

Case 21

A pulsating abdominal mass

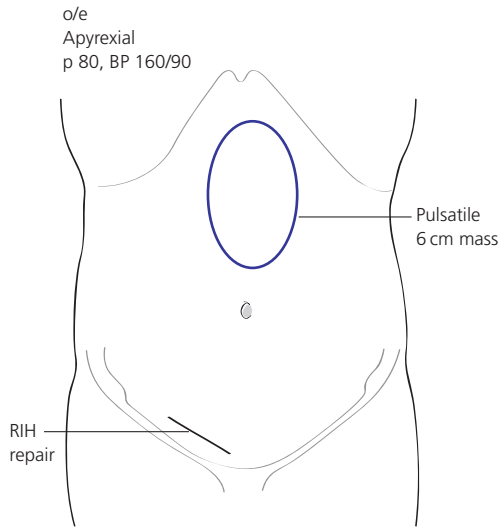
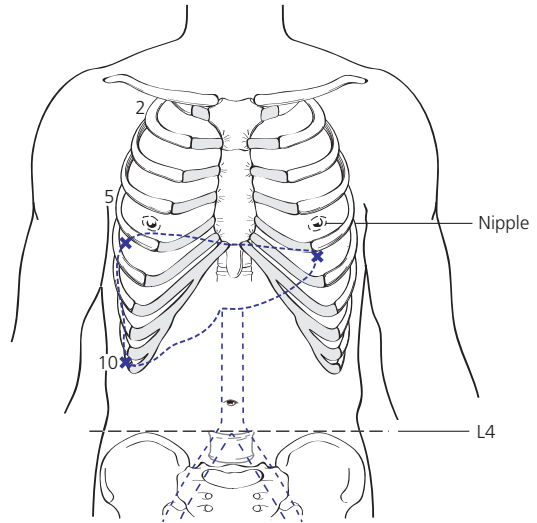
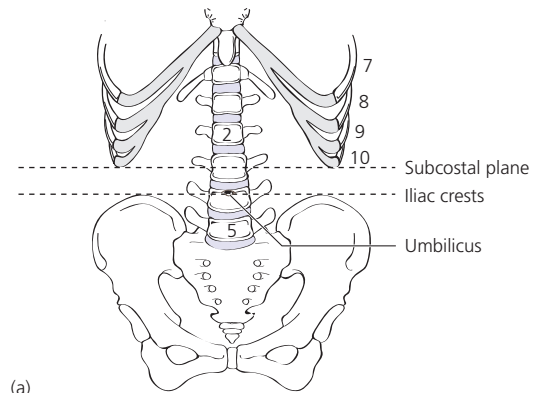


Figure 21.1

What was the doctor's (correct) clinical diagnosis, and why?

An abdominal aortic aneurysm. The abdominal aorta is palpable in the normal subject. Its pulse is felt by downward pressure in the midline. This pulsation ceases where the aorta bifurcates into the common iliac arteries in front of the fourth lumbar vertebra. This is located at the level of the supracristal line that joins the iliac crests on each side (Fig. 21.2). A pulsating mass below this line cannot therefore be an aortic aneurysm. It is either an iliac aneurysm or a pelvic mass with transmitted pulsation from the iliac arteries.

Whereas the normal aortic pulse gives a forward and backwards impulse to the examining fingers, an aneurysm gives an expansile sensation detected by a finger placed on either side of the mass. Auscultation of an aortic aneurysm is usually negative since turbulent flow is not usually a feature of an aneurysm in this situation.



- (b) X's mark the outline of the liver which reaches from the 5th intercostal space R to the 5th intercostal space L in mid clavicular line, and lower margin 10th rib

The aorta bifurcates at L4 which is in line with the iliac crests

Figure 21.2 Boundaries, bony landmarks and vertebral levels of the abdomen.

Part 2: Cases

However, in the acute situation a machinery murmur suggests an aorto-caval fistula.

His doctor arranged an urgent plain abdominal X-ray to be carried out at the local hospital. What does this demonstrate?

The abdominal X-ray (Fig. 21.3) demonstrates the calcified wall of the aneurysm (arrowed). Note that this bulges over to the left side – a very typical appearance – away from the inferior vena cava, which runs along its right border.

What is the usual proximal extent of the aneurysm?

Interestingly, the great majority of abdominal aortic aneurysms are infrarenal, that is to say, they lie distal to the origins of the renal arteries and therefore distal to where the left renal vein crosses over the front of the aorta, below the origin of the superior mesenteric artery (Fig. 21.4).

The occasional suprarenal aortic aneurysm presents a technically difficult problem, since, to deal with it, the aorta needs to be controlled above the origins of the superior mesenteric, coeliac and renal arteries. This requires a thoraco-abdominal approach and all these arteries are reimplemented into the graft.

What further imaging methods are used to delineate the aneurysm?

