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## An unusual cause of small bowel obstruction caused by a Richter's-type hernia into the urinary bladder



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### ABSTRACT

**INTRODUCTION:** The authors present an unusual case of small bowel obstruction in a 62-year-old man. **PRESENTATION OF CASE:** A 62-year-old man with a background of transitional cell carcinoma (TCC) of the bladder presented to the emergency department with abdominal pain, distension, vomiting and had not opened his bowels for three days. 3 weeks previously he had a repeat Transurethral resection of bladder tumour (TURBT), during which there was an iatrogenic perforation of the bladder. A CT scan of the abdomen and pelvis revealed small bowel obstruction but did not identify a cause. At laparotomy the cause of the obstruction was identified as a section of the small bowel that had partially herniated into the bladder, via the perforation. The defect was repaired and the patient made an uneventful recovery. **DISCUSSION:** Herniation of the bowel into a defect in the bladder wall is a rare event with only 6 previous cases reported in the literature. It can cause signs and symptoms of bowel obstruction. **CONCLUSION:** In patients with known bladder perforations who present with symptoms and signs of bowel obstruction, bowel herniation into the bladder should be considered. Early surgical intervention may be necessary if the patient is clinically unwell with appropriate symptoms and signs and imaging does not provide conclusive answer.

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### 1. Introduction

Transurethral resection of bladder tumour (TURBT) is a common surgical procedure. Intra- or extraperitoneal perforation of the bladder wall is a possible complication. The diagnosis is generally established intraoperatively and cystography can be performed in the operating room to demonstrate the diameter of the perforation. Most cases of extraperitoneal perforation can be treated conservatively by simple bladder drainage. Intraperitoneal perforations may require surgical repair. Herniae that protrude into an abdominal pouch or opening of the peritoneum, may be considered to be “intra-abdominal” or “internal herniae.” These may be either primary or secondary. Primary herniae are a direct result of some congenital defect. Secondary herniae can result from postoperative sequelae, trauma or inflammation that is not the result of an operation. Bowel herniation into bladder defects is rare, but when it occurs it can cause obstruction. The authors present an unusual case of small bowel obstruction in a 62-year-old man.

### 2. Case presentation

A 62-year-old man presented to the emergency department with abdominal pain, distension, vomiting and had not opened his bowels for three days.

The patient had a background of chronic renal impairment and transitional cell carcinoma (TCC) of the bladder which had been treated with a Trans Urethral Resection of Bladder Tumour (TURBT) with urethral dilatation, chemotherapy and radiotherapy. His six-month follow-up cystoscopy showed a suspicious area and therefore a further TURBT was performed. During the procedure there was a small iatrogenic perforation of the bladder. The patient was stable and showed no signs of peritonitis. Therefore this was managed conservatively with urinary catheterisation planned to remain in situ for 8 weeks. He presented to the emergency department 3 weeks later with the symptoms described above.

He appeared unwell with abdominal pain and discomfort. His observations were stable with a normal temperature on admission. His abdomen was distended with generalised tenderness and normal bowel sounds were present. There was no evidence of abdominal, inguinal or femoral herniae. A clinical diagnosis of subacute bowel obstruction was made but a plain abdominal film showed a normal gas pattern. The patient was treated conservatively with intravenous fluids and kept nil by mouth. The symptoms did not resolve and a CT scan of the abdomen was performed.

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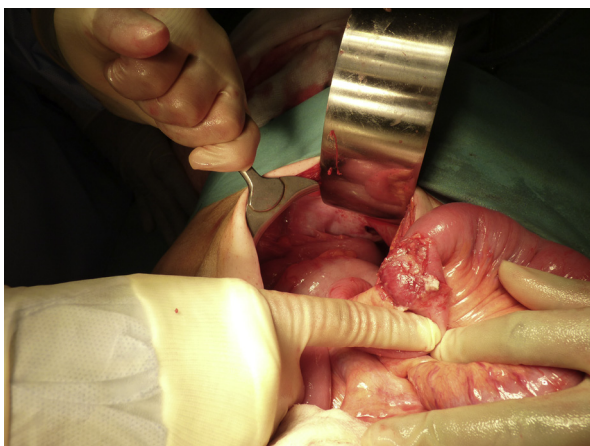
**Fig. 1.** Coronal view of a single CT scan slice without contrast showing dilated small bowel loops and possible subacute bowel obstruction.

