

An unexpected cause of chest pain

D.J.L. van Twist^{1*}, M.B.I. Lobbes², S. Vanwetswinkel², P.M. Stassen¹

Departments of ¹Internal Medicine and ²Radiology, Maastricht University Medical Centre, Maastricht, the Netherlands, *corresponding author: tel.: +31 (0)43 3877005, fax: +31(0)43 3875006, e-mail: daan.van.twist@mumc.nl

CASE REPORT

A 66-year-old man with a history of COPD and nicotine abuse visited our emergency department because of severe chest pain radiating to the left shoulder blade. The pain was continuous and started suddenly, approximately four hours before presentation. One week earlier, the patient underwent a gastroscopy and abdominal ultrasound because of upper abdominal pain, both without any abnormalities. At physical examination, blood pressure was 190/110 mmHg in both arms and the pulse was 77 beats/min. The patient had a respiratory rate of 20 breaths/min, normal oxygen saturation and temperature, and auscultation of heart, lungs, abdominal, and femoral arteries was normal. The pain could not be provoked

by palpation. Chest X-ray and routine laboratory tests (including cardiac enzymes) were normal, except for a slight elevation of the inflammatory parameters (leucocyte count $12.4 \times 10^9/l$, and C-reactive protein 19 mg/l). ECG showed slight left ventricular hypertrophy. A contrast-enhanced chest-computed tomography (CT), performed to rule out pulmonary embolisms, showed an abnormal aortic wall (see figure page 196).

WHAT IS YOUR DIAGNOSIS?

See page 196 for the answer to this photo quiz.

Van der Spek, et al. Abdominal abscesses in an HIV-positive patient.

ANSWER TO PHOTO QUIZ (PAGE 192)
AN UNEXPECTED CAUSE OF CHEST PAIN

DIAGNOSIS

The chest CT shows a deep atheromatous ulcer in the descending aorta. A small intramural haematoma was also observed throughout the complete thoracic aorta (thickened aortic wall with slightly increased Hounsfield units). No evidence was found for aortic dissection or pulmonary embolism. Thus, the diagnosis was penetrating aortic ulcer (PAU), which is an ulceration of an atherosclerotic lesion leading to a disruption of the internal elastic lamina of the aortic wall and, subsequently, the development of an intramural haematoma.¹ Diagnosing PAU may be challenging as chest pain has a wide range of differential diagnoses. Sudden onset of severe chest pain in the elderly hypertensive patient is the classical presentation, although symptoms vary greatly.² PAU is often overlooked due to its low incidence and the fact that an aortic dissection is considered unlikely if the blood pressure is equal in both arms and vascular murmurs are absent. Unfortunately, other acute aortic syndromes besides aortic dissection, such as PAU or intramural haematoma, are often forgotten. The diagnosis is made by imaging studies, mostly by contrast-enhanced chest-CT.³ Since PAU has a high risk for progression into a fatal rupture of the aorta, emergent treatment is required. Both invasive (surgical or endovascular) and conservative treatments are considered appropriate.⁴ Our patient was treated conservatively (as a 'hypertensive emergency') with labetalol intravenously. His blood pressure decreased quickly and the pain dissolved. Six months later, the blood pressure was normal (using four antihypertensive drugs) and the patient no longer complained of pain. Control CT scans after 24 hours, seven days and six months showed no further progression of the aortic ulcer.

REFERENCES

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Figure 1. Contrast-enhanced CT of the thorax in the transverse imaging plane (A) and reconstructed coronal imaging plane (B) shows a thickened aortic wall with slightly elevated Hounsfield units, suggestive of intramural haematoma (black asterisk). The contrast-filled lumen expands within the aortic wall, which is visible in multiple reconstructed imaging planes with vascular calcifications on the luminal side of the aorta (therefore not compatible with thrombus), suggestive of the presence of a penetrating aortic ulcer (arrow). No dissection flap of the aorta was observed