Abdominal ultrasound is a useful and accessible imaging

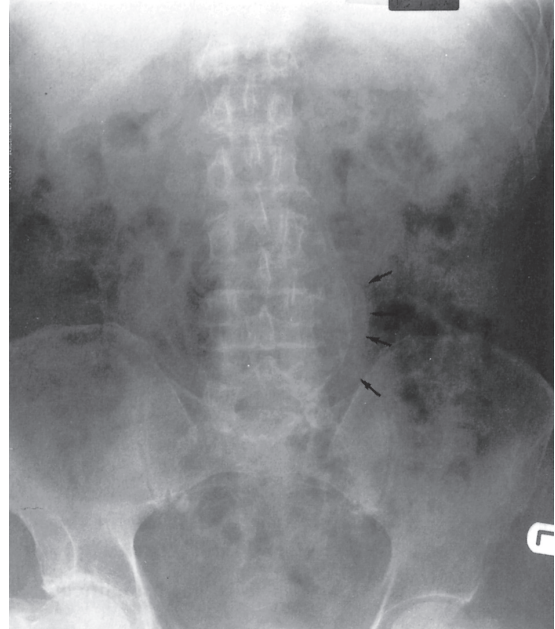


Figure 21.3 Abdominal X-ray showing the aneurysm (arrowed).

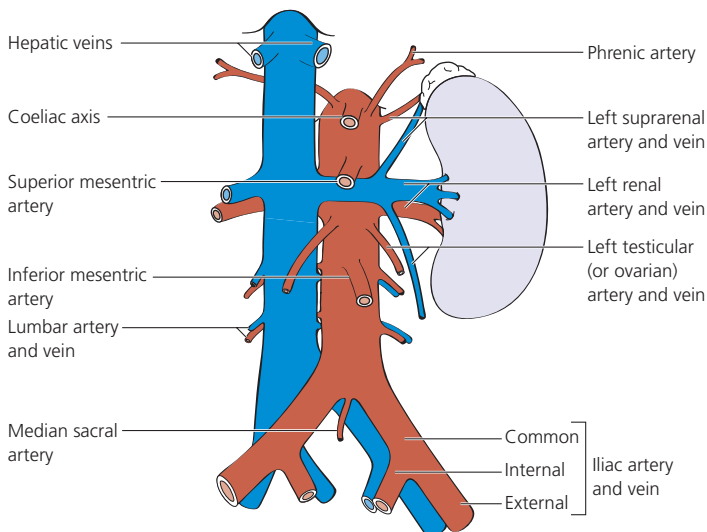


Figure 21.4 The abdominal aorta and inferior vena cava and their main branches.

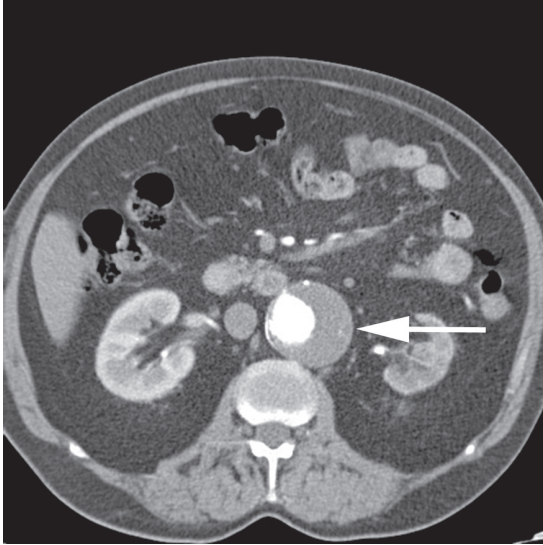


Figure 21.5 A CT scan showing a transverse section through the abdomen with a large abdominal aortic aneurysm (AAA, arrowed). The white area within the AAA is contrast material in the lumen of the aorta injected intravenously a few seconds prior to scanning. Lateral to the contrast-containing lumen is a clot within the aneurysm sac.

method and is used in population screening and in the measurement of the anteroposterior diameter of the aneurysm. Computed tomography (CT), with intravenous contrast enhancement, gives very accurate delineation of the aneurysm (Fig. 21.5) and detects associated aneurysms of the common and internal iliac arteries,

which are not uncommon.

What is the principal complication of this condition and what is its mortality?

- Rupture, first retroperitoneally and then into the peritoneal cavity.
- The mortality is in the region of 80%.

What is the management of this patient?

Elective repair of the aneurysm is advised in patients when the risk of death from rupture is greater than the operative mortality. This corresponds to an aortic aneurysm anteroposterior diameter over 5.5 cm on ultrasound scanning; the operative mortality is around 4%. Repair can be performed by the open method, replacing the aneurysm with a tube of Dacron or, more commonly nowadays, by the closed method. In the latter, a graft is passed endoluminally from the femoral artery across the aneurysm sac where it is anchored proximally and distally with intraluminal stents.