CASE REPORT

Small bowel obstruction due to retroperitoneal hernia following renal transplant: a case report

Atta Nawabi1,*, Adam C. Kahle1, Clay D. King2 and Perwaiz Nawabi2

1The University of Kansas, Department of Surgery, Kansas City, KS, USA and 2Third year medical student at the Kansas City University, Kansas City MO, USA

*Correspondence address. The University of Kansas, Department of Surgery, 3901 Rainbow Blvd, M/S 2005, Kansas City, KS 66160, USA. Tel: 913-486-0767; Fax: 913-588-6195; Email: anawabi@kumc.edu

Abstract

Para duodenal hernias, the most common type of retroperitoneal hernias, are thought to occur naturally from abnormal gut rotation because of fusion folds within the peritoneum. Retroperitoneal hernias are a rare postoperative complication and have not been described after renal transplantation via a retroperitoneal approach. This case report presents a 48-year-old male with intestinal obstruction after renal transplant due to herniation into the retroperitoneum via an incidentally created peritoneal defect. We suggest computed tomography with oral contrast be used in the early postoperative phase to assess for obstruction in patients with prolonged ileus of unclear etiology who have undergone retroperitoneal dissection. Small peritoneal defects should be closed during dissection. Larger, or multiple peritoneal defects should be extended to make a single, large defect to decrease the possibility of bowel herniating and becoming incarcerated.

INTRODUCTION

Early postoperative small bowel obstruction, defined as obstruction within 30 days of operation, is a relatively common postoperative complication with reported rates of occurrence between 0.7 and 24.2% [1, 2]. Retroperitoneal hernias are more rare and usually occur in natural fossa, like in Para duodenal hernias as first described by Treitz in 1857 [3]. However, there have been a handful of case reports with this complication after laparotomy due to defects created in the lateral and posterior colonic retroperitoneal attachments [4–6]. Operations performed solely in the retroperitoneal space, such as renal transplant, should theoretically avoid this complication as the intraabdominal space is not entered. However, creating small peritoneal defects is not uncommon during initial dissection while exposing the iliac vessels and developing the space for the graft. When recognized, these defects are often closed primarily with suture and experience no further complication, though there is a theoretical risk of intraabdominal contents herniating into the retroperitoneum if small defects are left unrecognized and not closed. To date, intestinal obstruction due to retroperitoneal hernia following renal transplant has not been reported in the literature.

CASE REPORT

A 48-year-old male with a history of end-stage renal disease secondary to hypertension and interstitial nephritis was admitted to our hospital to undergo a redo deceased donor renal transplantation (DDRT). His past surgical history was notable for a prior DDRT at another facility in 2011 that was complicated by rejection and, ultimately, graft failure requiring him to...
restarted hemodialysis. The physical exam at the time of admission was unremarkable. Standard preoperative labs and imaging were obtained and were within normal limits. The patient was induced with thymoglobulin and underwent DDRT with ureteroneocystostomy and stent placement using a right renal graft that was placed in the patient’s left hemipelvis due to his prior renal transplant in his right hemipelvis.

The patient’s hospital course was notable for a return of bowel function after cystectomy with ileal conduit and delayed return of bowel function. His renal function also improved. His diet was advanced. The patient was discharged home in stable condition on POD 15 with close follow-up arranged in the outpatient transplant clinic. However, the patient was then readmitted 2 days after his discharge due to abdominal pain and distention that required nasogastric tube placement and decompression on postoperative day (POD) 7. Due to a history of idiopathic gastroparesis, the department of gastroenterology was consulted, and metoclopramide was initiated. Workup by both the surgical and gastroenterology team included computed tomography (CT) imaging, esophagogastroduodenoscopy (EGD), small bowel radiograph series and endoscopic ultrasound. The patient’s CT was notable for an ileus vs. developing partial small bowel obstruction with scattered small volume pneumoperitoneum. His EGD was largely normal apart from a possible inverted duodenal diverticulum. Small bowel radiograph series demonstrated persistent obstruction, while his endoscopic ultrasound was normal. Total parenteral nutrition (TPN) was initiated on POD 13.

Eventually, the patient had a return of bowel function and his diet was advanced. His renal function also improved. The patient was discharged home in stable condition on POD 15 with follow-up arranged in the outpatient transplant clinic. However, the patient was then readmitted 2 days after his discharge due to increased abdominal pain and inability to tolerate oral intake. He was managed conservatively, and TPN was again initiated. He underwent CT imaging, which demonstrated a partial small bowel obstruction with a transition point in the left lower quadrant of the abdomen (Fig. 1). He was operatively explored and found to have a loop of small bowel herniated into the left retroperitoneal space through a peritoneal defect. A small bowel resection with staple-assisted side-to-side enterenterostomy was performed, and the hernia defect was closed primarily. He progressed well postoperatively and was discharged home in stable condition on POD 7.

**DISCUSSION**

Hernias involving musculoaponeurotic defects, as in umbilical or inguinal hernias, are common occurrences and should be very familiar to the general surgeon. In contrast, retroperitoneal hernias are not encountered as frequently. Paraduodenal hernias, the most common type of retroperitoneal hernias, are thought to occur naturally from abnormal gut rotation because of fusion folds within the peritoneum [7].

Retroperitoneal hernias acquired later in adulthood are usually associated with traumatic injuries or at the site of prior laparotomy and occur on an even more infrequent basis. Of the cases reported in the literature, defects in the lateral and posterior colonic retroperitoneal attachments appear to be the most common source [4–6]. Hendrickson et al. [5] reported a paracolonic hernia after the development of a retroperitoneal hematoma from anticoagulation in the treatment of a pulmonary embolism, and first shed light on this entity. Alkhoury and Martin [4] reported an incarcerated retroperitoneal herniation after abdominoperineal resection due to a defect in the left mesocolon. They noted that there had been some controversy in the colorectal field regarding closing peritoneal defects, but due to the potential for this type of hernia, they advocated for closure. Similarly, we advocate that small defects can be closed primarily with suture. However, if slightly larger or multiple defects are created, we suggest extending the defect to make a single, large defect. This
would, in essence, peritonealize the new graft and significantly decrease the chance of herniated bowel becoming incarcerated, leading to obstruction.

In conclusion, we suggest CT with oral contrast be used in the early postoperative phase to assess for obstruction in patients with prolonged ileus of unclear etiology who have undergone retroperitoneal dissection. We also underline the need for either closure or extension of peritoneal defects incidentally created during dissection to decrease the possibility of bowel herniating and becoming incarcerated.

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CONFLICT OF INTEREST STATEMENT
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CONSENT
Written informed consent was obtained from the patient for publication of this case report and accompanying images.

AUTHOR CONTRIBUTION
A.C.K. worked on the conceptualization, data curation, methodology, writing of original draft, review and editing. A.N. performed the validation, supervision, writing, review and editing of the manuscript. C.D.K. did the conceptualization, review and editing, and P.N. performed review and editing.

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