

## Oncology

## Late-onset enteric fistula following radical cystectomy for bladder cancer: A case report

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## ABSTRACT

Enteric fistula is a rare early onset complication following radical cystectomy with urinary diversion for bladder cancer. We present the case of a 55-year-old woman presenting with an insidious fistula between the ileum and the ileal conduit, diagnosed 20-months after the initial surgery. A single surgical intervention was sufficient for treating this rare etiology. We herein present the case and discuss the available literature on the diagnosis and treatment of such complication.

## 1. Introduction

Bladder cancer (BC) is the tenth most common cancer worldwide. The gold standard treatment for localized muscle invasive bladder cancer (MIBC) and high-risk non-muscle-invasive bladder cancer (NMIBC) remains radical cystectomy (RC). RC implies a simultaneous urinary diversion. The ileal conduit remains the mostly utilized form of diversion. Although widely utilized, it has been associated with several early and late complications in up to 50% of the patients.<sup>1</sup>

Fistulas are rare and insidious complications that generally occurred within the early postoperative period. According to a large retrospective study, median time to fistula formation was 31 days.<sup>2</sup> Several risk-factors have been described. Poor preoperative nutritional status, diabetes mellitus, chemotherapy, long-term corticosteroid, and a history of radiation therapy are relevant etiologies. No recommendations exist regarding the diagnosis, evaluation, and management of such fistulas. Loopograms and enhanced computed tomography (CT) scans with radiocontrast agent remain the most widely utilized diagnostic modalities. Although conservative management has been described as an effective option, most cases require surgical repair.<sup>2,3</sup>

## 2. Case presentation

A 55-year-old female patient presented with recurrent urinary tract infections (UTIs) and hematuria. Upon urological work up, a 3 cm bladder tumor was diagnosed. The pathology showed a high-grade

muscle invasive urothelial carcinoma (pT2) in association with carcinoma in situ (CIS).

The patient was included in a study protocol and received four cycles of neoadjuvant dense dose methotrexate, vinblastine, doxorubicin, cisplatin (dd-MVAC) with concomitant Avelumab before undergoing robot-assisted radical cystectomy (RARC). To note that we use non-reinforced staples for the bowel anastomosis and the Wallace technique for ureteral anastomosis. Hospital stay was uneventful, and the patient was discharged 6 days after the surgery. Complete pathological response was objective on the final specimen.

At home, the patient experienced fluctuant diarrhea with 3–6 stools a day leading to a total weight loss of 16 kgs within the first 18 months post-operatively. Meanwhile, she experienced episodes of weakness, and anorexia. The patient was repeatedly treated by her general practitioner with antibiotics for urinary bacterial colonization.

Due to persistent diarrhea, a colonoscopy was performed 1-year after the surgery and demonstrated a single small ulceration of the distal ileum, which was biopsied. Due to inflammatory lesion on pathological examination, Crohn's disease was evoked but not clinically confirmed. Therefore, in the hypothesis of a digestive bacterial flora perturbation, treatment with pro- and post-biotics was initiated. At first, limited relief was noted. Stool culture was positive for *Clostridium difficile*. Treatment by Metronidazole reduced the symptoms and stabilized the patient with a frequency of 3 stools a day.

At 18 months post-operative, apple seeds appeared in the stoma. Work-up exams were extensive with a loopogram (Fig. 1.) followed by a

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Fig. 1. Loopogram.

CT-scan. A CT urogram and a full bowel transit opacified with gastrografin, completed by a CT-scan, were performed. All these exams were negative with no fistula or urinary leakage documented. A urinary cytology was performed and was negative.

Finally, a prolonged looposcopy was performed 20 months after the surgery (Fig. 2.). Except for the big capacity of the pouch, the reconstruction appeared normal at first. At the end of this prolonged

procedure, a single digestive projection was seen next to the left uretero-ileal anastomosis. This minimal communication seems to be valve-like and unidirectional from the ileum to the Bricker ileal conduit.

Exploratory laparoscopy was performed (Fig. 3.), followed by adhesiolysis. A fistula between the staples line of ileo-ileal anastomosis and the ileal conduit was demonstrated and then split up with a triple line reinforced surgical stapler. Omentum was preventively fixed against this new stapling. Finally, a shortening of the ileal conduit was performed to improve urinary emptying. At pathological analysis, no evidence of Crohn's disease was found on the resected segment.

At 3-months follow-up with CT urogram, no evidence of fistula recurrence was objectified but the patient still reports intermittent diarrhea.

