



Case report

A novel method for treating complete rectal prolapse with laparoscopic sigmoidopexy to the abdominal wall: A case report

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ABSTRACT

Introduction: The existing treatment methods for rectal prolapse still have problems in terms of their recurrence, invasiveness, and complications; hence, minimally invasive techniques with fewer recurrences and complications are necessary. We performed laparoscopic sigmoidopexy to the abdominal wall to treat complete rectal prolapse. **Presentation of case:** An Asian woman in her 80s presented with a complaint of constant faecal and urinary incontinence. She was diagnosed with a 4 cm complete rectal prolapse and underwent surgery. The sigmoid colon was tractioned laparoscopically and fixed to the abdominal wall. The patient had no intraoperative or post-operative complications, and her defaecation was well-controlled without recurrence for one year after surgery. **Discussion:** In this study, we performed laparoscopic sigmoidopexy to the abdominal wall with good results. **Conclusion:** This simple method, which requires only five sutures, can be a candidate treatment method for complete rectal prolapse.

1. Introduction

Complete rectal prolapse, which is a circumferential prolapse of the rectum from the anus, is common among elderly women and is associated with faecal incontinence [1]. The surgical methods for complete rectal prolapse include transanal surgery, such as the Altemeyer's method, Delorme's method, and Ganz-Miwa method, and trans-abdominal surgery, such as sigmoid fixation to the anterior sacrum and sigmoid colon resection. Hoore et al. reported that ventral rectopexy is a safe method with low recurrence rates [2]. In this method, the mesh is sutured to the anterior aspect of the rectum. Hence, a simple, safe, and reliable surgical method without mesh fixation for complete rectal prolapse is preferred.

To our knowledge, there are no reports of methods that fix the sigmoid to the abdominal wall. We performed abdominal wall fixation of the rectum using a laparoscope and reported a simple method that required approximately five sutures for sigmoidopexy, without exposing the sacral surface or using a mesh.

This report has been in line with the SCARE 2020 criteria [3].

2. Presentation of case

A female Asian patient in her 80s presented with a chief complaint of constant faecal and urinary incontinence with no other underlying medical conditions. Her Barthel Index and American Society of Anesthesiologists Physical Status (ASA-PS) classification scores were 85 and 1, respectively.

A complete rectal prolapse of 4 cm was observed, and colonoscopy clips were used for its evaluation. These were placed at the tip and anal verge level of the prolapsed bowel, and computed tomography colonography (CTC) was performed after the rectum was returned. The anal verge level clip (AV clip) and the tip of the evacuated bowel clip (Tip clip) were located at 2 cm and 5.5 cm from the anal verge, respectively (Fig. 1).

2.1. Operation

- (1) The sizes of the inserted camera ports were as follows: 12 mm at the umbilicus, 5 mm in the right upper quadrant, 12 mm on the right side of the abdomen, and 5 mm in the left lower quadrant.
- (2) Pneumoperitoneum was started at 12 mmHg. Stratified bending of the rectum under the retroperitoneum was observed.

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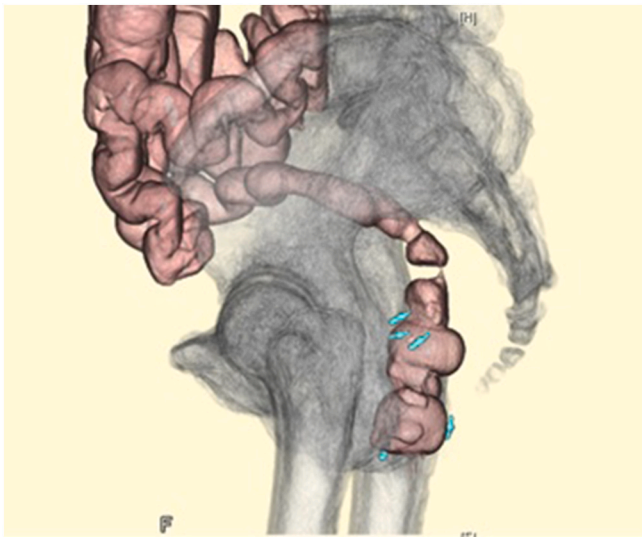


Fig. 1. A clip was placed at the tip of the prolapsed rectum and the level of the anal verge, and computed tomography colonography was performed after the rectum was returned. Stratified bending of the rectum was observed. Straining stratified bending was necessitated.

