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LETTER TO THE EDITOR

# Bilateral urinary leak originating from the native ureters in a dual kidney transplant patient

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A 68-year-old Caucasian male patient was admitted to our unit for a pre-emptive dual kidney transplantation. The left kidney was implanted in the right iliac fossa with an end-to-side venous anastomosis to the external iliac vein, a side-to-end arterial anastomosis to the external iliac artery and an end-to-end uretero-ureteral anastomosis, which was protected with a double J stent. The right kidney was transplanted in the same manner. The proximal ureters of the recipient were distally ligated and the native kidneys were left *in situ*.

The immunosuppressive drug regimen included induction with basiliximab, tacrolimus, mycophenolate mofetil and corticosteroids. Delayed graft function occurred until day 14. The double J stents were removed on day 23.

Acute humoral rejection was diagnosed on day 30 and was treated with intravenous rituximab (anti-CD20 antibodies), methylprednisolone and polyvalent immunoglobulins (IV-Ig). Plasmapheresis was not immediately begun, for technical reasons.

On day 68, the patient was admitted for fever and acute renal failure. CT scan of the abdomen and pelvis showed fluid collections located at the inferior poles of the two grafts. The right-sided fluid collection measured 10 cm in the antero-posterior axis and 9 cm in the transverse axis. The left-sided fluid collection measured 6 cm in the antero-posterior axis and 3.6 cm in the transverse axis. The patient was diagnosed with a vancomycin-resistant enterococcus faecalis (VRE) urinary tract infection and an infected urinoma was suspected. The next day, percutaneous drainage of the right collection confirmed the diagnosis of VRE-infected urinoma and a nephrostomy was performed but the pyelography did not disclose any urine leak. Specimens of blood obtained for culture were also positive for VRE. The patient was treated with intravenous quinupristin-dalfopristin and rifampin, in part because of the hematologic toxicity of linezolid.

On day 79, the left perirenal collection was drained and biochemical analysis revealed that it contained urine. The two drained urinomas were concomitantly injected with contrast medium and CT scans with 3D reconstruction were obtained (Fig. 1). Figure 1 shows two opacified collections (U) that communicate with the dilated native ureters (arrows) and the right kidney. No leakage of contrast media was observed anywhere along the urinary tracts of the two transplanted kidneys. This imaging study confirmed the diagnosis of bilateral ureteral leak caused by a breakdown of sutures at the site of the native ureters. As the patient had normal urine output at the time of surgery, it was surmised that excessive urine pressure on the native ureters may have damaged the anastomotic site. The patient underwent bilateral native nephrectomy. Twenty days later, the patient was discharged home.

Dual kidney transplantation is a growing strategy that allows the use of extended criteria donors (ECD) kidneys

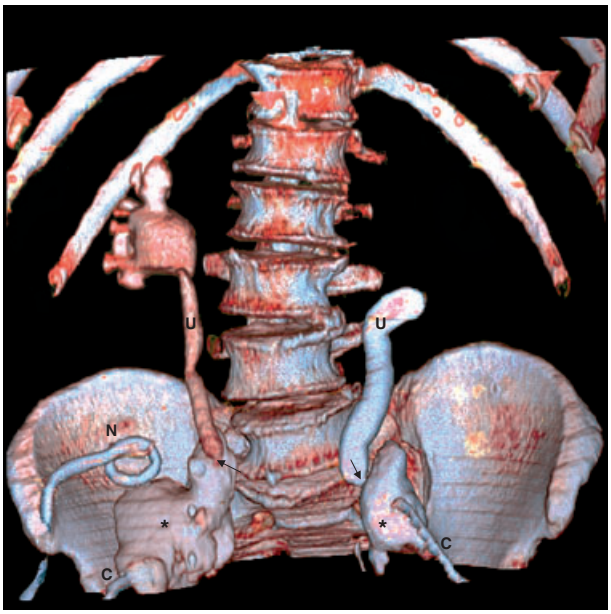


**Figure 1** CT scan 3D reconstruction with urinoma opacification. The abdominal CT scan after medium contrast opacification via the drainage catheters (C) discloses two opacified urinoma (asterisks). The two native ureters, which communicate (arrows) with the urinoma are retrogradely opacified. The two native ureters are dilated. Medium contrast material opacify the right kidney, not the left, probably because of less contrast material reflux in the left pyelocalicial cavities. No contrast material is seen in the transplanted kidneys. N denotes nephrostomy.

 

from donors >65 years of age that yields satisfactory results in terms of short-term graft survival and renal function. Thus, our center, along with many others, has adopted this approach because it increases the number of viable nephrons that a patient receives, as this number is thought to be somewhat too low in a single ECD kidney. In our population, and in other studies, dual kidney transplantation has not been shown to be associated with an increased risk of any urological complications except venous thrombosis [1]. It has recently been reported that urological complications (specifically, urinary fistula and ureteral stenosis) occur in 11.1% and 16.4% of dual kidney transplant recipients, as compared to 21.4% and 17.1% respectively, in single kidney transplant recipients. Distal native ureter ligation that arise consequent to end-to-end uretero-ureteral anastomosis theoretically increases the risk of complications including urosepsis and urinary fistula (especially in the case of pre-emptive renal transplantation). However, the incidence of such complications does not increase after ureteral ligation [2]. Historically, in our center, uretero-ureteral anastomosis remains the gold standard for surgeons, who are well experienced with this technique and teach it to younger generations. Accordingly, the advantages and side-effects of this technique have not been rigorously evaluated and prospective trials are needed to compare uretero-ureteral (end-to-end or end-to-side) with vesico-ureteral anastomosis.

In conclusion, the increase in the rate of renal transplantations that are performed in patients with complex medical conditions, including advanced age, renal failure, heavy immunosuppression, repeated surgical procedures and receipt of ECD kidneys may become more frequent in the future and could lead to medical challenges. The case presented here is an example of the importance of the multidisciplinary (surgical, microbiological, nephrological and radiological) approach that is required to care for such complex patients. However, such a complication stresses the need for randomized trial testing to evaluate safety and technical feasibility of end-to-end uretero-ureteral anastomosis with end-to-side anastomosis or vesico-ureteral anastomosis.

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