### 3. Discussion

Fistulas after RC with urinary diversion are usually an early complication. Nonetheless, our case demonstrated the possibility as a late occurrence. In diverted patients, clinical manifestations may be insidious because the characteristic signs can be concealed by the diversion system. For instance, pneumaturia or recurrent UTIs are often missed due to the non-continent diversion and bacterial colonization.<sup>2</sup>

Radiology remains the main diagnostic tool, but our case illustrates its limitations. In addition to imaging, clinical tests such as the poppy seeds test can help diagnose fistulas. This test involves consuming seeds and examining the urine 24–48 hours later to detect the presence of a fistula in ambiguous cases. However, this test cannot accurately locate the fistula, which is a significant drawback.<sup>4</sup>

Although intestinal perturbation may suggest presence of fistulas, persistent bowel dysfunction (i.e., diarrhea, constipation, and flatulence) are frequent after RC.<sup>5</sup> In our case, persistent diarrhea post-surgery suggests a non-fistula origin. This case highlights the importance of remaining vigilant in diagnosing postoperative fistulas in patients with urinary diversion, even in the late post-operative period. This could reduce the diagnostic delay and provide better management.

To our knowledge, there is no other case of enteric fistula 20-months after RC reported in the literature. This delayed presentation probably came from a multifactorial etiology. Our hypothesis implies the size of

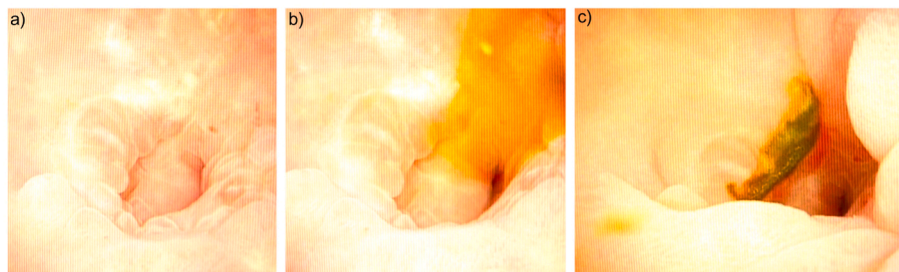


Fig. 2. Looposcopy at the level of the ureteroenteric anastomosis. Captions: a) normal urine, and b-c) digestive projection.

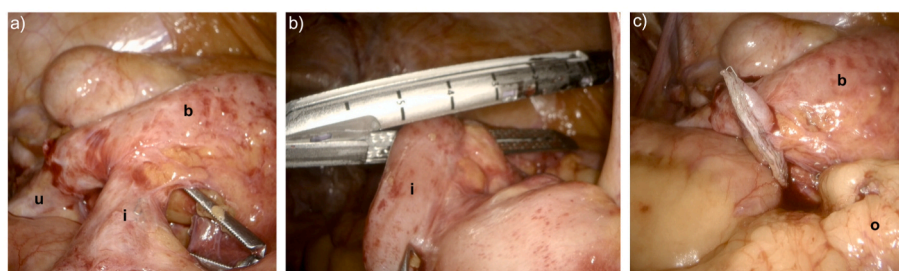


Fig. 3. Laparoscopic repair. a) Dissection of the fistula, b) Laparoscopic stapling of the fistula, c) Final aspect. b = Bricker ileal conduit, i = ileum, o = omentum, u = ureter.

the pouch responsible for urine stagnation and therefore persistent and paucisymptomatic UTIs. Consequently, repetitive antibiotic treatments led to digestive bacterial flora perturbation and, ultimately, *Clostridium difficile* enteritis. The preoperative ileal biopsy and the stapling site might be additional risk factors. Ultimately, the surgical site fragilized by all the above has been the site of a secondary fistula.

Although conservative management is often attempted initially, our inability to precisely locate the fistula justified an exploratory laparoscopy and simultaneous surgical repair. We also decreased the size of the pouch to prevent future UTIs. There are currently no established guidelines for managing such fistulas, but data suggests that one intervention is usually sufficient.<sup>2</sup>

#### 4. Conclusion

Late-onset enteric fistulas after RC are rare, resulting in a lack recommendations for management, requiring a case-by-case approach. Lack of awareness can lead to delayed diagnosis, especially in atypical cases like late-onset fistulas. Although imaging remains the main diagnostic tool, limitations exist and justify the use of additional tests. Conservative management is possible and usually firstly attempted. Nevertheless, a single surgical repair using mini-invasive approach represents a good alternative.

#### Consent

Patient gave her written consent, and all medical data have been anonymized before writing this manuscript.

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#### Declaration of generative AI and AI-assisted technologies in the writing process

Authors disclose that no use of generative AI and AI-assisted technologies have been used in the writing process.

#### Declaration of competing interest

None.

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