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CASE REPORT

Transmesenteric small bowel herniation causing intestinal obstruction following laparoscopic transperitoneal nephrectomy

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Abstract In the field of urology, laparoscopic nephrectomy has become the most frequently performed laparoscopic procedure. Bowel-related complications are rare and predominantly ileus related. In addition, intestinal obstruction (IO) secondary to internal herniation is rarely documented. According to our review of the literature, only a few such cases have been reported worldwide. Here, we report a 72-year-old man with painless macroscopic hematuria. He was diagnosed with left renal cell carcinoma, and he subsequently underwent laparoscopic transperitoneal left radical nephrectomy. Two days following surgery, he developed acute IO. Computed tomography of the abdomen revealed dilated small bowel loops. Laparotomy revealed small bowel herniation via a sigmoid colon mesenteric defect. After reduction of the herniated bowel loops, the defect was closed using absorbable sutures. The patient was discharged 6 days later. Internal herniation is a rare cause of IO, accounting for $< 3\%$ of cases. It occurs due to creation of a transmesocolic defect during mobilization of the left colon, facilitating small bowel migration into a potential space in the renal bed. Generally, a meticulous dissection technique is used in such cases to avoid any unnecessary mesenteric tears and repair the evident mesenteric defects observed during the intraoperative period.

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1. Introduction

Laparoscopic nephrectomy (LN) was first performed by Clayman *et al*[1] in 1991 for a benign kidney disease. Since then, the laparoscopic technique has rapidly evolved and has been used for renal malignancies and live kidney donation. More extensive and complicated laparoscopic renal surgical procedures have been increasingly performed at several urological centers worldwide. The advantages of laparoscopy over open renal surgery have been clearly documented including reduced postoperative pain, shortened hospital stay, more rapid return to normal activities, and improved cosmoses. In the field of urology, LN, including simple nephrectomy, radical nephrectomy, donor nephrectomy, nephroureterectomy, and partial nephrectomy, has become the most frequently performed laparoscopic procedure. However, laparoscopic renal surgery is associated with unique challenges and complications compared with open renal surgery.[2] Such complications are increasingly uncommon because of increasing experience; for instance, bowel-related complications are $<$ 1% and predominantly ileus related.[3]

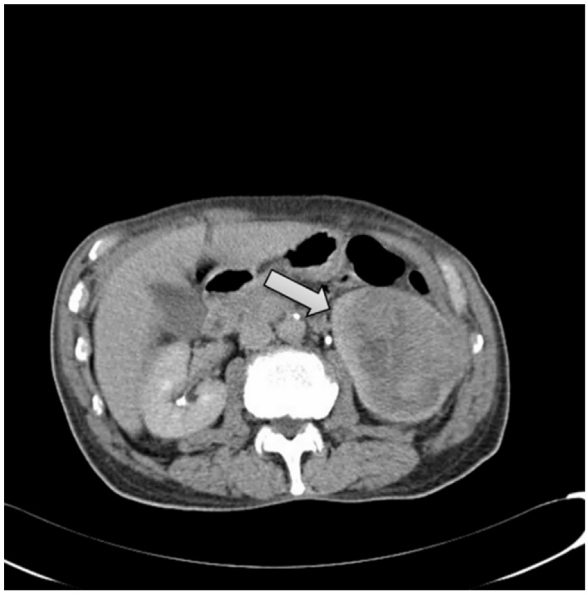
2. Case Report

A 72-year-old man with a chief complaint of painless macroscopic hematuria and considerable weight loss for 3 months was presented to us. The left loin mass was painless, and he did not have any other constitutional symptoms. A 4-phase computed tomography (CT) scan of the kidneys revealed an 8-cm large mass arising from the lower pole of the left kidney, probably indicating renal cell carcinoma (Figures 1A and 1B), an evident left renal artery and vein, and a minimal surrounding perinephric fat streakiness. The patient's blood investigation and chest X-ray results were normal. He underwent laparoscopic transperitoneal left radical nephrectomy, where the colon and splenic flexure were mobilized, ureter and gonadal vein were identified, and renal artery and vein were ligated. The left adrenal gland was preserved during nephrectomy. The immediate postoperative period was uneventful. However, on Day 2 of surgery, the patient complained of an acute-onset, abrupt, and early abdominal distension, and he was unable to pass stool.

Physical examination revealed a soft, mildly distended abdomen with no masses, rebound tenderness, and no guarding. The patient was hemodynamically stable, and routine blood tests, including complete blood count, liver and kidney functions, and serum amylase, were all normal. No causes for ileus, such as electrolyte imbalance, sepsis, or drug use, were identified; therefore, mechanical bowel obstruction was suspected. A contrast CT scan of the abdomen showed a transitional zone, suggesting mechanical obstruction with no collections (Figure 2). Therefore, laparotomy was performed on Day 3 following surgery. A 2-cm defect in the mesentery of the sigmoid colon was found, and the small bowel (ileum) was herniated through this defect, causing a constriction band near the ileum at $\sim$65 cm from the ileocecal junction. The small bowel proximal to the constricting ileal band was grossly dilated. The incarcerated bowel nonviable loops were reduced, resected, and primarily anastomosed. Subsequently, the defect was repaired with absorbable sutures. Following this, the patient's recovery was uneventful, and he was discharged 6 days later.

3. Discussion

The incidence of LN complications ranges from 5% to 8.2%.[4] Vascular injury is the most common complication, whereas



A

B

Figure 1 (A) Axial CT scan of the abdomen revealing a large mass (arrow) measuring 8 cm, arising from the lower pole of the left kidney, with features suggestive of renal cell carcinoma. (B) Coronal CT scan of the abdomen revealing a large mass (arrow) measuring 8 cm, arising from lower pole of the left kidney, with features suggestive of renal cell carcinoma. CT = computed tomography.