

Entero-neovesical fistula after radical cystectomy and orthotopic ileal neobladder: A report of two cases requiring surgical management

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Abstract

Introduction: Entero-neovesical fistula is a rare complication after radical cystectomy and orthotopic ileal bladder substitution. Typical presenting symptoms are faecaluria, pneumaturia, recurrent urinary tract infections and abdominal pain. Risk factors include history of pelvic radiation, chemotherapy and abdominal surgery, as well as diverticular colonic disease, inflammatory bowel disease and traumatic pelvic injury. The paucity of cases reported in the literature makes the management of this threatening complication very challenging. Conservative treatment has only anecdotally been reported.

Case description: We describe two cases of entero-neovesical fistula with different presentation, which both required an immediate surgical treatment. The former patient was admitted to the emergency room with faecaluria, complete urinary incontinence and fever 2 years after radical cystectomy, and a fistula between the Y-shaped neobladder and the bowel anastomosis was detected. He had previously undergone chemotherapy because of tumour progression. Undiversion into an ileal conduit was required. The latter patient presented with faecaluria 20 days after an uneventful radical cystectomy, and a fistula between the Vescica Ileale Padovana neobladder and the sigmoid was documented. Treatment included resection of the sigmoid with several small diverticula, temporary ileostomy and closure of the neobladder fistula.

Conclusion: Conservative treatment of entero-neovesical fistula can be attempted only in patients with small openings in the small bowel and no systemic symptoms. In all other cases, surgical treatment with bowel resection and either closure of the neobladder opening or undiversion should be the preferred option.

Keywords

Urinary bladder neoplasms, cystectomy, orthotopic neobladder, fistula, bowel

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Introduction

Entero-neovesical fistula is a rare complication after radical cystectomy (RC) and orthotopic ileal bladder substitution, occurring in about 1.5% of cases in representative series.^{1,2} The abnormal communication can develop between the neobladder and any bowel tract, with the small bowel being the most commonly involved segment. Typical presenting symptoms are faecaluria, pneumaturia, recurrent urinary tract infections and abdominal pain. Risk factors include history of pelvic radiation, chemotherapy

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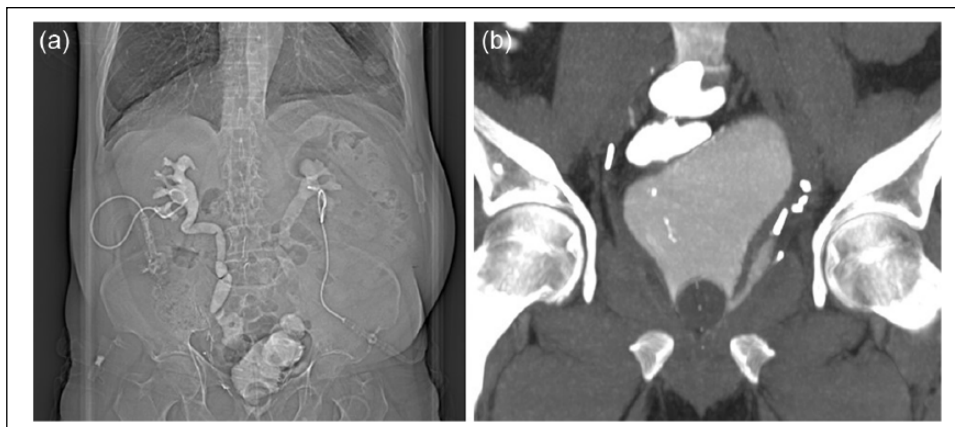


Figure 1. (a) Bilateral antegrade pyelography showing complete opacification of dilated ureters with a rapid contrast medium passage into the neobladder on the right side and a total stop at the level of the left distal tract. (b) CT cystography showing a markedly irregular and diffusely thickened neobladder wall and a fistula between the upper side of the neobladder and the bowel anastomosis.

