Diagnostic Images

Hypertension – renal ectopia, adrenal mass

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The patient

A man of 59, a known diabetic, had persistent severe hypertension and renal impairment with hypokalaemia.

Investigations

Chest radiograph, renal arteriography with digital subtraction angiography (DSA), computed tomography (CT) and scintigraphy.

Comment

Depression of the sternum and a 'flat-chested' configuration accentuate the cardiac shadow on the frontal view making assessment of the heart size on a PA chest film unreliable.

A kidney absent from the renal fossa (excluding nephrectomy) is more commonly due to ectopia, especially a pre-sacral kidney, rather than agenesis. With an absent kidney the pancreatic tail lies medially away from the spleen and bowel loops fill the renal bed.

Conn's tumours are usually small and of lower attenuation than muscle on CT, and can be demonstrated with iodocholesterol scintigraphy even after dexamethasone suppression. However, non-functioning adenomas can be seen on CT in some 3–5% of normal individuals, hence the importance of scintigraphy.

Figure 1 The chest radiograph suggests left ventricular enlargement with the cardiac apex displaced downwards and to the left. The aorta is prominent due to 'unfolding'. However, on the lateral view a depressed sternum was visible.

Figure 2 a,b,c The right renal artery (rra) and kidney are normal while there is no normal left kidney or artery but a large artery (lra) arises from the right common iliac (rcia) shown to supply a pre-sacral kidney on digital subtraction arteriography (2c).

Figure 3 a,b The tail of the pancreas (a), (t) lies medially well away from the spleen and the colon (C) fills the position of the renal bed. There is (b), a left 2.5 cm well-defined round mass (arrows) adjacent to the left crus of the diaphragm and psoas, medial to jejunum (J) containing oral contrast medium. The mass lies in the position of the left adrenal and has an attenuation somewhat less than muscle in keeping with a Conn's tumour. (Ph = pancreatic head; D = duodenum; A = aorta; i = inferior vena cava; Rk = right kidney; ps = psoas muscle.)

Figure 4 Scintigraphy with iodocholesterol; an early image during dexamethasone suppression shows intense uptake only in the left adrenal indicating an aldosteronoma.