knowledge, this is the first case reported of such mimicry.

Arterial aneurysms can present with a range of symptoms and complications, determined chiefly by their anatomical location. While peripheral arterial aneurysms typically present as palpable pulsatile masses,⁴ visceral aneurysms can produce ischaemic symptoms through thrombosis and distal embolisation.¹³ Coronary, intracranial and renal arterial aneurysms can respectively manifest as acute coronary syndromes, strokes and progressive renal insufficiency. Compression of the adjacent neural tissue by an expanding aneurysm can result in peripheral neuropathies.⁴

Intra-abdominal aneurysms can also present with vague abdominal pain, as in this instance. Pain could either arise from direct pressure exerted on the surrounding pain-sensitive structures or as a result of thrombosis and embolisation producing tissue ischaemia.

All arterial aneurysms also carry a risk of spontaneous or traumatic rupture with catastrophic bleeding. This presentation is especially common with visceral aneurysms, and is seen in more

Figure 3 (A) Coronary angiogram right anterior oblique (RAO)-cranial view showing a large aneurysm of the proximal left anterior descending artery (arrow). (B) Conventional angiogram showing a large aneurysm in the proximal superior mesenteric artery. (C) Conventional angiogram showing a large aneurysm in the proximal coeliac artery.

than half of all cases.¹⁴ Maintaining a high index of suspicion is critical for ensuring timely therapy in the form of open repair or percutaneous intervention, both of which are approved strategies.¹⁴

Learning points

- ▶ Aneurysmal dilatation of aortic branch vessels such as the coeliac artery can masquerade as aortic dissection.
- ▶ Presence of multiple arterial aneurysms should be ruled out in patients with incidentally detected solitary aneurysms.
- ▶ Multiple arterial aneurysms can occur in patients without underlying risk factors for the same.
- ▶ Visceral aneurysms can manifest with atypical symptoms; failure to make a diagnosis can result in a presentation with a rupture.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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