

A Life-Threatening Cause of Abdominal Pain

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Answers

1. The X-ray shows calcification in the aortic wall with a paucity of central bowel gas (Figure 1-white arrows), suggestive of a giant abdominal aortic aneurysm (AAA)
2. Computed Tomography (CT) aortography is the most appropriate investigation to confirm the diagnosis of aortic aneurysm
3. The initial management is resuscitation followed by urgent referral to the vascular surgical team for surgical repair

Case Outcome:

Following review of the abdominal x-ray, an urgent CT aortogram was undertaken which showed an abdominal aortic aneurysm (AAA) measuring 13 cm in width and 18.9 cm in length (Figure 2 and 3). Furthermore there was some stranding of tissue around the margins of the aorta superiorly consistent with an early leak of the aneurysm. Surgical repair of the giant AAA was carried out; however two days after operation the patient deteriorated suddenly and despite all attempts at resuscitation, he passed away.

Discussion

Abdominal aortic aneurysms occur in up to 9% of adults >65 years of age; 96% of these are <6cm in size.¹ Important risk factors for the development of AAA include, male gender, family history, advancing age, smoking and the presence of other large artery aneurysms. The most important negative risk factors include female gender and diabetes.² A careful history, including consideration of these risk factors and the presence atherosclerotic disease, should be undertaken in all older patients presenting to hospital with abdominal pain. In our patient the risk factors were male gender and a 45 pack-year history of smoking.

The presence of AAA does not ordinarily cause symptoms unless there is rapid expansion of the aneurysm, compression of surrounding structures, inflammation or rupture. Patients with a symptomatic AAA most commonly present with abdominal discomfort, backache or flank pain, which may be associated with subsequent rupture. In this case the short history of pain, combined with the

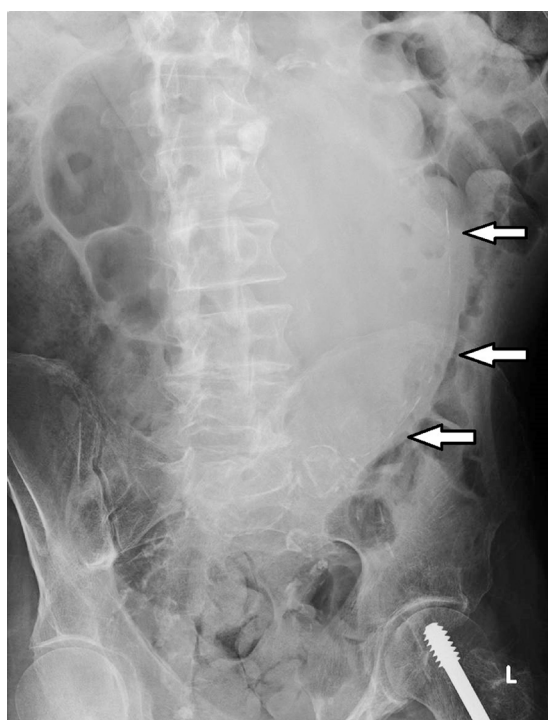


Figure 1. Abdominal X-Ray (White arrows show the aortic aneurysm and the calcification of the aortic wall)

findings on CT were suggestive of early rupture of the aneurysm, despite the absence of haemodynamic instability at the time of presentation. The classical triad (acute abdominal pain, abdominal distension and haemodynamic instability) is found in approximately 50% of patients with a ruptured AAA.³ It is also important to note that the absence of a pulsatile mass, as in this case, does not exclude the diagnosis of AAA. In a clinical study of 116 patients with ruptured AAAs,⁴ 72% had pain, 45% had hypotension and 83% were found to have a pulsatile abdominal mass.

Abdominal Xray (AXR) is not a recommended investigation for patients with suspected AAA. The Royal College of Radiology guidelines recommend that AXR should only be used for investigation of suspected bowel obstruction or perforation, assessment of acute inflammatory bowel disease and in patients with renal colic and/or haematuria.⁵ In addition to the unnecessary radiation exposure, several studies

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Figure 2. CT scan (Coronal image). The arrows point to the aortic aneurysm.

have demonstrated that, aside from the indications above, it often proves an unhelpful investigation for patients presenting with abdominal pain, and may delay the diagnosis. Other imaging modalities, such as ultrasound and CT scan are more useful in this context.⁶ In our case the AXR was undertaken in view of the unexplained abdominal distension in association with pain in order to exclude subacute bowel obstruction. The aortic wall calcification was a fortuitous, but apparently incidental finding, which led to reassessment of the patient and further investigation; the diagnosis of AAA had not previously been suspected, but was subsequently confirmed on CT, enabling early surgical intervention.



Figure 3. CT scan (Lateral view). Arrows point to the aortic aneurysm

Early intervention and close observation of patients is critical for any patient with a suspected or proven ruptured AAA. Prompt diagnosis and early surgical referral is the key to ensuring the best possible outcome.⁷

References

1. Lederle FA, Johnson GR, Wilson SE, Chute EP, Hye RJ, Makaroun MS, Barone GW, Bandyk D, Moneta GL, Makhoul RG. The aneurysm detection and management study screening program: validation cohort and final results: Aneurysm Detection and Management Veterans Affairs Cooperative Study Investigators. *Arch Intern Med.* 2000; **160**: 1425–1430.
2. Kent KC, Zwolak RM, Egorova NN, *et al.* Analysis of risk factors for abdominal aortic aneurysm in a cohort of more than 3 million individuals. *J Vasc Surg* 2010; **52**:539.
3. Rinckenbach S, Albertini JN, Thaveau F, *et al.* Prehospital treatment of infrarenal ruptured abdominal aortic aneurysms: a multicentric analysis. *Ann Vasc Surg* 2010; **24**:308.
4. Wakefield TW, Whitehouse WM Jr, Wu SC, Zelenock GB, Cronenwett JL, Erlandson EE, *et al.* Abdominal aortic aneurysm rupture. *Surgery.* 1982; **91**:586–96.
5. Making the best use of clinical radiology services (MBUR), 6th edition Royal College of Radiologists (2007)
6. S Feyler, V Williamson, D King. Plain abdominal radiographs in acute medical emergencies: an abused investigation? *Postgrad Med J* 2002 February; **78**(916): 94–96.
7. Sebesta P, Klika T, Zdrahal P, Kramar J. Ruptured abdominal aortic aneurysm: role of initial delay on survival. *J Mal Vasc.* 1998 Dec; **23**(5):361–7.