



Enterovesical fistula as an iatrogenic complication of foley catheter use: A case report

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ARTICLE INFO

Keywords:

Enterovesical fistula
Foley catheter
Small bowel
Indwelling catheter
Catheterization

ABSTRACT

Enterovesical fistulas can represent a rare complication of long-term indwelling urinary catheters. It can lead to significant morbidity and mortality and usually requires emergent intervention. An elderly nursing home resident presented with abdominal pain and fecal matter in her urine. She was found to have a foley catheter bulb in the small bowel and successfully underwent open repair of the bladder defect along with partial small bowel resection. The diagnosis and management of Enterovesical fistulas as an iatrogenic complication of Foley catheter use is discussed.

1. Introduction

Indwelling catheter management and upkeep is crucial at preventing many complications. The most common complications include UTI's, pain and bleeding. Urethritis, bladder neck incompetence, sphincter erosion, delirium and trauma are less common complications. Enterovesical fistula is one rare complication of indwelling catheter that is more often caused by diverticular disease, radiation, Crohn's disease, trauma, and malignancy. We report a rare case of enterovesical fistula secondary to migration of the urethral catheter into the ileal lumen and our management of this rare case.

2. Case presentation

A 66-year-old female who resides in a nursing home presented to the ER with a complaint of a sacral pressure ulcer. The patient had a past medical history of dementia, hypertension, diabetes mellitus, seizure disorder, peripheral vascular disease, epilepsy, atrial fibrillation, diverticular disease, and gangrenous toes on the right foot. Past Surgical History included a total abdominal hysterectomy and a left below-the-knee amputation, many years prior. There is a history of chronic *Clostridium difficile* (C. diff) infection and at this time culture results showed active infection.

On exam, a large, 13 × 10 cm wide sacral pressure ulcer with granulation and fibrinous exudate was noted. She had an indwelling Foley catheter that was changed on arrival as per hospital protocol.

Additionally, fecaluria was noted in the Foley Drainage Bag on admission and the exchanged Foley catheter had yet to provide output.

Laboratory investigation showed a BUN of 52 mg/dL and an Anion Gap of 5 mmol/L. Her RBC was $3.2 \times 10^9/\mu\text{L}$, Hemoglobin 7.6 g/dL, HCT 26%, WBC $12.2 \times 10^3/\mu\text{L}$. A CT with contrast showed free air in the abdominal cavity along with a fistula. Upon follow up CT, the fistula was shown to be between the bladder and the small bowel (Fig. 1).

At this point she was diagnosed with an enterovesical fistula requiring immediate surgical correction. Exploratory laparotomy revealed dilated loops of bowel with multiple adhesions, large loops of matted bowel which was adhered to the bladder and the bulb of the foley catheter was palpated in the ilium. Adhesions between both the loops of bowel and the loops of bowel with the bladder were lysed to reveal a friable bladder wall with two large openings in the small bowel.

The small bowel was eventually removed from the bladder taking with it the upper anterior dome of the bladder wall. Further, an eight-centimeter defect was seen at the dome of the bladder. The foley was changed and the bladder was repaired with #1 Vicryl due to thickened bladder wall from prolonged inflammation and intestinal fistula. At this point, partial small bowel resection was performed via stapled anastomosis.

The new foley was monitored and showed no signs of fecal matter. The patient recovered from surgery with no complications, with no evidence of infection at the incision site. She continued to receive care for C. Diff and the sacral pressure ulcer in the hospital. On day five post-surgery, the patient had a seizure leading to numbness on the left side of

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<https://doi.org/10.1016/j.eucr.2022.102065>

Received 20 February 2022; Received in revised form 19 March 2022; Accepted 23 March 2022

Available online 25 March 2022

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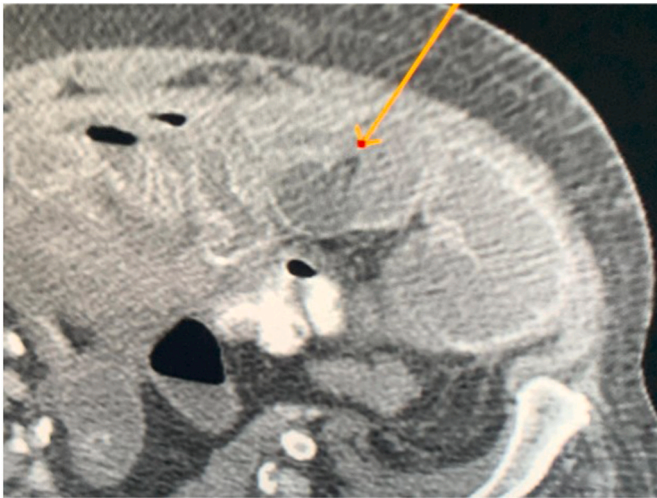


Fig. 1. Computed tomography (CT) scan of Enterovesical fistula (yellow arrow). (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

the body. After the initial seizure, the patient had 2-3 more episodes over the course of 2 days. She deteriorated and became unresponsive post hypoxic event and cardiac arrest episode. At this point she was discharged from hospital care and transferred to outpatient hospice.

3. Discussion

Enterovesical fistula is defined as an “abnormal communication between the intestine and the bladder”.¹ Typically, a small bowel enterovesical fistula presents as a complication of inflammatory or neoplastic pathology, but occasionally can be seen in trauma or iatrogenic cases. Further, the most common etiology for colovesical fistulas is diverticulitis with 50–70% of these fistulas being caused by diverticular disease.² This paper discusses an enterovesical fistula in the small bowel as an iatrogenic complication due to a foley catheter.

This patient had fecaluria noted on presentation to the ED, where her indwelling Foley catheter was exchanged. The presence of this fecaluria prior to any output from the new catheter suggests the existence of the fistulous tract prior to presentation. The finding of the bulb of the Foley catheter in the Ileum during Laparotomy confirms the etiology of the Enterovesical fistula.

CT has largely replaced conventional radiology and is considered the most sensitive test for Enterovesical fistula.² CT is a key method as it is rapidly performed, generally available, and ideal for elderly and severely ill patients. The administration of an enteral contrast agent is necessary for the visualization of the fistulous tract.²

The major goal of treatment for an enterovesical fistula is the correction of fluids, electrolytes, and control of infection. Treatment depends on the location of the fistula. For large bowel fistulas, there is no significant difference in disease mortality of patients who undergo

surgery and those treated conservatively.² In contrast surgery is imperative in small bowel fistulas due to the higher bacterial load and the increased rate of morbidity and mortality associated.

Enterovesical fistula have been documented in patients who have previously undergone pelvic radiotherapy, appendicular abscess and weakened bladder wall.³ This is a unique case as this patient has no history of malignancy or pathology to cause erosion of the bladder wall.

There are many known complications of long-term urethral catheterization which include complicated urinary tract infections and hematuria.⁴ Eliminating unnecessary catheter use is important in preventing many of these complications including foley catheter trauma and urinary tract infection leading to unnecessary antimicrobial therapy.⁵ Regular monitoring of the foley catheter and systematic reminders in hospital protocol are crucial at preventing such complications.

4. Conclusion

This case report describes an unusual presentation secondary to a rare complication of indwelling urethral catheter. Enterovesical fistula should be added to a list of the increasing complications associated with indwelling foley catheters.

This reiterates the need of daily surveillance of foley catheters and the need for rigorous guidelines for placement, maintenance, and removal. In addition, thorough documentation of the foley catheter in patients with comorbidities, especially dementia, is essential in preventing future complications.

Consent

Consent from the patient was obtained.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declarations of interest

None.

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