Anuria and cold left leg

Case

A 58-year-old man with sudden onset of anuria was admitted to hospital in January 2001. The patient had received a cadaver kidney transplant in 1987 for the treatment of end-stage renal failure caused by chronic glomerulonephritis. The allograft had been placed in the left iliac fossa with an end-to-side anastomosis between the renal artery and the common left iliac artery. The postoperative course was uneventful and standard immunosuppressive therapy was given. He had a history of myocardial revascularization and atherosclerotic disease of the lower limbs without intermittent claudication.

On admission, physical examination was unremarkable except for bilateral loss of peripheral (femoral) pulses and pallor and marked decrease of the skin temperature of the left leg, without symptoms of complete arterial occlusion. Blood pressure was 160/90 mmHg, pulse rate was regular at 84 beats per minute and his body temperature was 36.8°C. Laboratory studies on admission showed a slight impairment of renal function.

Questions

What is your diagnosis? How would you treat the patient?
Answer to the quiz on the preceding page

Prerenal acute renal failure due to hypoperfusion is one of the most common forms of acute renal failure (40–80%) and urinary obstruction is encountered in 2–10% of all cases [1]. Imaging modalities used in the diagnostic imaging algorithm for the differential diagnosis between these two entities include renal sonography, colour Doppler ultrasound, and angiography. Renal sonography, performed as a first-line bedside examination, excluded dilatation of the renal calyces and pelvis, whereas Doppler imaging technique documented absence of blood flow in the renal artery. With the background of widespread atheromatous vascular disease and long-standing immunosuppressive therapy there was a high degree of clinical suspicion for a thromboembolic event of the graft [2,3]. We therefore performed angiography, which is the most specific examination for establishing the diagnosis.

The common left iliac artery showed a thrombotic occlusion at its origin and was revascularized beyond the anastomosis between graft and common iliac artery. The renal artery showed poor blood flow and there was no nephrographic effect (Figure 1). After informed consent, we decided to proceed with primary stenting [4] using two stents instead of thrombolytic therapy with rTPA. The latter should be reserved for thromboembolic events complicating percutaneous transluminal angioplasty procedures [5]. After overcoming the obstruction by means of hydrophilic guide-wire (Terumo Tokio) a self-expandible stent (Sinus stent, Optimed) was advanced under fluoroscopic guidance to the origin of the thrombus. After achieving stent expansion (9 mm), the procedure was repeated with a balloon-expandible stent (Corinthian-Cordis) placed contiguously to the first one. A subsequent angiographic control showed recanalization of the common iliac artery and a renal artery with good patency and normal nephrography (Figure 2). The day after, urine output was 2300 ml and after 3 days renal function returned to normal. The patient had an uncomplicated recovery and was discharged after 1 week. Duplex sonography performed 1 month after revascularization showed a normal peak systolic velocity and normal resistive indices. Renal function remained stable.

The absence of symptoms and findings of complete arterial occlusion of the left leg was due to the presence of an adequate periilac collateral circulation (warm ischaemia) with collateral perfusion through the hypo-gastric arteries, whereas renal blood flow failed to maintain an adequate perfusion of the graft, determining a reduction of VFG with subsequent anuria. On the other hand the rapid recovery of graft function indicated the persistence of residual renal circulation before stent placement, which saved the graft from severe damage as ischaemic tolerance had not been exceeded [6,7].

References

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