Images in Nephrology  
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A case of adrenal aldosteronoma with horseshoe kidney and duplicated inferior vena cava 

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Case

A 43-year-old man, with known hypertension, was brought to A&E with acute weakness of legs. His blood pressure was 150/95 mm Hg and he had decreased muscle power of both legs. Investigations: severe hypokalaemia (K⁺ 1.9 mmol/l), metabolic alkalosis, despite normal renal and liver functions. He had an elevated serum aldosterone (364 pg/ml, normal range: 69–109 pg/ml) with normal thyroid and adrenal function. Magnetic resonance imaging and angiography (MRI and MRA) revealed a right adrenal adenoma of 2 cm in diameter (Figure 1A), horseshoe kidney of fused lower poles (Figure 1B) and duplicated inferior vena cava (IVC) (Figure 1C). The ¹³¹I adrenal scintigraphy following dexamethasone suppression, revealed a focal area of increased uptake of radioactivity in the right adrenal area up to 3 days after injection.

Discussion

The presence of mineralcorticoid excess should be considered in any weak patient presented with hypertension, hypokalaemia and metabolic alkalosis. Localization of the abnormal adrenal gland can be achieved in various ways. MRI and MRA, or computed tomography, can detect most aldosteronomas. Another approach is ¹³¹I scintigraphy of the adrenal gland after dexamethasone suppression; the uptake of tracer is increased in patients with aldosteronoma and absent in those with idiopathic bilateral hyperplasia or adrenal carcinoma [1]. Duplication of IVC is a rare congenital anomaly resulting from persistence of the left supracardinal vein during foetal development. This can be associated with genitourinary anomalies, including horseshoe kidney, cloacal exstrophy or anomalies of the renal vein. The abnormality is probably due to fusion of metanephric buds in horseshoe kidneys resulting in the impairment of the normal renal ascent and rotation and the normal venous development is disturbed [2].

Conflict of interest statement. None declared.

References


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Fig. 1. MRI and MRA showed (A) a right adrenal adenoma (arrow), (B) horseshoe kidney, with smaller right and enlarged left kidneys (arrow) and (C) duplicated IVC.
Fig. 1. Continued.