

A Case of Pelvic Floor Peritoneal Hernia after Miles' Surgery

Zhengwen Xu¹, Fugen Li¹, Meng Sun¹, Chuan Qian¹, Wenjun Luo^{1*}, Xiaorong Zhu^{2*}

¹Department of Gastrointestinal Surgery, Suining Central Hospital, Suining, China

²Department of Endocrine Metabolism, Suining Central Hospital, Suining, China

Email: *19065401@qq.com, *2278212246@qq.com

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Abstract

Objective: To investigate the causes and preventive measures of pelvic floor peritoneal hernia after transabdominal perineal radical resection of rectal cancer. **Patients and Methods:** A 68-year-old patient with progressive exacerbation of Miles' postoperative intestinal obstruction was retrospectively analyzed. Conservative treatment was ineffective, and surgery was performed again. Surgery confirmed that the obstruction was caused by a pelvic floor peritoneal hernia. The original reconstruction peritoneal suture needle spacing was too wide, resulting in peritoneal hiatus. **Results:** The early postoperative intestinal obstruction in this patient was not caused by inflammatory intestinal obstruction, stenosis of stoma, and intestinal adhesion, but by the formation of pelvic floor peritoneal hernia. **Conclusion:** Pelvic floor peritoneal hernia should not be ignored in the early stage of intestinal obstruction after Miles' operation. Improper suture during pelvic floor peritoneal reconstruction is the main cause of pelvic floor peritoneal hernia.

Keywords

Miles' Operation Pelvic Floor Peritoneal Hernia Intestinal Obstruction

1. Introduction

Acute intestinal obstruction is characterized by the complete and continuous cessation of the transport of substances and gases through any part of the digestive tract, and it is one of the main causes of acute abdomen. This paper attempts to clarify one of the causes of intestinal obstruction after Miles' operation: pelvic floor peritoneal hernia, as well as the causes and possible preventive measures.

2. Case Presentation

A 68-year-old male patient complained of repeated bloody stool for 2 months.

Colonoscopic biopsy: rectal adenocarcinoma. Blood routine, coagulation function and biochemical indexes were normal, CEA: 11.2 ng/L \uparrow . Preoperative abdominal CT and Pelvic MRI staging: T3N0M0.

On October 8, 2021, laparoscopy-assisted radical resection of abdominal perineal combined with rectal cancer and permanent colostomy. The pelvic floor was reconstructed by a continuous suture of the pelvic peritoneum with a barbed suture. On the 1st and 2nd postoperative days, there was no exhaust from the colostomy and no overflow of intestinal contents, and the abdominal colostomy was unobstructed. On the third day, the patient developed abdominal distension and paroxysmal abdominal pain.

CT scan of the abdomen (**Figure 1**) showed dilation, gas, and fluid in the small intestine, but no dilation, gas, or fluid in the ascending, transverse, or descending colon. The cause was considered to be postoperative inflammatory ileus and conservative treatment was adopted. After that, abdominal distension worsened. On October 15, 2021, abdominal CT (**Figure 2**) was examined again: the small intestine had an obvious expansion, gas accumulation and effusion, which was more serious than before. After carefully reading the CT, it was found that the small intestine at the end of the ileum did not expand by about 15 cm in both CT scans. It was considered that the terminal ileum entered the pelvic floor space through the pelvic floor peritoneal hiatus, resulting in intestinal incarceration and obstruction. After discussion, emergency surgery was performed. On the same day, an exploratory laparotomy was performed under general anesthesia. During the operation, it was found that the ileum entered the pelvic floor space through the pelvic floor peritoneal hiatus at a distance of 15 cm from the ileocecal part, resulting in intestinal obstruction and no intestinal necrosis. Pelvic peritoneal lysis, extraintestinal decompression, intermittent suture and pelvic floor peritoneal reconstruction were performed, and special attention was paid to the needle distance of no more than 0.5 cm. The bowel was protected from sliding into the pelvic floor through the peritoneal hiatus again, which may form an incarcerated obstruction. The patient recovered smoothly and was discharged on the seventh day.

3. Discussion

Early postoperative intestinal obstruction generally refers to the obstruction one month after operation [1]. The main reasons are as follows [2]: 1) Postoperative

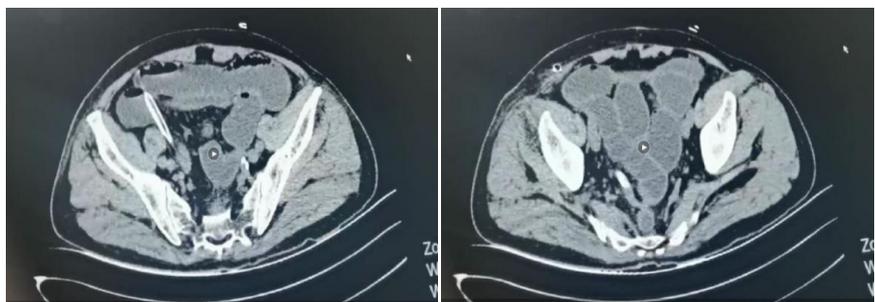


Figure 1. Abdominal CT image on the third day after rectal cancer surgery.

