Unilateral Reflux Nephropathy with Contralateral Renal Artery Stenosis Due to Fibromuscular Hyperplasia

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Dear Sir,

The finding of a unilateral small kidney and a contralateral hypertrophied kidney in a patient with hypertension generally implicates the small kidney in the pathogenesis of the hypertension, whether it be of a vascular or non-vascular (parenchymal) aetiology.

Recently there have been two reports [1,2] of hypertensive patients with a unilateral small kidney where the latter was thought to be the cause of the high blood pressure, but the patients were found to have a distal stenosis of the contralateral renal artery due to fibromuscular hyperplasia. We report a further such case: A 40-year-old woman was found to have persistent hypertension and was commenced on enalapril 10 mg daily. Prior to treatment the plasma creatinine was 0.08 mmol/l. Ten years previously she had suffered acute pyelonephritis, and an intravenous urogram had shown a small irregularly scarred right kidney characteristic of reflux nephropathy. The contralateral kidney showed compensatory hypertrophy.

Four months after starting enalapril she presented with fever, right-loin pain, and a systemic illness and was suspected of having acute pyelonephritis. She was started on antibiotics, but 2 days later was no better, and routine blood tests included a plasma creatinine level of 0.16 mmol/l. Three days later she had not improved, and the plasma creatinine had increased to 0.44 mmol/l. Enalapril was discontinued and she was hospitalized.

On admission she was afebrile, had no urinary tract symptoms, and the blood pressure was 170/114 mm Hg. Investigations: A midstream urine specimen showed 2+ protein on dipstick analysis, while on microscopy there were no cells and the specimen was sterile on culture, haemoglobin 107 g/l, plasma creatinine was confirmed at 0.44

mmol/l.

a b

Fig. 1. Selective left renal angiogram before (a) and after (b) balloon angioplasty.

mmol/l, but fell rapidly over the next 3 days to 0.08 mmol/l. Ultrasonography of the urinary tract showed the left kidney to be normal and confirmed the small irregularly scarred right kidney.

The patient was recommenced on enalapril 10 mg daily for 5 days during which time the plasma creatinine increased from 0.08 to 0.15 mmol/l 4 days later and fell rapidly to 0.07 mmol/l when the drug was discontinued. A DMSA scan showed that the small kidney was contributing 8% to overall renal function, while the contralateral kidney was hypertrophied and structurally normal. DTPA reno-graphy before and after a 25-mg oral dose of captopril showed a marked fall off in blood flow to the left kidney following captopril, suggestive of renal

artery stenosis in that kidney. Renal angiography demonstrated stenosis in the left renal artery characteristic of fibromuscular hyperplasia.

It was decided to try and manage the hypertension with medical treatment rather than to risk an invasive procedure. The patient was treated with bendrofluazide, is-radipine, and aspirin.

However, 6 months

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later her blood pressure had not been controlled, and she was having side effects from a range of medications. DTPA renography was repeated before and after captopril, and the findings were unchanged.

Ten months after the original presentation, the patient had a selective left renal angiogram which confirmed a 70% stenosis of a single renal artery just proximal to its major bifurcation. The appearances were consistent with fibromuscular hyperplasia. This was successfully dilated using a 5-French, 5 mm×2 cm balloon angioplasty catheter (fig-1).

Following that the patient's blood pressure rapidly returned to normal without the need for medication and at the last follow-up 24 weeks after the procedure was remaining normal at 126/82 mm Hg without treatment.

The infrequently recognized combination of parenchymal disease of one kidney and distal renal artery stenosis due to Fibromuscular hyperplasia on the contralateral side should be considered in any hypertensive patient with a unilateral small kidney. The unusual findings in the young woman reported here are similar to those documented previously [1, 2].

References

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