

Fluid Collection after Kidney Transplantation

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Case Description

A 67-year-old man with a history of terminal CKD caused by hypertensive nephrosclerosis received a kidney transplant from a neurologically deceased donor. He received a basiliximab induction therapy and triple immunosuppression therapy with tacrolimus, prednisone, and mycophenolate mofetil. A ureteric stent was placed at the time of transplant. Recovery of function was immediate, with serum creatinine decreasing from 15 mg/dl (1326 μ mol/L) to 3 mg/dl (265 μ mol/L) in less than 10 days. The first renal MAG3 scan was done within 24 hours after transplant and showed the transplanted kidney (white arrow) with some degree of acute tubular necrosis (Figure 1A). An ultrasound scan of the kidney was normal with no signs of surgical complications.

Twelve days after transplant, there was a significant reduction in diuresis, serum creatinine started to increase, and clear fluid leaked from the transplant wound. A kidney biopsy showed no sign of rejection. Two acellular collections (15 cm \times 3.5 cm \times 1.4 cm and 7.5 cm \times 4 cm \times 1.5 cm) were detected by ultrasound. Differential diagnoses at this point included seroma, lymphocele, or urinoma. The renal MAG3 scan was repeated and showed a good perfusion of the transplant and a 20-cm collection on the right lateral abdominal wall (red arrowhead) compatible with a urinoma (Figure 1B). The creatinine level of the fluid leaking from the surgical wound confirmed the urinary leak, with a concentration of 60 mg/dl (5304 μ mol/L). A urinary catheter was reinserted, and the serum creatinine started to decrease.

Discussion

Urine leak is a frequent complication in the early post-transplant period, and despite surgical improvements, its incidence is approximately 2%–6% (1). Patients can present with abdominal pain, fluid leaking, rise in serum creatinine, oliguria, or infection. In the absence of surgical trauma, the majority of the leaks are located at the site of ureteroneocystostomy and are caused by ischemia (2). Men, Black recipients, and the U-stitch technique were found to be the major risk factors of urinary complications (3). A delay in

diagnosis could have a significant effect on graft survival and patient morbidity. Ultrasound, frequently used in transplanted patient, can help establish the diagnosis but does not always discriminate between different types of collections. Renal scintigraphy is one of the effective methods, as demonstrated in this case (4). Measurement of creatinine and electrolytes of the fluid can also confirm the source of the leak. Other types of imaging such as a computed tomography urogram can be useful and complementary in the follow-up of this complication. As for the management of urinoma, it is complex and requires a discussion with a multispecialty team. Most of urinoma can be managed with a conservative approach (ureter stent, percutaneous nephrostomy, foley catheter), but a reconstructive surgery might be necessary if the decompression fails or in early or large leaks (5).

Teaching Points

- Urinoma is a frequent complication in the early post-transplant period.
- Renal scintigraphy is one of the effective imaging modalities to establish the diagnosis.
- Management should be discussed in a multispecialty team to determine between a conservative approach or the necessity of surgical exploration.

Disclosures

C. Lamarche reports filed patents: PCT/CA2018/051167 and PCT/CA2018/051174. All remaining authors have nothing to disclose.

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Author Contributions

C. Cohade was responsible for the formal analysis; C. Cohade and C. Lamarche reviewed and edited the manuscript; A. Deneault-Marchand wrote the original draft of the

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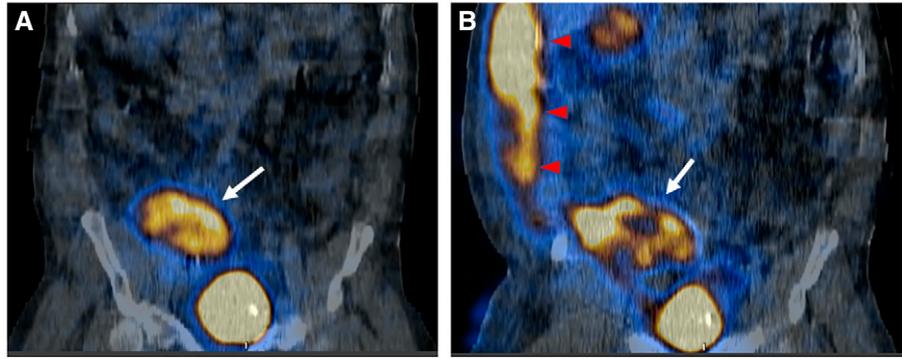


Figure 1. | Fused tomographic renal scintigraphy with low dose computed tomography scan. (A) Baseline study, 24 hours post transplant. (B) Follow-up study 10 days post transplant. White arrow, renal transplant; red arrowhead, extensive urinoma in the right lateral abdominal wall.

manuscript; and A. Deneault-Marchand and C. Lamarche were responsible for conceptualization.

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