Older Adult with Transplanted Kidney Failure from Ureteral Obstruction within a Hernia

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CASE PRESENTATION

A 65-year-old male with a history of hypertension, hyperlipidemia, gout, and end-stage renal disease, who had undergone renal transplantation 12 years previously, with a baseline creatinine of 4.80 mg/dL presented to the Emergency Department (ED) due to progressively worsening right lower quadrant abdominal pain. He continued to produce urine and initially attributed his symptoms to gas or constipation. His home medications included losartan, pravastatin, tamsulosin, allopurinol, cyclosporine, mycophenolate, and prednisone. On examination in the ED, he had a bulge in the right inguinal area and right lower quadrant tenderness. His initial laboratory evaluation showed a creatinine of 14.24 mg/dL and a potassium of 7.3 mmol/L. Computed tomography of the abdomen and pelvis without contrast was obtained (Figures 1 and 2) that showed an unexpected and rare cause of his acute on chronic renal failure.

Figure 1: Coronal computed tomography image of the abdomen and pelvis showing massive dilation of the transplanted kidney showing massive hydronephrosis (*) and hydroureter due to obstruction of the ureter within a right inguinal hernia (arrow).
DIAGNOSIS

Right sided inguinal hernia involving the ureter of the transplanted kidney leading to severe transplant hydroureteronephrosis. Inguinal hernias account for 75% of abdominal wall hernias, with a bimodal distribution that peaks around age 5 and 70.\(^1\) However, uretero-inguinal hernias are rare with a total of fewer than 140 cases documents since 1880.\(^2\) For patients with two healthy kidneys, a unilateral obstruction will not typically result in clinically significant outcomes due to compensation by the unobstructed kidney.\(^3\) However, in a patient with only one functioning kidney, particularly a frail, older patient, obstruction can be a potentially lethal cause of acute kidney injury.\(^4\)

The patient was treated immediately for hyperkalemia and a percutaneous nephrostomy was placed in the transplanted pelvic kidney by interventional radiology (Figures 3 and 4). Over the following week, the patient’s renal function improved, and he was taken to the operating room for repair of the inguinal hernia. However, the procedure was aborted before an incision was made as he became hypotensive. The cause of shock was thought to be hypovolemia and he received several days of careful volume resuscitation. However, he had also experienced low grade fevers and, given his multi-morbidity and immunosuppressed status, he was also treated for urosepsis. Ultimately, he underwent repair of the right sided inguinal hernia several days later and detangling of the transplanted ureter and ureteral stent placement several days later. He recovered well and was discharged with a creatinine back to his baseline at 3.46 mg/dL.
This case highlights how older adults can often be vulnerable to complicated and unusual diagnoses or conditions because of multiple co-morbidities. In this case, the patient had multiple co-morbidities. The two key factors contributing to his acute disorder were a renal transplant from end-
stage renal disease, and an inguinal hernia, both of which are more common with advanced age. In addition, he initially attributed his condition to a benign cause, leading to a delay in seeking care and a late diagnosis when his creatinine and potassium were already severely elevated. In addition, his course was medically complex, and he experienced complications of hypovolemic and possibly septic shock and an aborted surgery due to vital sign instability that may be, in part, due to a loss of physiologic reserve. His anti-hypertensives may also have complicated the interpretation of his vital sign changes. His immunosuppressants likely made him more susceptible to serious infections.

The patient benefitted from rapid diagnosis, aggressive acute interventions, and management by a multi-disciplinary team, including the emergency physicians for initial management, transplant nephrology, vascular interventional radiology for the percutaneous catheter placement, general surgery for the hernia repair, and urology for ureteral stent placement.

He followed up a month later for nephrostomy exchange, but the nephrostomy could not be removed due to distal ureteral stricture. In addition, he was found to have concerning prostate lesions on magnetic resonance imaging, with an elevated prostate specific antigen (PSA) level, so is scheduled for further workup with a prostate biopsy.

This case highlights the vulnerability of older patients with multiple co-morbidities, the importance of rapid intervention to stabilize acute disorders, and the critical nature of multi-disciplinary team-based management.

KEYWORDS
Acute renal failure, complications of renal transplant, geriatric frailty, multi-morbidity

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CONFLICTS OF INTEREST
The author, CS, has received one-time payment in 2023 for a lecture given to a company, Curvafix that creates a device for pelvic fractures. The lecture was to the company staff on the topic of geriatric falls, and not to other physicians about the device. The author CS has received payment in 2024 from AstraZeneca for training as part of a speaker’s bureau. There are no conflicts relevant to this article.

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REFERENCES