After the initial period of conservative management without resolution of the symptoms, and confirmation of small bowel obstruction on CT, laparotomy was performed. The findings were of a loop of small bowel which had partially herniated into the bladder, forming a Richter's-type hernia (Fig. 1). The 3-centimetre hole in the bladder wall resulted from the iatrogenic perforation from the recent TURBT. The herniated loop was released and appeared viable; it did not require resection (Fig. 2). The defect in the bladder was surgically repaired with PDS sutures.

The patient developed a prolonged ileus postoperatively but made a good recovery. He was discharged on the 17th postoperative day.

### 3. Discussion

Bladder perforation is an unusual but recognised complication of pelvic surgery, including transurethral resection of bladder tumours.<sup>1</sup> Traumatic and spontaneous bladder ruptures occur



**Fig. 2.** Intra-operative view of bladder perforation where bowel had herniated into it causing obstruction.

occasionally.<sup>1</sup> Patients with a bladder perforation typically present with peritonitis and haematuria.

Internal herniae include: (1) those which occur in normal pockets, such as the foramen of Winslow, paraduodenal, paracecal, and intersigmoidal fossae; (2) those occurring in exaggerations of normal mesenteric folds, such as those in the broad ligament; (3) those resulting from traumatic or operative bands or adhesions; (4) those resulting from chronic inflammation; and (5) those which occur in anatomic defects. Herniation of the bowel into a defect in the bladder wall is a rare event with only 6 previous cases reported in the literature.<sup>2–5</sup> In these cases, the defect in the bladder was caused by spontaneous rupture, alcohol-related bladder injury and iatrogenic following total abdominal hysterectomy.<sup>5</sup> To our knowledge, this is the first reported case of intravesical herniation of the bowel into the bladder caused by iatrogenic perforation of the bladder during a TURBT. In previous cases, the patients presented with urinary problems including haematuria and inability to void urine. In cases reported by Yalla et al.<sup>2</sup> and Twemlow et al.<sup>5</sup> urinary symptoms were accompanied by some features of bowel obstruction. Our case showed features of subacute bowel obstruction, due to the hernia involving only part of the circumference of the small bowel wall.

A Richter's hernia occurs when there is protrusion and/or strangulation of only part of the circumference of the intestine's antimesenteric border through a defect in the abdominal wall. It is usually a femoral hernia. The hernia described in this case has been described as 'Richter's-type' as only part of the small bowel circumference was involved. The hernia was internal and the defect was in the wall of the urinary bladder rather than the abdominal wall.

### 4. Conclusion

In patients with complications of bladder wall defects, presentation may be delayed as bowel may seal the pathology. In patients with known bladder perforations who present with symptoms and signs of bowel obstruction, bowel herniation into the bladder should be considered. Early surgical intervention may be necessary if the patient is clinically unwell with appropriate symptoms and signs and imaging does not provide conclusive answer.

### Conflict of interest

Authors of this case disclose no conflict of interest.

### Funding

None.

### Ethical approval

Not applicable.

### Author Contributions

N. Sakai: data collection, analysis and writing.  
 V. Acharya: data collection, analysis and writing.  
 S. Mansour: data collection, analysis and writing.  
 M. Saleemi: data collection, analysis and writing.  
 S. Cheslyn-Curtis: data collection, analysis and writing.

### Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for the review of the Editor-in-Chief of this journal on request.

**Key learning points**

- In patients with complications of bladder wall defects, presentation may be delayed as bowel may seal the pathology.
- Intraperitoneal bladder perforations can be managed conservatively or operatively.
- Internal herniae should be considered in patients who present with signs of bowel obstruction.

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