SHORT REPORT

Simultaneous Endovascular Treatment of a Ureteroiliac Fistula and Common Iliac Artery Occlusion

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Abstract We report an unusual case of simultaneous ureteroiliac fistula and common iliac artery occlusion, managed with an endovascular approach. A 69-year-old woman with ureteral transition cell carcinoma, who had a double J tube insertion for her left hydroureter for years, developed sudden onset of massive hematuria. CT scan showed a left common iliac artery-ureteric fistula and right common iliac artery occlusion. This was successfully treated with covered stents.

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Introduction

Development of a communication from the iliac artery to the ureteral system is a rare event.1,2 The possibility of a sudden massive hemorrhage in the urinary tract makes emergency repair necessary. We report an unusual case of right common iliac artery occlusion with simultaneous left ureteroiliac fistula because of prolonged ureteral double J stent, who is managed successfully with percutaneous covered stent placement.

Case Report

The patient was a 69-year-old woman with right ureteral transitional cell carcinoma. She underwent laparoscopic right nephroureterectomy and bladder cuff in 2003. Her course in the next few years was complicated by local pelvic tumor recurrence causing right common iliac artery occlusion, left hydroureter requiring double J tube placement and multiple courses of chemotherapy. She presented to our emergency room for gross hematuria this time.
Cystoscopy and ureteroscopy showed active bleeding from the left ureter. An emergency CT scan revealed a localized dilated left ureter at the level of left common iliac artery with contrast filling (Fig. 1). Subsequent angiography from the left groin showed a left common iliac artery-to-ureter fistula and right common iliac artery occlusion (Fig. 2). Under vascular ultrasound guidance, right common femoral artery was cannulated for the flushing catheter placement. A 10 mm × 70 mm covered stent (Wallgraft™, Boston Scientific Ireland Limited, Galway, Ireland) was deployed retrogradely from the left groin to seal the fistula. However, a type I endoleak was noted and a second 9 mm × 30 mm Wallgraft™ was needed to seal the endoleak. Two 8 mm × 60 mm, 8 mm × 42 mm self-expandable Nitinol stent (Sentinel™, Boston Scientific Corporation, Natwick, MA) were then deployed from the right groin to open the occluded right common iliac artery but the procedure was failed due to the massive thrombus load. A third 9 mm × 70 mm Wallgraft™ was then needed to open the occluded right common iliac artery. The final angiography showed a sealed ureteroiliac fistula and patent right common iliac artery (Fig. 3). The left side double J catheter was then removed and the temporary percutaneous nephrostomy was performed in 2 weeks because of the persistent hydrour薛 from the residual hematoma and worsening renal function. The patient was discharged 3 weeks after this procedure without complication. The patient was followed up for 6 months without infectious signs.

Discussion

A fistula between an arterial system and a urinary tract is a very rare condition with a potentially fatal outcome. Prolonged ureteral stenting, prior pelvic or aortic surgery, radiation therapy and infection are the precipitating factors. In this case, we believe the prolonged ureteral stenting and pelvic tumor recurrence are the major contributing factors. Massive urinary tract hemorrhage usually is the presenting symptom.2,3 The most rational approach is a division of the fistula and a repair of the vascular and urinary system. However, open surgical fistula repair can be a challenging condition due to her previous pelvic surgery and unstable hemodynamic status. Instead,

Figure 1 A double J catheter was in the left ureter with contrast filling around the catheter (arrow).

Figure 2 A contrast leakage into the left ureter from the left common iliac artery near the bifurcation of external and hypogastric artery (arrow) and the occluded right common iliac artery (asterisk).

Figure 3 Complete sealing of the aorto-ureteric fistula after the covered stent placement (arrow) and the patent right common iliac artery (asterisk).
extra-anatomical arterial reconstruction with angiographic embolization of the arteries is also useful for treating ureteroiliac fistula in spite that axillofemoral bypass has poor long term patency. In this case, the occlusion of right common iliac artery makes the femorofemoral arterial reconstruction impossible.

Endoluminal repair using a covered stent represents a minimal invasive treatment that can be performed safely in a hostile abdomen and manages this difficult clinical scenarios easier.4,5 A graft infection is the most serious complication for an arterial fistula to other organs. While urine in a ureter is usually aseptic, it is still debatable whether covered stents can be used as a definitive or bridging treatment for an ureteroiliac fistula. Long term oral antibiotics were not prescribed for this patient and she showed no signs of infection after 6 months follow-up.

Our review of the English literature failed to identify any prior reports of ureteroiliac fistula and common iliac artery occlusion treated successfully by percutaneous covered stent in the same setting. We believe emergent endoluminal repair of ureteroiliac fistula with covered stents under local anesthesia should be considered as a safe, quick, and minimal invasive treatment in cases with hostile abdomen and difficult vascular access.

Conflict of Interest

The authors have no conflict of interest.

References