CASE REPORT

A case of painless acute Type-A thoracic aortic dissection

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Abstract

We describe the case of an 83-year-old lady with a known aneurysmal thoracic aorta, developing acute breathlessness and hypoxia, with no pain and unremarkable cardiovascular examination. As D-dimers were raised, she was treated with low-molecular-weight heparin (LMWH) for suspected pulmonary embolism. CT pulmonary angiography showed acutely dissecting, Type-A, thoracic aortic aneurysm. The patient was treated medically with β-blockers. Despite a poor prognosis, she remains well 2 months later. Observational studies of patients over 70 with Type-A dissection show only 75.3% experience pain, are offered surgery less and have higher mortality. D-Dimers are almost always elevated in aortic dissection. No previous studies document breathlessness as the only presenting symptom. This case emphasises the need, in older populations, for a low suspicion threshold for aortic dissection.

Keywords: Type A aortic dissection, painless, D-dimer, older people

An 83-year-old lady with polymyalgia rheumatica and early dementia, presented to her GP with breathlessness. A chest X-ray showed aneurysmal ascending and descending limbs of the aorta, with a dilated aortic arch. The cardiothoracic surgeons reviewed the chest X-ray and given her high mortality risk, advised against surgical management.

Ten months later, the patient attended hospital with a urinary tract infection. Four days after admission, she became increasingly breathless. Routine observations showed low oxygen saturations, tachypnoea, tachycardia and a normal blood pressure. Cardiovascular and respiratory examination was otherwise normal, with no discrepancy in brachial blood pressures. She felt otherwise well, with no pain.

An electrocardiogram was normal, an arterial blood gas, on air, showed type-1 respiratory failure and chest X-ray demonstrated the thoracic aortic aneurysm with clear lung fields. Blood tests returning out-of-hours showed normal urea and electrolytes, full blood count and coagulation screen, but raised C-reactive protein (86 mg/l) and D-dimer (5.54 mg/l).

The working diagnosis was pulmonary embolus. A CT pulmonary angiogram (CTPA) was booked for the following morning, and a treatment dose of LMWH was given.

The CTPA showed a large Type-A acutely dissecting aortic aneurysm, extending from the aortic root to the visible upper abdomen. The aortic root measured 6.8 cm, with a 4.6-cm false lumen. There was significant contrast leak in the dissection at the aortic arch (Figure 1).

The case was discussed with cardiothoracic surgery. They advised medical treatment only, maintaining the systolic blood pressure between 100 and 120 mmHg with oral bisoprolol. LMWH and aspirin were stopped. The family was informed of the poor prognosis, and likelihood of rapid deterioration.

The patient remained short of breath, experiencing only episodic chest discomfort over the next week. She was referred to a continuing health care institution for palliation, where 2 months later, she remains well.

Discussion

Aortic dissection is a rare catastrophic condition. A tear of the aorta’s intima allows blood to pass into the aortic media, creating a false lumen. The Stanford system classifies aortic dissection into Type-A, involving the ascending aorta and all others as Type B [1].

Most aortic dissection evidence comes from retrospective analyses of the International Registry of Acute Aortic Dissection (IRAD). In Type-A dissection, pain is an observed presenting
feature in 93.8%, however, only 75.3% of those aged over 70 years present with pain [2, 3]. When painless, presentations include syncope, congestive heart failure and stroke [4]. No previous literature documents dyspnoea as the sole symptom. A D-dimer is almost always raised in aortic dissection, in a pattern similar to pulmonary embolism [5].

Acute type A aortic dissection is a surgical emergency; however, observational data report only 64% of patients over 70 years undergo surgery, and have higher mortality in both surgical and medical therapy groups. Medical therapy entails systolic blood pressure regulation, minimising shear stress, using $\beta$-blockers or if contraindicated, calcium channel blockers or ACE inhibitors [6, 7]. Medical therapy holds a poor prognosis, with mortality reaching 20% at 24 h, rising to 90% at 7 days, due to complications including aortic rupture, ischaemia, tamponade and coagulopathy [8, 9].

Increasing age and co-morbidities often bring atypical or minimal symptoms with significant pathology, such as painless aortic dissection. This is likely to be missed unless considered, here it was discovered while excluding pulmonary embolism. The decision to commence treatment dose LMWH, with acute dyspnoea and a positive D-dimer, was reasonable, however, timely chest imaging allowed us to stop this, without causing haemodynamic compromise.

The outcomes for aortic dissection in chronic dilated aortic root aneurysm, particularly in the elderly, are poorly studied. This patient's subsequent haemodynamic stability possibly represents a combination of chronic adaptations to a dilated aortic root, and luck.

### Key points

- Type-A aortic dissection is a rare catastrophic condition, for which clinicians should have a low index of suspicion.
- Older people are less likely to present with acute pain, in acute aortic dissection.
- D-Dimers are almost always raised in aortic dissection.

### Conflicts of interest

Submitted with consent of the patient and their next of kin.

### References


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