- (3) Only the peritoneum from the promontory to the peritoneal reflection was incised, and the sigmoid colon and rectum were mobilised.
- (4) The insufflation pressure was lowered to 3 mmHg to shorten the distance between the abdominal wall and colon, and the sigmoid colon was pulled cephalad ventrally. The abdominal wall fixation site was determined to straighten the rectum in the midline of the lower abdomen.
- (5) The insufflation pressure was returned to 12 mmHg, and a 3-0 proline was applied to the intestinal serosa muscle layer at the ventral side of the sigmoid colon closer to the rectum (Fig. 2).
- (6) A 2 mm incision was made on the skin at the determined site, and sutures were raised with Ideal Lifting© (Olympus, Tokyo, Japan) (Fig. 3).
- (7) After performing procedures (5)–(6) 5 times at 1 cm intervals (Fig. 4), the insufflation pressure was lowered to 3 mmHg, and the sutures were ligated and fixed. The port was removed, and the wound was closed.

Operative time and total blood loss were 133 min and small amount about 2 g, respectively.

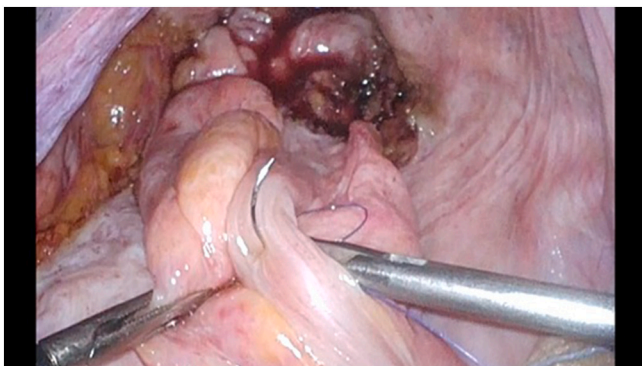


Fig. 2. Only the peritoneum was incised, and a 3-0 proline was applied to the intestinal serosa muscle layer of the sigmoid colon.

2.2. Postoperative course

The patient's bowel movements improved one day after surgery, and faecal incontinence was completely resolved. She had no constipation or straining, with a Bristol scale of approximately 4. In the one-year postoperative follow-up, the following were observed: the position of AV clip was AV 3.5 cm, the tip clip was located at AV 8.5 cm; elevation was maintained (Fig. 5), and no recurrence was observed.

3. Discussion

In this report, we performed laparoscopic sigmoidopexy to the abdominal wall for complete rectal prolapse with good results. Only five sutures were necessary for sigmoidopexy, and a mesh was not required. Abdominal wall fixation was easier than conventional methods, and no complications were observed in this case.

Complete rectal prolapse is defined as circumferential full-body intussusception of the rectal wall protruding outside the anal canal. The exact aetiology and pathogenesis of rectal prolapse require further elucidation. It may be related to chronic constipation, straining during defecation, pelvic floor history, dysfunction, perineal injury [4], anatomical abnormalities such as excessive sigmoid colon inclusion into the Douglas fossa, poor rectum fixation to the sacrum, and dilatation of the proctocoel muscle [5]. The surgical methods for complete supra-pubic prolapse are perineal and abdominal approaches. The trans-perineal approach does not require general anaesthesia and is relatively minimally invasive. Therefore, this is often performed in elderly or high-risk patients with underlying diseases. Perineal surgery has a high recurrence rate, which ranges from 14 % to 27 % within four years after surgery [6–8]. The Altemeyer operation has also been suggested to decrease postoperative rectal compliance.

The abdominal approach includes the Wells operation, sigmoid colon resection, and other techniques. Its recurrence rate is lower than that of the perineal approach due to the open or laparoscopic resection of the rectum, rectal fixation, and reinforcement of the pelvic floor and sphincter muscles. Additionally, mesh fixation may cause postoperative constipation [9]. The existing mesh fixation method involves fixation to the anterior surface of the sacrum, where the sacral venous plexus is located. However, there is a risk of bleeding, so extensive dissection of the dorsal surface of the rectum to secure the fixation surface is required.

Hoore et al. reported that ventral rectopexy was a safe method with low recurrence. In this method, the mesh is sutured to the anterior aspect of the rectum. We performed laparoscopic fixation of the sigmoid colon with only five sutures, without exposing the sacral surface or using mesh. The existing rectal fixation technique requires complete mesenteric dissection of the dorsal side of the rectum. However, our method only required elevation; hence, only an incision of the mesentery from the promontory angle to the peritoneal adaptation was required. The patient had no complications or recurrence at the one-year postoperative follow-up. There was improvement in constipation and defaecation control. However, this method is limited to patients who can undergo general anaesthesia.

