



Late Allograft Renal Vein Thrombosis Treated With Anticoagulation Alone: A Case Report

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ABSTRACT

Background. Allograft renal vein thrombosis is a rare complication of kidney transplantation. Most cases occur in the first 2 weeks after transplantation, but there are cases described many years after the transplant surgery. Allograft loss is the usual outcome.

Methods. We present a case of a renal transplant recipient with allograft renal vein thrombosis associated with deep venous thrombosis of a lower limb, 9 years after transplantation. He was successfully treated with anticoagulation alone, with recovery of allograft function.

Results. The patient was given unfractionated heparin and elastic compression stockings. Five days later, the patient recovered diuresis and hemodialysis treatment was discontinued. Doppler ultrasound was done and revealed partial re-permeabilization of allograft renal vein, with maximal velocity of 15 cm/s. After 30 months of follow-up, the patient was maintained on oral anticoagulation with warfarin, and no thromboembolic or hemorrhagic events were documented. The patient's serum creatinine was stable, between 1.6 and 1.8 mg/dL.

Conclusions. Our patient demonstrated that anticoagulation alone and dialytic support might be able to promote total recovery of allograft function after renal vein thrombosis.

HEMORRHAGIC or thrombotic complications of a renal allograft can affect its survival [1]. Vascular thrombosis is a rare phenomenon, with a prevalence of 0.4% to 6% [2]. Most patients present no symptoms; however, oligoanuria, hematuria, allograft swelling or pain, and acute deterioration of renal function can occur [2]. Possible etiologies are a defect in allograft vein expansion by extrinsic compression (hematoma or lymphocele) or a blockade to the venous flux related with hemostatic disorders, vascular torsion, anastomotic defect, or an extension of a deep venous thrombosis of the lower limb [3,4].

Although allograft loss is the usual outcome, there are some descriptions about well-succeeded approaches to recover venous patency through surgical or percutaneous procedures [5].

Until now, no evidence existed to treat these cases with anticoagulation alone. We present a successful case of allograft function recovery after an allograft renal vein thrombosis 10 years after renal transplant, treated with anticoagulation alone.

Case Report

A 52-year-old man underwent a human leukocyte antigen-mismatched, deceased-donor renal transplant in July 2004 for end-stage renal disease of unknown etiology. His maintenance immunosuppression included prednisone tapered to 5 mg per day at 6 months after transplant, extended-release tacrolimus with dose adjusted to obtain trough levels between 3 and 7 ng/mL, and mycophenolate mofetil 750 plus 500 mg per day.

The patient had T-cell-mediated rejection (IB grade, Banff classification) 7 days after transplantation, treated with methylprednisolone pulses, with good response. Post-transplant erythrocytosis developed and was controlled with lisinopril and phlebotomies, the last performed in April 2010. In September 2006, he was admitted to our transplant unit because of acute pyelonephritis. He had no other

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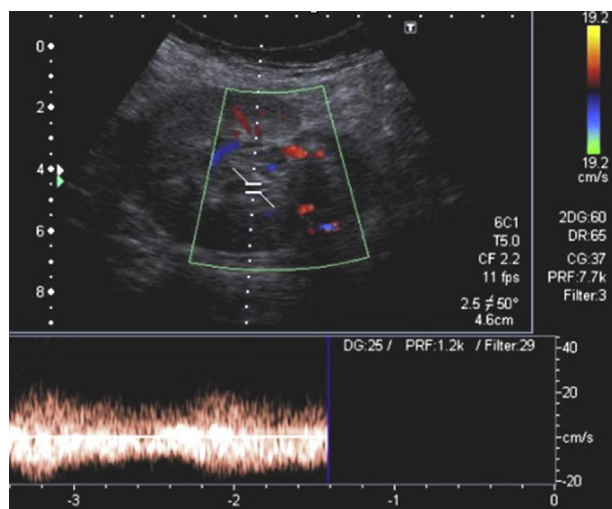


Fig 1. Doppler ultrasound revealed occlusive thrombosis of the allograft renal vein.

relevant complications. His baseline serum creatinine level was between 1.6 and 1.8 mg/dL, and the dipstick test for proteinuria was negative from 2006 to the beginning of 2013.

