Lethal cause of abdominal pain: a diagnosis not to be missed

Introduction

Acute abdominal pain is perhaps the commonest cause of surgical referral. The underlying problem may be simple or something serious such as a perforated hollow viscus. With the introduction of Modernising Medical Careers, more and more junior doctors rotate through accident and emergency in the early part of their training. Because of their relative lack of experience, they may miss certain serious abdominal conditions. This article describes an elderly patient with abdominal pain who had been seen and discharged by a junior doctor and subsequently represented 11 days later with a fatal outcome.

Discussion

Abdominal aortic aneurysm is an abnormal dilatation of the abdominal aorta. It is a common condition in the Western world. When an artery reaches more than 1.5 times of the normal size, it is called an aneurysm (Draskovic et al, 2007). Abdominal aortic aneurysm is often asymptomatic. Pain may indicate a complication such as a split in the wall of the aorta or a leak. If a patient with a leaking aneurysm is haemodynamically stable, then he/she can be transferred to a tertiary hospital for specialist intervention such as open surgery or stent-graft insertion. If the patient is unstable, he/she may need an urgent open repair on-site. The current trend is to transfer all aneurysms to vascular units for treatment.

The treatment of supra-renal aneurysm is complex because the renal artery may need re-implantation during the procedure. Open repair for leaking abdominal aortic aneurysm is associated with a high mortality (Tambyraja et al, 2007). Endovascular repair may be carried out in suitable patients (Benedikt et al, 1999; Lachat et al, 1999). Very fragile elderly patients with a lot of co-morbidities are unlikely to be suitable for either form of treatment as exemplified in this case.

Leaking abdominal aortic aneurysm can present in a similar way to renal colic (Eckford and Gillatt, 1992). Inexperienced junior doctors can miss the diagnosis if it is not considered. Whenever a patient with an abdominal aortic aneurysm presents in cardiac arrest, the mortality approaches 100%. As a simple rule, abdominal aortic aneurysm should be excluded in all elderly

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Figure 1. Abdominal X-ray showing calcified lower aorta but blurred upper aorta.

Case Report

A 77-year-old woman was brought to the accident and emergency department with a 11-day history of abdominal pain. She was in shock and required resuscitation. She had attended the accident and emergency a few days before and had been discharged home with a diagnosis of non-specific abdominal pain. The previous abdominal X-ray is shown in *Figure 1*. Her past medical history included bilateral below knee amputation for peripheral vascular disease, pacemaker for heart block and hypertension. On examination, post-resuscitation, she was confused and apyrexial with a heart rate of 100 beats/minute and a blood pressure of 110/70 mmHg. Her abdomen was diffusely distended with minimal tenderness in the epigastrium and supra-umbilical region. There was no rigidity or guarding. Bowel sounds were normal. Digital rectal examination showed soft faeces. Blood test showed a haemoglobin of 6.6 g/dl (down from 11 g/dl during her previous accident and emergency visit). There was slight impairment of renal function with a urea of 11 mg/dl and creatinine of 160 mg/dl. The rest of the blood tests were within normal limits. Arterial blood gases showed metabolic acidosis with a pH of 7.2 and lactate of 3 mmol/litre. A computed tomography scan of the abdomen was performed.

1. What is the differential diagnosis?
2. What can you find in the abdominal X-ray?
3. What can you find in the computed tomography scan?
4. What is the treatment?
5. What is the prognosis of this patient?

The differential diagnoses in this case are peritonitis from hollow viscus perforation, ischaemic bowel and leaking abdominal aortic aneurysm. The abdominal X-ray (*Figure 1*) shows minimal dilatation of the right and transverse colon and a tortuous calcified aorta. However the upper aortic calcification is not obvious. Computed tomography scan shows an abdominal aortic aneurysm which commences immediately distal to the origin of the right renal artery with not involving the bifurcation. There is leakage from this aneurysm (*Figure 2b* arrow) which has a maximum diameter of 5 cm. There is a peri-aortic haematoma which extends anteriorly to displace the loops of bowel anteriorly (*Figure 2b*). There is free fluid in the peritoneal cavity (*Figure 2a*). The right kidney is well perfused but the left kidney shows no evidence of perfusion (*Figure 2c*). There are some calculi in the left pelvis. In this patient, palliation was felt to be the most appropriate treatment option (her case was discussed with the on-call vascular surgeons). The patient died a few hours after her hospital admission. In a relatively fitter patient, open surgery is the treatment of choice.

Figure 2. Computed tomography scans showing (a) fluid around the liver which in this case was blood (arrow), (b) leaking abdominal aortic aneurysm (arrow), (c) poorly perfused left kidney without much contrast.

patients with abdominal pain. The abdominal X-ray should be closely read for clues – in this case the fact that the upper aorta was not clearly visible should have alerted the clinician to the need for further investigations.

In a stable patient ultrasound scan may demonstrate the size of the aorta (Harter et al, 1982) but it cannot exclude a leak. In a suspected leak, a computed tomography scan is the investigation of choice. The patient with a leaking abdominal aortic aneurysm should be resuscitated, the blood pressure should be maintained around 90 mmHg systole and senior help should be sought early. In this case the patient possibly had a partial split in the aorta when she presented a few days previously. It progressed to a full thickness tear anteriorly over a few days.

The prognosis of this patient was poor and she was unlikely to survive whether surgery was undertaken or not. In a relatively fitter patient, open surgery is the treatment option of choice. In this patient, palliation was felt to be the most appropriate option (her case was discussed with the on-call vascular surgeons). The patient died a few hours after her hospital admission. The delay in diagnosis did not affect the ultimate outcome in this patient as she was unfit for surgical intervention but this would have been a problem in a healthier patient. **BJHM**

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TEACHING POINTS

- Abdominal aortic aneurysm should be kept in mind whenever an elderly patient with unexplained abdominal pain is seen, particularly with peripheral vascular disease, and senior help should be sought.
- Accident and emergency foundation trainees and juniors should not discharge elderly patients with abdominal pain of unknown cause without discussing with their middle grades or surgical team to avoid missing conditions such as a leaking abdominal aortic aneurysm or ischaemic bowel.
- Leaking abdominal aortic aneurysm needs immediate treatment without which the patient will invariably die. Therefore it should be identified and treated appropriately.
- Blurring of aortic calcification in the plain abdominal X-ray may indicate that there can be an underlying leaking abdominal aortic aneurysm. Computed tomography scan is the investigation of choice to exclude a leaking abdominal aortic aneurysm.