Furthermore, there are concerns about the risk of small bowel obstruction due to the intraperitoneal strap and possible abdominal pain or laceration of the sigmoid colon with fixation, but these did not occur in the preceding case series of Colonoscopy-assisted percutaneous sigmoidopexy for 12 patients of sigmoid volvulus, which also fixed the sigmoid colon to the abdominal wall [10]. Future case series should be conducted to examine the incidence of complications.

4. Conclusion

We report the first case of laparoscopic sigmoidopexy to the abdominal wall for complete rectal prolapse. The results of this case were satisfactory enough to perform a case series study to confirm the lower recurrence rate and complications.

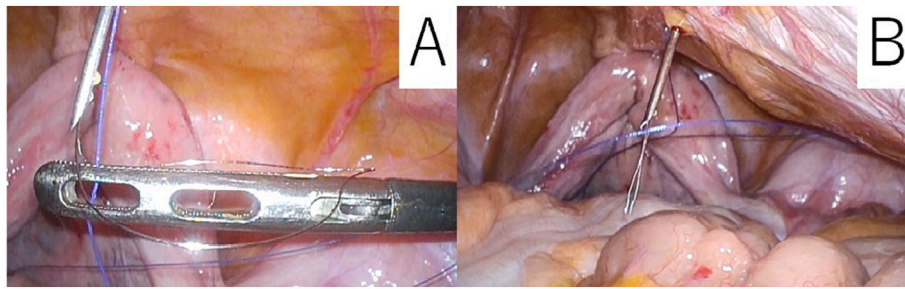


Fig. 3. A: The puncture needle was inserted through a small incision and the snare was inserted internally. The suture was threaded through the snare. B: The suture was grasped by retracting it into the puncture needle, the puncture needle was removed and the suture was led out of the abdominal cavity.

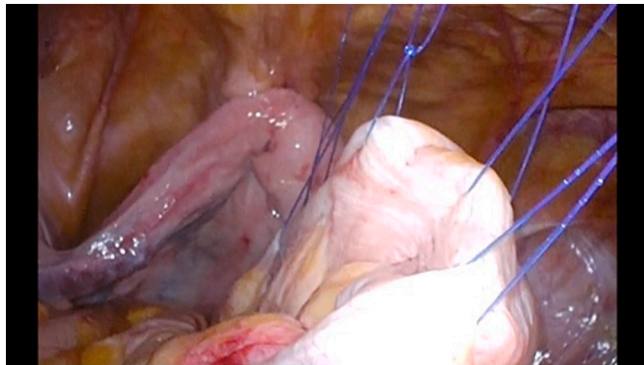


Fig. 4. Five stitches were used for suturing. Afterwards, the insufflation pressure was lowered to 3 mmHg, and each thread was ligated.

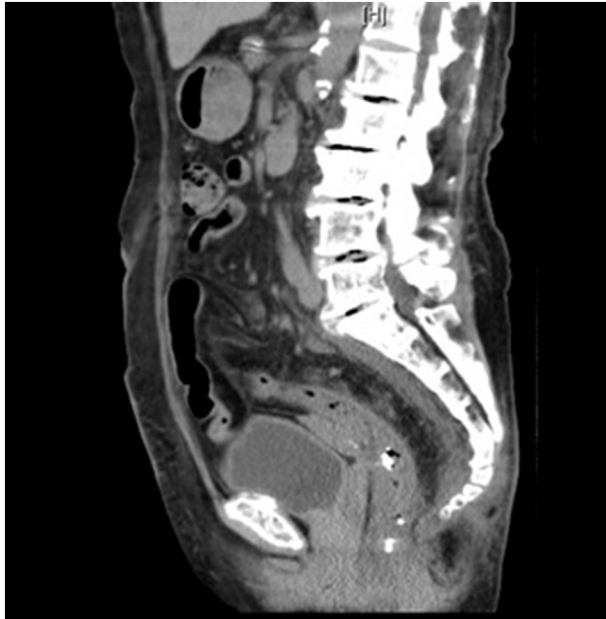


Fig. 5. The sigmoid colon to the rectum was found to be fixed, straightened, and elevated postoperatively.

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We have no sponsors.

Ethical approval

This study has been exempted by our institution.

Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Author contribution

JT: study design, data collection, data analysis, writing.
 MY: critical revision
 YS: final approval of the article
 Any other authors: study design, data collection
 All authors read and approved the final manuscript.

Registration of research studies

This paper is case report. The authors don't need to register this work.

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Provenance and peer review

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Declaration of competing interest

There are no conflicts of interest.

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