Case Report

Positive captopril renography in a transplanted kidney with arteriovenous fistula

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Introduction

Captopril renography (CR) has been shown to be sensitive for the diagnosis of functional renal artery stenosis in both native and transplanted kidneys, in the investigation of renovascular hypertension produced by renin-mediated arterial hypertension [1,2]. In this condition, captopril induces efferent arteriolar vasodilatation leading to a decline in filtration pressure, a sharp fall in glomerular filtration and a prolongation of the parenchymal transit by inhibiting the renin-angiotensin mechanism. Although renin-mediated arterial hypertension has been demonstrated in renal arteriovenous fistula [3,4], as far as we are aware, the behaviour of the CR has not been documented in such a case. We report a case in which an arteriovenous fistula in a transplanted kidney produced a positive CR.

Case

A 20-year-old male received a live non-related renal transplant in July 1993. In January 1994 a CR, undertaken for the investigation of hypertension, was negative. A biopsy was performed, in February 1994, because cyclosporin toxicity was suspected. The patient was investigated again in September 1994 because of a raised serum creatinine level. At this time, a repeat CR was compatible with functional transplant renal artery stenosis (Figure 1). A subsequent arteriogram revealed an arteriovenous fistula at the upper pole of the transplanted kidney, considered most probably to have been caused by the renal biopsy, with early visualization of the renal vein (Figure 2). There was no evidence of anatomical transplant renal-artery stenosis. A successful embolization of the fistula was

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undertaken in June 1996, and follow-up CR was negative.

Discussion

It has been suggested that an arteriovenous fistula could induce ischaemia of the renal parenchyma through blood sequestration, and that such ischaemia would induce an elevation of renin secretion capable of increasing blood pressure [3]. Inhibition of the renin-angiotensin mechanism by captopril administration with consequential deterioration in filtration pressure explains the positive CR found in this case. Embolization of the fistula with correction of the sequestration and relief of the ischaemia resulted in normalization of the CR findings.

References


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Fig. 2. Angiograms demonstrating: (a) arteriovenous fistula at the upper pole of the kidney, and (b) successful embolization.