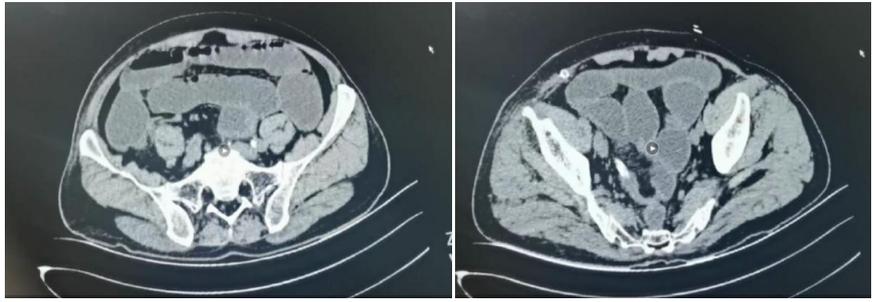


Figure 2. Abdominal CT image on the seventh day after rectal cancer surgery.

inflammatory pseudoileus; 2) The surgical wound of rectal cancer is large, if the wound hemostasis is not complete and the postoperative drainage is not complete, it is easy to lead to adhesion and intestinal obstruction; 3) In male patients with a narrow pelvis, the small intestine fell into the presacral space or the pelvic floor bowel folded into an acute angle after operation; 4) When the pelvic floor is reconstructed by closing the pelvic peritoneum, the fissure of the pelvic peritoneum is large, and the small intestine is herniated through the fissure of the pelvic peritoneum, resulting in intestinal incarceration and intestinal obstruction; 5) Pelvic drainage tube was placed to compress the small intestine. In recent years, with the progress of endoscopic instruments and surgeons' technology, laparoscopic radical resection of rectal cancer has been widely carried out [3], which makes it possible to have a very clear surgical field and no blood on the wound. The adhesion factors caused by rough wounds and bleeding are decreasing, and the possibility of postoperative adhesive intestinal obstruction is decreasing. For patients with early postoperative intestinal obstruction, we should pay attention to postoperative inflammatory intestinal obstruction and adhesive intestinal obstruction and other common causes. There was no improvement after medication and physical therapy. Abdominal CT showed distal ileum unfilled. Comparing the imaging data before and after, it was found that the obstruction site was unchanged, and it was determined that there was a pelvic floor peritoneal hernia. The operation confirmed that the distal ileum herniated into the pelvic peritoneum. The final cause of pelvic floor peritoneal hernia after the operation is the fissure of the pelvic floor peritoneal [4]. Then, what are the possible causes of tear formation after pelvic floor peritoneal reconstruction? For the following reasons, 1) When the pelvic peritoneum was sutured continuously, the degree of peritoneal tightening was limited, resulting in local peritoneal sliding; 2) The peritoneal tension is too high during suture, resulting in tear; 3) The suture with barb sutures the peritoneum. Because the peritoneum is too thin, the suture with barb does not well limit the local sliding of the peritoneum after suturing; 4) The increased intra-abdominal pressure resulted in excessive traction and tear of the sutured peritoneum; 5) Placement of a pelvic floor drainage tube through the peritoneum may leave potential holes. In this case, the peritoneum was sutured with an agnail suture, and no peritoneal cracks were found during suturing. Because the Barbed sutures cannot completely pre-

vent the thin peritoneum from sliding, local peritoneum fissures appear after peritoneum sliding. Early postoperative intestinal function recovery was poor, mild abdominal distention led to increased intra-abdominal pressure and enlarged pelvic peritoneal fissure, the distal ileum entered the pelvic floor space through pelvic floor peritoneum, forming pelvic floor peritoneal hernia, and the intestinal canal became compressed and swollen, finally leading to complete obstruction. Through the clinical diagnosis and treatment of this case, we believe that lessons should be learned. 1) Intermittent suture of pelvic peritoneum is effective; 2) When using barb suture for continuous suture, it needs to be fixed every 3 - 5 stitches; 3) The interval between two stitches is less than 5 mm during sewing; 4) Pelvic drainage tube is best placed outside the peritoneum; 5) The factors of intestinal obstruction and pelvic floor peritoneal hernia after pelvic floor peritoneal reconstruction can't be ignored, and the imaging data should be observed repeatedly.

4. Conclusion

In case of intestinal root obstruction during the perioperative period of Miles' operation, the existence of pelvic floor peritoneal hernia should be considered first. Once it is found that pelvic floor peritoneal hernia leads to intestinal root obstruction, it is advisable to decide to operate again as soon as possible. When reconstructing the pelvic floor peritoneum, that paying attention to the suture needle distance and adhering to intermittent suture are effective methods to prevent pelvic floor peritoneal hernia.

Conflicts of Interest

The authors declare no conflicts of interest.

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Abbreviations

CT = computer tomography, MRI = magnetic resonance imaging, CEA = carcinoembryonic antigen.