and abdominal surgery, as well as diverticular colonic disease, inflammatory bowel disease and traumatic pelvic injury. Diagnosis is usually confirmed by contrast-enhanced abdominal-pelvic computed tomography (CT) or CT cystography. CT enterography may be required in case of small fistula.³ Conservative management consisting of parenteral nutrition or low-residue diet and prolonged transurethral urine drainage may be an option only in patients with very small opening involving the small bowel and no systemic symptoms.^{4,5} Surgical treatment is required in case of involvement of large bowel and/or severe and persistent symptoms and depends on the location and size of the fistula. It typically includes resection of the affected bowel tract, interposition of an omental flap between the neobladder and the re-anastomosed bowel and temporary ileo- or colostomy. Undiversion should be considered in the most complex or advanced cases.⁶

We herein describe two cases of entero-neovesical fistula with different presentation, which both required an immediate surgical treatment.

Case description

Case #1

A 59-year-old man with muscle-invasive bladder cancer underwent RC and orthotopic ileal bladder substitution with a Y-shaped neobladder in April 2015 in a different department. One year postoperatively he was diagnosed with lung metastases and underwent six cycles of cisplatin-based chemotherapy. In June 2017, the patient was admitted to the emergency room of our department with faecaluria, complete urinary incontinence and fever. Serum creatinine was 2.5 mg/dL. On ultrasound, bilateral ureterohydronephrosis and incomplete emptying of the neobladder with 200 mL post-void residual urine were documented.

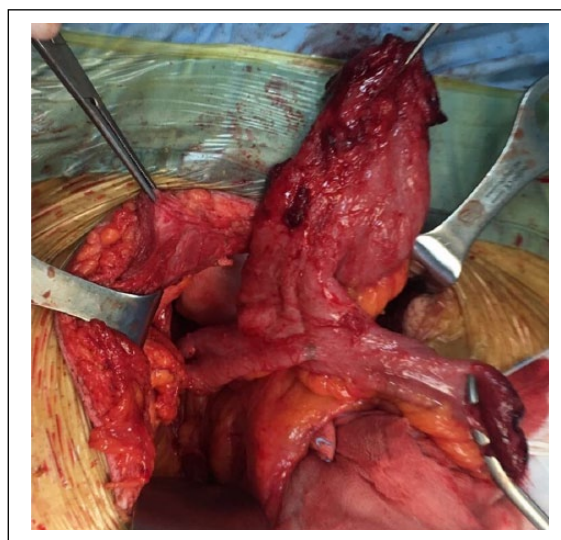


Figure 2. Intraoperative photograph showing the right horn of the Y-shaped neobladder used to create the ileal conduit after re-implantation of the left ureter on the bottom.

A bilateral percutaneous nephrostomy tube was placed. Antegrade pyelography showed complete opacification of dilated ureters with a rapid contrast medium passage into the neobladder on the right side and a total stop at the level of the left distal tract (Figure 1(a)). A CT cystography showed a markedly irregular and diffusely thickened neobladder wall and a fistula between the upper side of the neobladder and the bowel anastomosis (Figure 1(b)). Surgical treatment included the resection of the affected ileal segment with a side-to-side ileal re-anastomosis and the undiversion of the Y-shaped neobladder into an ileal conduit with re-implantation of the left ureter (Figure 2). At a follow-up of 4 months, the patient is asymptomatic

