Case Report of a Ureterocutaneous Fistula Post Aortobifemoral Bypass Graft Removal in a Patient With Obstructive UPJ Calculus

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ABSTRACT

Ureterocutaneous fistulas are rare, often iatrogenic complications. We present a case of a 60 year old woman suffering a ureterocutaneous fistula in association with an infected vascular graft. Percutaneous diversion of urinary fluid with a nephrostomy tube is an acceptable form of management.

Case report

A 60-year-old female well known to the Urology and Vascular surgery services at our institution presented with a draining sinus wound in her left groin that produced non-purulent yellow fluid. She was also noted to have decreased urine output from her long-term indwelling Foley catheter. One year prior to current presentation, the patient developed an obstructive ureteral stone in the left ureteropelvic junction necessitating ureteric stent placement. Unfortunately, the patient did not follow up for stent removal and planned stone manipulation and was lost to follow up.

She suffers from longstanding vasculopathy with Factor V Leiden mutation-related clotting issues. Prior surgeries for chronic limb ischemia included an aorto-bifemoral bypass graft, a right-to-left femoral-femoral bypass, a left femoral-popliteal bypass, and eventually bilateral above knee amputations.

Two years ago, the patient developed sequential infection of all the bypass grafts. The grafts had been chronically occluded for over 5 years. Ultimately, she underwent complete removal of all graft components. The final segments removed were the abdominal and left aorto-fem limb components 4 months prior to presentation.

During workup of the new groin sinus, a creatinine level of the drainage was measured and found to be 19.8 mg/dL (serum creatinine 0.97 mg/dL), suggestive of urine. A CT of the abdomen and pelvis failed to demonstrate a fistula, and there was no evidence of a vesicocutaneous fistula. Both to facilitate removal of her stent and to investigate this probable fistula, the patient was brought into the cystoscopy suite. The stent was removed and a retrograde pyelogram was performed, confirming a ureterocutaneous fistula arising from the midureter (Fig. 1).

Given the patient’s comorbidities, particularly her severe vasculopathy, she was not considered to be a surgical candidate, and a nephrostomy tube was placed for long-term management of the fistula. The patient is stable with the nephrostomy tube in place.

Discussion

To our knowledge, this is the first case of a ureterocutaneous fistula secondary to an infected vascular graft. We hypothesize in this case that the combination of graft infection adjacent to the ureter as well as primary ureteral inflammation secondary to long term indwelling stent resulted in graft-ureteral fistula. The graft being chronically occluded prevented hematuria. When the graft limb was pulled from the retroperitoneum remotely at the time of aortic closure, the resulting ureteral defect ultimately fistulized. The urine drained through the tube of chronic scar tissue where the graft had been tunneled to the left common femoral artery outflow site.

Ureterocutaneous fistulas are extremely rare events, often presenting secondary to iatrogenic trauma. Cases have also been reported of ureterocutaneous fistulas developing in the settings of ureteral trauma and spontaneous rupture, urinary calculous disease, and granulomatous inflammation. However, ureterocutaneous
Fistulas associated with vascular grafts, such as in this case, have not been described. Gynecologic surgeries account for the majority of surgical ureteral injuries, with urinary tract procedures accounting for approximately 30%. A small minority of the remaining injuries are secondary to great vessel or retroperitoneal procedures.

Unfortunately, surgical ureteral damage is most commonly diagnosed post-operatively, with estimates ranging from 60–80% of all cases. When iatrogenic ureteral injury occurs secondary to vascular surgery, it is often times during complex redo surgeries such as in this case. These injuries do not spontaneously heal, leading to significant patient morbidity and mortality.

The diagnosis of ureterocutaneous fistulas is relatively straightforward. Although ureterocutaneous fistulas are rare regardless of past surgical and medical history, clinical suspicion should remain high. Ruling out physiologic secretions or inflammatory exudate remain priorities and are easily accomplished by physical examination and by routine laboratory tests. If clinical suspicion is present, a creatinine level of the fluid should be obtained. Any creatinine level several-fold higher than the serum level is suggestive of urine. This should prompt upper urinary tract imaging with a combination of a cross section imaging and a retrograde pyelogram to define the process and location of the injury.

A variety of ureterocutaneous fistula treatments have been described. While percutaneous diversion of urinary fluid with a nephrostomy tube is an accepted form of management, the therapies would be tailored on an individual basis.

The goals of ureterocutaneous fistula management are similar to those of fistula management elsewhere. With minimization of drainage through the fistula tract and proper external drainage control, the morbidity of this rare condition can be minimized.

**Conflicts of interest**

The authors declare no conflicts of interest.

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