Restoration of renal function after prolonged allograft artery occlusion by thrombolysis

Thrombosis of the main renal allograft artery is a rare complication. Experimentally, the tolerance of animal kidneys to normothermic ischemia appears to range from 1 to 2 h [1]. However, the safe limit for revascularization in allograft kidney following thrombotic occlusion does not correlate with the experimental findings. Recovery of renal function as late as 39 days after revascularization of renal arteries in native human kidneys has been reported [2]. We report a similar case.

Case. A 27-year-old female had been undergoing hemodialysis for renal failure because of membranoproliferative glomerulonephritis (type I). She underwent a live unrelated renal transplant in January 1998 and was given conventional triple immunosuppression therapy (cyclosporin, azathioprin and prednisolone). The allograft function commenced immediately with a stable serum creatinine of 1.4 mg/dl. Twelve months post transplant she has a stable serum creatinine of 2.1 mg/dl and is on immunosuppression with cyclosporin (175 mg/day), mycophenolate mofetil (0.75 g/day) and prednisolone (10 mg/day).

Comment. Blood flow to native kidneys following renal artery occlusions may be maintained through collateral connections from ureteric or capsular blood vessels. Development of similar collateral blood flow to renal allograft is unlikely in Japan [3,4]. The incidence of allograft renal artery thrombosis varies from 1.4 to 3.5% [3,5]. Four cases of allograft renal artery thrombosis with partial recovery of renal function after an ischemic insult of 2–12 h in the post transplant period have been reported [3,4,6]. In all these patients revascularization was achieved by surgical re-exploration. Recovery of renal function after successful revascularization of occluded renal artery by use of intra-arterial thrombolytic therapy in native [7,8] as well as allograft kidney has been reported [9], but this was done in the late post transplant period. Ultrafast computed tomography was contraindicated in the early post surgical period [10]. In our case though contraindicated at 72 h post operatively, a low dose of intra-arterial urokinase was effective for thrombolysis and was not associated with bleeding. The precise duration of ischemia was 5 h and the oliguric period lasted for 10 days.

In conclusion, partial recovery of allograft renal function can be expected if reperfusion is established as early as possible after the onset of thrombotic occlusion in allograft renal artery. Low dose intra-arterial thrombolytic agent (urokinase) by percutaneous transfemoral route is effective and safe for revascularization of occluded allograft renal artery in post operative period.

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Fig. 1. Thrombotic occlusion of allograft renal artery.

Fig. 2. Post thrombolysis revascularization of renal artery.