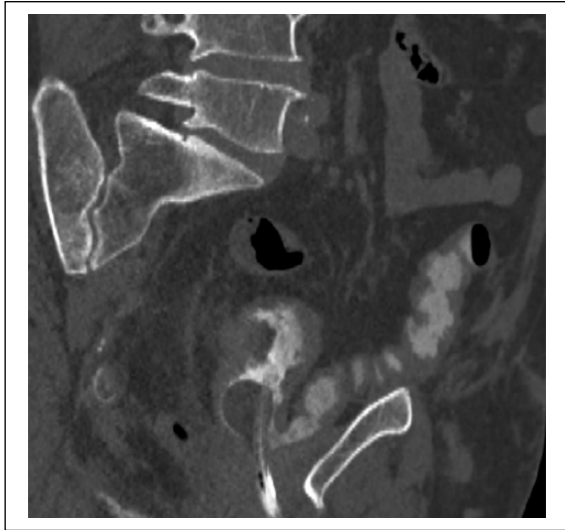


Figure 3. CT cystography showing a fistula between the distal antero-lateral side of the neobladder and the sigmoid, which was angulated and compressed between the neobladder itself and the pubic symphysis.

with regular upper urinary tract, normal renal function and regular stoma.

Case #2

A 71-year-old man with muscle-invasive bladder cancer and a history of diverticular colonic disease underwent RC and orthotopic ileal bladder substitution with the Vescica Ileale Padovana neobladder in December 2016 in our department. The postoperative course was uneventful, and the patient was discharged on postoperative day 13 after transurethral catheter removal and regular voiding with no residual urine. Five days later, he presented with faecaluria. He had no abdominal pain or fever. Blood tests were unremarkable. On ultrasound, upper urinary tract was regular and the neobladder was empty. A CT cystography showed a fistula between the distal antero-lateral side of the neobladder and the sigmoid, which was angulated and compressed between the neobladder itself and the pubic symphysis (Figure 3). Surgical treatment included resection of the sigmoid with several small diverticula, closure of the neobladder fistula with a single-layer running suture, interposition of an omental flap and protective ileostomy. Four weeks later, the ileostoma was closed. At a follow-up of 10 months, the patient is asymptomatic with a normal renal and bowel function.

Discussion

The paucity of cases of entero-neovesical fistula following RC and orthotopic ileal bladder substitution reported in the literature makes the management of this threatening

complication very challenging. Only two single case reports reported on a successful closure of the fistula by means of conservative treatment.^{4,5} In both cases, the abnormal communication was with ileum. Treatment included total parenteral nutrition and nasogastric tube in one case, low-residue diet plus oral fluoroquinolones in the other one, and prolonged (1–2 months) transurethral urine drainage in both. Of note, a later publication of four cases reported on a death due to septic shock in a patient initially treated conservatively.⁶ All other cases of entero-neovesical fistula so far described were managed surgically, either as a primary treatment or after failure of conservative measures.^{2,6}

The two cases of entero-neovesical fistula here reported had a different presentation and type of surgical treatment. The former patient was admitted in an emergency setting due to fever, renal failure and faecaluria, after 2 years from initial surgery. Part of the clinical picture can be attributed to the neobladder outlet dysfunction, witnessed by the elevated post-void residual urine and dilation in the non-stenotic upper urinary tract. Whether this factor had a play in the genesis of the entero-neovesical fistula remains difficult to ascertain. For sure, a known risk factor for fistula in this case was previous chemotherapy. The complexity of the clinical case required an immediate surgical treatment with a very complex reconstructive phase consisting of an undiversion.

The latter patient presented with faecaluria but no sign of local or systemic infection very early after an uneventful RC. Although the sigmoid was found to have several diverticula on pathological examination, no significant inflammatory process around the opening was evident. A more plausible explanation for the entero-neovesical fistula could be the relatively great length of the sigmoid making it prone to kinking. The sigmoid, in fact, was found intraoperatively to be angulated and compressed between the neobladder and the pubic symphysis, at the level where the fistula was documented. Surgical treatment was required because of the bowel tract involved and the relatively large opening at CT cystography.

Conclusion

Entero-neovesical fistula is a rare complication after RC and orthotopic ileal bladder substitution. Conservative treatment can be attempted only in patients with small openings in the small bowel and no systemic symptoms. In all other cases, surgical treatment with bowel resection and either closure of the neobladder opening or undiversion should be the preferred option.

Declaration of conflicting interests

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