In February 2013, 9 years after transplantation, he presented to our hospital with first-onset right calf and right-lower-quadrant abdominal pain, more intense at deambulation, associated with edema of the right lower limb. Symptoms had begun acutely during the previous night.

On admission, his temperature was 37.7°C; blood pressure, 96/57 mm Hg; heart rate, 80/min; and oxygen saturation of 100% at room air. Physical examination was significant for swelling of the right lower limb, without other abnormal findings. Laboratory tests showed hemoglobin level of 14.6 g/dL, white blood cell count of $15.19 \times 10^9/L$, platelets of $137 \times 10^9/L$, worsening of renal function with serum urea of 85 mg/dL and serum creatinine of 3.41 mg/dL, and c-reactive protein of 27.8 mg/L. Urinalysis revealed leuko-erythrocyturia and proteinuria of 2.5 g/L. Urine and blood cultures were obtained, piperacillin/tazobactam was

prescribed, and the patient was admitted to our renal transplant unit.

Doppler ultrasound examination revealed occlusive deep venous thrombosis from the posterior tibial vein to the external iliac vein, with extension to the allograft renal vein (Fig 1). These findings were confirmed by computed tomography scan (Fig 2). He was treated with unfractionated heparin in an anticoagulation dose and elastic compression stockings. A ventilation/perfusion scintigraphy excluded pulmonary embolism.

A progressive deterioration of allograft function was documented, and the patient became anuric. Hemodialysis was started on the 2nd day after admission. On the 5th day after admission, he recovered diuresis, and hemodialysis treatment was discontinued. Another Doppler ultrasound examination revealed partial re-permeabilization of the allograft renal vein, with maximal velocity of 15 cm/s.

A pro-thrombotic study was normal and included functional anti-thrombin III, functional protein C, functional protein S, activated protein C resistance, and lupus anticoagulant. An auto-immune study was unremarkable and included anti-nuclear antibodies, anti-neutrophil cytoplasmic antibody, anti-glomerular basement membrane antibodies, anti-cardiolipin antibodies, anti-extractable nuclear antigens screen, and circulating immunocomplex. CMV pp65 anti-genemia was also negative.

Neoplastic disease was excluded by use of neck ultrasound, upper digestive endoscopy, colonoscopy, chest radiography, abdomino-pelvic CT scan, and prostate-specific antigen.

The patient was discharged under oral anticoagulation with warfarin, with a serum creatinine level of 2.65 mg/dL.

After 30 months of follow-up, no thromboembolic or hemorrhagic events were documented, and the patient's serum creatinine level remained stable, between 1.6 and 1.8 mg/dL. He maintained oral anticoagulation with warfarin.

DISCUSSION

Renal transplantation increases survival and the quality of life of patients with end-stage renal disease [6,7].

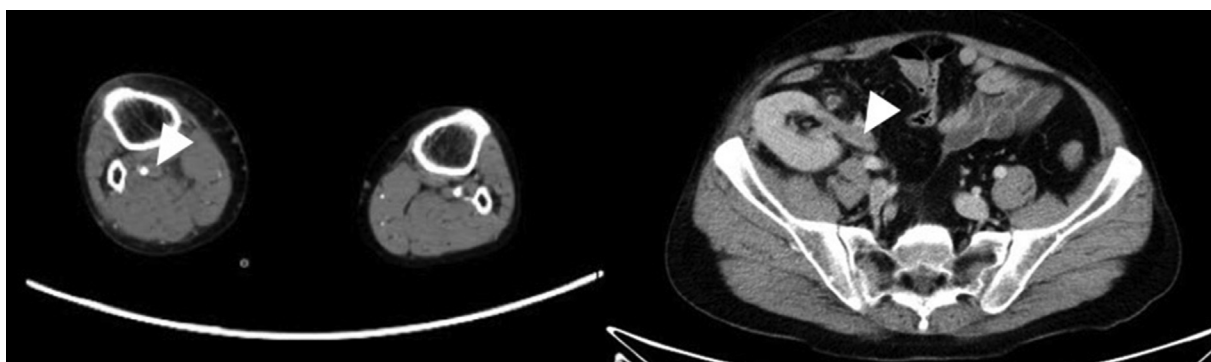


Fig 2. CT scan revealed occlusive deep venous thrombosis from the posterior tibial vein (left white arrowhead) to the external iliac vein, with extension to the allograft renal vein (right white arrowhead).

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