RENAI AUTOTRANSPLANTATION IN A PATIENT WITH ACUTE RENAI INFARCTION AFTER SURGEY FOR A DISSECTING ANEURYSM

Nobushige Tamura, MD, * Kwansong Ku, MD, PhD, * Yasumasa Shichiri, MD, b Yoshiya Sakurai, MD, a
Masanori Nishimura, MD, b Rikiya Shioyama, MD, b Morihiro Kondoh, MD, c Kazunobu Nishimura, MD, PhD, d and Masashi Komeda, MD, PhD, d Kyoto, Japan

Reduced perfusion of abdominal organs may occur in patients with dissection of the thoracic and abdominal aorta. 1 We report a case involving a 58-year-old woman with acute renal failure who had thrombosed infarction after an operation for a DeBakey type I dissection. The patient presented with severe lumbar pain and exacerbated renal function caused by acute renal arterial thrombosis. Renal autotransplantation after renal arterial thrombectomy produced a normalization of blood flow to the diseased kidney and a gradual recovery of renal function.

Clinical summary. A 58-year-old woman had a sudden onset of severe chest and back pain and visited our center in October 1999. Contrast-enhanced computed tomography (CT) revealed a DeBakey type I, Stanford type A, acute aortic dissection. The CT also demonstrated a 50-mm ascending aorta and dissection from the ascending aorta through the abdominal aorta to the level of the left renal artery. A cardiopulmonary bypass (CPB) procedure was performed with the use of 2 venous cannulas and a femoral arterial return. The perioperative transesophageal echocardiogram showed an intimal tear in the ascending aorta without valvular abnormality. Therefore, we performed graft replacement of the ascending aorta. After establishment of CPB, retrograde blood cardioplegic arrest at 22°C in combination with circulatory arrest was carried out. The aneurysm was resected and replaced with a woven double velour graft (Hemashield; Meadox Medicals, Inc, Oakland, NJ [subsidiary of Boston Scientific Corporation, Natick, Mass]). The patient was weaned from CPB unaided, with normal hemodynamic indexes. On the first postoperative day, she had oliguria and showed a sudden rise in serum creatinine and blood urea nitrogen (BUN) levels to 5.1 mg/dL and 70.2 mg/dL, respectively, necessitating hemodialysis. She required daily hemodialysis or hemofiltration for 20 days. Thereafter, renal function recovered gradually. On postoperative day 118 (second operation), serum creatinine and BUN levels were 0.8 and 9.6 mg/dL, respectively, and creatinine clearance was 52.7 L/d. The postoperative magnetic resonance imaging scan showed a functioning autotransplanted kidney (Fig 2). She was discharged 5 months later.

Discussion. Renal ischemia is a widely known cause of renal failure that results from a dissecting aortic aneurysm extending to the level of the renal arteries. In our patient, after surgical treatment of DeBakey type I dissection, a risk of renal function was suspected as a result of renal infarction by arterial thrombosis. After thrombectomy of the left renal artery, heterotopic renal autotransplantation was subsequently performed, and the patient’s renal function normalized. Renal autotransplantation is the procedure of choice for reperfusion of an ischemic kidney complicated by renal arterial stenosis or occlusion with renovascular hypertension. 2 Renal autotransplantation has been performed in the treatment of renal hypertension in patients with Takayasu’s arteritis. 3

Thomson and associates 4 reported good results with this technique in the treatment of acute renal failure after a progression of a dissection beyond the origin of the renal arteries in Marfan syndrome. This is the first report of successful renal autotransplantation in a patient with acute renal failure caused by left renal arterial thrombosis after surgical treatment of a DeBakey type I dissection. In the present patient the left renal artery was occluded as a result of extensive thrombosis, which occasionally occurs after obliteration of the true lumen. Although we cannot explain the reason why the left renal artery was occluded by a clot, stasis of blood flow might cause thrombosis in the true lumen that has been compressed and narrowed by the false one, or perhaps some thrombi of unknown origin might obstruct the true lumen of the left renal artery. In addition, we were afraid that the dissection may also extend to the right renal artery that branches off of the smaller true lumen, but the CT scan revealed a somewhat functioning right kidney, and thus we elected not to perform bilateral autotransplantation and followed the progress of the right kid-
Fig 1. Contrast-enhanced CT scan showing infarction of the left kidney.

Fig 2. Postoperative magnetic resonance imaging scan confirming a functioning autotransplanted kidney.

REFERENCES