CASE REPORT

A sneeze: an unusual trigger for aortic dissection

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SUMMARY

We describe a rare case of type B thoracic aortic dissection resulting from a forceful sneeze in a 57-year-old man. The presenting clinical features were not typical and consisted of pleuritic chest pain and breathlessness following a forceful sneeze. There was no haemodynamic compromise. The diagnosis was made incidentally when he underwent a CT pulmonary angiography as part of pulmonary embolism work-up.

BACKGROUND

The presenting clinical symptoms of acute aortic dissection (AD) are diverse. It is difficult to diagnose in many cases purely based on history and examination findings. A high index of suspicion is required while investigating the patient. Radiological imaging plays a vital role in identifying the pathology. This case highlights an unusual clinical presentation of the condition. There is only one other reported case of AD after sneezing.

CASE PRESENTATION

A 57-year-old man developed sudden onset of severe left-sided pleuritic chest pain radiating to his neck and back associated with breathlessness immediately following a forceful sneeze. He presented to the emergency department after 3 h of the onset of symptoms. His medical history included asthma and gout. There was no family history of aortic disease, sudden death and structural cardiac abnormalities. His only regular medication was a salbutamol inhaler. On admission, he was clammy but haemodynamically stable with a blood pressure of 150/80 mm Hg in both arms and an oxygen saturation of 99% on air. There were no marfanoid or hypermobility features present. His Beighton

and Ghent scores were zero. His systemic examination was unremarkable. He was treated with opiate analgesia for the pain. A working diagnosis of pulmonary embolism (PE) was considered. A CT pulmonary angiography (CTPA) raised the suspicion of thoracic AD which was subsequently confirmed by a CT aortography.

INVESTIGATIONS

ECG showed sinus bradycardia at a rate of 48 bpm.

Troponin-I and haemoglobin levels, renal function and liver function tests and vasculitis screen were normal. White cell count and D-dimer level were elevated.

A chest X-ray was normal (figure 1).

CTPA revealed no evidence of PE, suspicion of type B thoracic AD.

A CT aortography revealed the dissection flap arising immediately after the left subclavian artery and extending to the left internal iliac artery. There was no radiological evidence of end organ ischaemia (figures 2–4). There was no evidence of aneurysmal dilation of the aorta.

Transthoracic echocardiography was normal.

MR aortography

Confirmed the dissection flap arising immediately after the left subclavian artery and extending to the left internal iliac artery (figures 5 and 6).

TREATMENT

The patient's blood pressure was controlled with nebivolol, and pain control was achieved with opiates. During his hospitalisation, he was closely monitored with regular blood pressure measurements and blood tests for haemoglobin and renal function.

Figure 1 Chest X-ray.

Figure 2 CT aortogram with aortic dissection flap in descending thoracic aorta.

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Figure 3 CT – aortogram: aortic dissection flap in descending aorta sparing the left renal artery.

OUTCOME AND FOLLOW-UP

The patient's blood pressure and pain were controlled with medications and he remained well without any major organ compromise. After a week of monitoring he was discharged on β -blocker and calcium channel blocker therapy for blood pressure control. He is being followed up with surveillance MR aortographies annually and to date there has been no extension of the dissection and no aneurysm formation.

DISCUSSION

Acute AD is a life-threatening condition with an annual incidence of 5–30 cases/million. The diagnosis is missed in up to 38% of the patients at their initial presentation.¹ The condition is more prevalent in the elderly population with a male predilection. The incidence of AD is less than 10% in young adults.²

The most common presenting symptom of AD is the sudden onset (85%) of sharp (65%), tearing or ripping chest pain (51%). Anterior chest pain is common in ascending AD whereas back pain/interscapular pain is more common in descending AD.³

Figure 5 MR – aortogram: dissection flap arising immediately after the left subclavian artery.

Systemic hypertension is the most common predisposing factor for AD followed by atherosclerosis and advanced age.⁴ Other risk factors include collagenous vascular diseases, bicuspid aortic valves, infective aortopathies and pregnancy.³ Genetic predisposition also plays an important role with up to 20% of thoracic AD associated with a single gene mutation in cases with a family history of AD.^{5 6}

During sneezing there is a forceful application and sudden release of a Valsalva manoeuvre⁷; and it is known that the Valsalva manoeuvre increases intra-arterial pressure.⁸ In addition to one report of AD,⁹ there have also been reports of intraocular, intracranial and intra-abdominal haemorrhages following sneezing.^{10 11}

Our case is unique in its unusual presentation in a relatively young man without any history of risk factors for AD. Sneezing increases arterial blood pressure abruptly and we believe this was the main physiological mechanism leading to AD in our patient. In addition there may have been pre-existing, undiagnosed essential hypertension.

Figure 4 CT – aortogram: aortic dissection flap in descending aorta sparing the right renal artery.

Figure 6 MR – aortogram: dissection flap extending up to the iliac artery.

Learning points

- ▶ Thoracic aortic dissection can present with pleuritic chest pain.
- ▶ Manoeuvres increasing intrathoracic pressure (and therefore intra-aortic pressure) can cause aortic dissection.

Contributors SGNU and AL were the treating physicians of the patient. SGNU has taken the initiative of reporting the case after obtaining patient's consent, searching the required literature search and writing the submitted manuscript. AL, who reviewed and agreed to the content of the manuscript, is the supervising consultant of SGNU.

Competing interests None.

Patient consent Obtained.

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