Unusual presentation of more common disease/injury

Aortic dissection presenting as pleural effusion

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Aortic dissection is a life threatening emergency. This case illustrates the unusual way an aortic dissection can present. This patient presented with sharp, left interscapular pain, which subsided after a while and left-sided pleural effusion. Further investigations revealed that this was a case of thoracic aortic dissection with a leak into pleural space. She underwent thoracic endovascular aortic repair with stent graft insertion.

BACKGROUND

The case of a patient with an aorto-pleural fistula and haemothorax, successfully treated, despite initial uncertainties about diagnosis, is interesting. Aortic dissection can have catastrophic consequences if not suspected early and managed appropriately. It can be painless or the character of the pain can vary.

CASE PRESENTATION

A 65-year-old lady presented to the emergency department with history of band-like pain between the shoulder blades, which was initially severe. The pain was non-radiating. It was not associated with shortness of breath,

sweating or nausea. The pain seemed to ease with glyceryl trinitrate spray and subsided after a while.

The patient was being investigated for angina as she was having band-like pains starting between her shoulder blades and radiating to the front and onto the jaw.

She had a medical history of hypertension and anxiety and she was a smoker. On examination, her pulse rate was 60/min and blood pressure was 140/70 mm of Hg on both arms. Physical examination of respiratory, cardiovascular and abdominal system was normal. The initial plan of management was to rule out acute coronary syndrome. Full blood count, liver function tests, urea and electrolytes and inflammatory markers were normal. ECG was normal.

Figure 1 Chest x-ray.

Figure 2 Chest x-ray – showing wide mediastinum and left-sided pleural effusion.

Troponin T was negative. Chest x-ray (figure 1) revealed a wide mediastinum. This was attributed to poor inspiratory effort. X-rays of her thoracolumbar spine revealed degenerative changes D12/L1.

The patient was discharged with a request for outpatient CT scan of thorax and an outpatient follow-up.

She presented 2 weeks later with history of sharp pain in the left interscapular area, accentuated by deep breathing and movement. She denied any history of shortness of breath. She had non-steroidal anti-inflammatory drugs for pain relief and she felt the pain was subsiding.

On examination, she was afebrile, blood pressure was 110/70 mm of Hg on both arms, pulse rate was 70/min and peripheral oxygen saturation was normal. There was mild tenderness over the left interscapular area. Physical examination of chest revealed decreased movements on the left side with dullness to percussion and absent breath sounds over left base. Abdomen was soft and non-tender.

INVESTIGATIONS

Chest x-ray revealed a left-sided pleural effusion and a wide mediastinum, which had increased in width, when compared to the previous x-ray (figure 2). ECG was normal. Haemoglobin was 9.9 g/dl, white cell count was 19 800 cells/ μ l, neutrophil count was 17 200 cells/ μ l, C reactive protein was 196 mg/l and urea and electrolytes, liver function tests and coagulation profile were normal. Pleural tap was haemorrhagic. CT scan was done to find out the cause of pleural effusion and wide mediastinum.

CT scan (figure 3) revealed a large left-sided pleural effusion and the pleural fluid was of high density. Dissection with thrombus was noted of the arch and thoracic aorta with suspicion of leak into pleural space.

She was investigated further with CT aortogram.

CT aortogram (figure 4) confirmed type B aortic dissection that ended in the distal descending thoracic aorta. Presence of left-sided mediastinal haematoma and a large left-sided pleural effusion, which contained high attenuation material, was also noted.

TREATMENT

She underwent thoracic endovascular aortic repair with stent graft insertion.

CT scan done after stent graft insertion (figure 5) suggested that the graft was positioned satisfactorily and there was no evidence of further leak.

OUTCOME AND FOLLOW-UP

She recovered satisfactorily postprocedure and there were no immediate complications.

DISCUSSION

This is a case of aortic dissection causing haemothorax. The incidence of aortic dissection is three cases per 100 000 people per year.¹ In patients with hypertension the male to female ratio is 3:1.

When left untreated, about 33% of patients die within first 24 h and 50% within 48 h. The 2-week mortality

Figure 3 CT thorax – (A) Dissection with contrast leakage in distal arch. (B) Dissection with thrombus and left-sided pleural effusion.

Figure 4 (A,B) CT aortogram – dissection of thoracic descending aorta.

Figure 5 (A,B) CT thorax – stent/graft post thoracic endovascular aortic repair.

rate approaches 75% in patients with undiagnosed aortic dissection.²

The risk factors for aortic dissection can be due to inherited diseases like Marfan's syndrome, Ehlers Danlos syndrome, Turners syndrome or secondary to conditions that lead to increased aortic wall stress like hypertension, previous cardiovascular surgery, bicuspid aortic valve, syphilis, arteritis such as Takayasu's arteritis or giant cell arteritis, crack cocaine or ecstasy. Other risk factors include increasing age and enlarged aortic root.

Type A dissection involves ascending aorta. Type B involves the aorta distal to the left subclavian artery.

Clinical presentation

Severe or worst ever (90%), abrupt tearing (84–90%) chest pain is the most common presenting symptom. Neurologic deficits are a presenting sign in 20% of cases, which include syncope, stroke symptoms, altered mental status, limb weaknesses, horners syndrome, dyspnoea and dysphagia.

However, aortic dissection presenting with haemothorax is very rare.³ This case is interesting because the patient presented twice and there was no evidence of effusion during the first presentation and it is quite obvious on chest x-ray during second presentation and also the pain subsided with non-steroidal anti-inflammatory drugs, which

is hardly the case in case of classical presentation of aortic dissection. The explanation for this might be that the pleuritic pain was secondary to pleural reaction from blood in the pleural space or the dissection might have sealed off.

There is a case report⁴ of a 31-year-old male presenting with a painless haemorrhagic pleural effusion and further investigations revealed a 9 cm dissecting ascending aortic aneurysm that was thought to be due to a congenitally bicuspid aortic valve. The incidence of left-sided pleural effusion is greater than the right side in 16% of cases.

A retrospective study⁵ revealed that pleural effusion was detected on multirow detector CT scan within 7 h of the onset of acute aortic dissection and suggests the presence of pleural effusion to be dependent on the time interval since onset of dissection. However, this study observed no patterns regarding the laterality of effusion.

Another retrospective study⁶ suggested effusion appeared at a mean of 4.5 days after the onset of dissection and thoracentesis showed haemorrhagic effusion in three patients and exudative in three patients. This study also pointed out that white cell count, serum C reactive protein and temperature were higher in patients with effusion than in those without effusion suggesting a possible inflammatory reaction.

Other unusual presentations of aortic dissection with pleural effusion include a case of retropharyngeal haematoma⁷ and two cases of massive right-sided effusion.⁸

Competing interests None.

Patient consent Obtained.

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Learning points

- ▶ Aortic dissection is a life-threatening emergency and can present with pleural effusion.⁹
- ▶ Aortic dissection can be painless or the character of the pain can vary from being painless at one end to being tearing at the other end.
- ▶ Aortic dissection should be included in the differential diagnosis of non-traumatic haemorrhagic pleural effusion in a hypertensive patient.

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