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タイトル	Laparoscopic Suture Rectopexy for Treatment of Refractory Full Thickness Rectal Prolapse in 5 Patients Aged 90 100 Years
作成者（著者）	Funahashi, Kimihiko / Kurihara, Akiharu / Ushigome, Mitsunori / Kagami, Satoru / Suzuki, Takayuki / Koda, Takamaru / Kimura, Kazutaka / Koike Junichi / Shiokawa, Hiroyuki / Imamura, Shigeki / Miura, Yasuyuki / Kaneko, Tomoaki
公開者	The Medical Society of Toho University
発行日	2017.6
ISSN	21891990
掲載情報	Toho Journal of Medicine. 3(2). p.66 70.
資料種別	学術雑誌論文
内容記述	Case Report
著者版フラグ	publisher
JaLCDOI	info:doi/10.14994/tohojmed.2016.028
メタデータのURL	https://mylibrary.toho u.ac.jp/webopac/TD23578473

Case Report

Laparoscopic Suture Rectopexy for Treatment of Refractory Full-Thickness Rectal Prolapse in 5 Patients Aged 90 – 100 Years

Kimihiko Funahashi Akiharu Kurihara Mitsunori Ushigome
 Satoru Kagami Takayuki Suzuki Takamaru Koda
 Kazutaka Kimura Junichi Koike Hiroyuki Shiokawa
 Shigeki Imamura Yasuyuki Miura and Tomoaki Kaneko

Division of General and Gastroenterological Surgery, Department of Surgery, School of Medicine,
 Faculty of Medicine, Toho University

ABSTRACT: Full-thickness rectal prolapse (FTRP) is common among elderly adults and greatly impairs quality of life. We report successful use of laparoscopic suture rectopexy to treat FTRP in 5 patients aged 90 – 100 years.

The median age of patients was 92 years (range, 90 – 100 years). Three of the 5 patients had recurrent FTRP that was previously managed by a transperineal procedure. All patients had massive protrusion of the rectal wall (range 50 – 150 mm), and FTRP greatly adversely affected quality of life. No severe comorbidities were noted in any patient preoperatively. All patients had an American Society of Anesthesiologists physical status classification of II.

Laparoscopic suture rectopexy for all patients was selected after consultation with anesthesiologists. Although there were no deaths, medical complications were observed in 3 patients: 2 developed mild heart failure (Clavien-Dindo classification, grade I) and one had aspiration pneumonitis (Clavien-Dindo classification, grade III). There were no complications associated with laparoscopic suture rectopexy. All patients were able to return home after surgery.

Our experience suggests that laparoscopic suture rectopexy without resection is beneficial for selected patients older than 90 years who are active and in good general health. However, when treating very elderly patients, cautious evaluation of operative risks and careful perioperative management are required in order to avoid surgical complications.

Toho J Med 3 (2): 66–70, 2017

KEYWORDS: refractory full-thickness rectal prolapse, very elderly, laparoscopic suture rectopexy

Full-thickness rectal prolapse (FTRP) is the term used to describe complete circumferential protrusion of the rec-

tal wall through the anus. FTRP frequently develops in the elderly and greatly impairs quality of life (QOL). A

Table 1 Patient characteristics

No.	Sex	Age (years)	BMI (kg/m ²)	Comorbidities	Past history *	Distance of protrusion (mm)	PS	ASA PS
1	F	90	21.4	None	PPH	50	2	2
2	F	90	18.0	Arrhythmia	Thiersch	70	3	2
3	F	100	17.3	Arrhythmia	GM	80	4	2
4	F	92	15.0	Hypertension	None	150	3	2
5	F	92	23.2	Hypertension	None	75	3	2
Median		92	18.0			75		

*Surgery for rectal prolapse

BMI: body mass index, PPH: procedure for prolapse and hemorrhoids, GM: Gant-Miwa procedure, PS: performance status, ASA PS: American Society of Anesthesiologists physical status

number of surgical procedures are used to treat rectal prolapse, because surgery is the most effective treatment. Recently, laparoscopic rectopexy has emerged as an effective procedure for treatment of FTRP, as it is associated with less pain, shorter hospital stays, and faster recovery. Recent studies in Western countries reported that laparoscopic surgery was suitable for treatment of FTRP in elderly patients.¹⁻³⁾ The average life span of Japanese women was greater than 87 years in 2015. The Japan Geriatrics Society proposes that people older than 90 years should be regarded as “very elderly”, and laparoscopic rectopexy may be beneficial for this population.⁴⁾ In this report, we describe the successful use of laparoscopic suture rectopexy to treat refractory FTRP in 5 very elderly patients.

Methods

The characteristics of the patients are shown in Table 1. All patients visited our center complaining of a defecation disorder associated with protrusion of the rectal wall through the anus. FTRP was diagnosed on inspection. Three of the 5 patients had recurrent FTRP that had been previously managed with a transperineal procedure, including procedures for prolapse and hemorrhoids and the Gant-Miwa and Delorme procedures. Protrusion of the rectal wall ranged from 50 – 150 mm, and there was no evidence of incarceration in any patient. Although patient activities of daily living (ADL) were originally high, ADL was greatly impaired in all patients after development of FTRP. Performance status (PS) on admission was grade 2 in 4 patients and grade 3 in 1 patient. We elected to perform rectopexy, a more radical treatment for FTRP. The patients did not have severe comorbidities: 2 had arrhyth-

mias, 2 had hypertension, and 1 had no comorbidities. After consulting anesthesiologists regarding the operative risks of laparoscopic suture rectopexy, we ultimately selected this procedure and a transabdominal approach.

This case series was approved by the ethics committee of Toho University Medical Center, Omori Hospital (No. M-16191).

Surgical technique

Patients were placed in the lithotomy position. We placed 5 ports in the abdomen: three 5-mm ports, a 12-mm port, and a camera port. First, we mobilized the sigmoid colon with a lateral approach, after which the sigmoid colon and rectum were separated from the retroperitoneal structures. Then, we mobilized the rectum to the level of the levator ani muscle by using the LigaSure™ vessel sealing system (Covidien, Minneapolis, MN, USA). Laterally, the hypogastric plexus and neurovascular bundles were preserved, but the lateral ligaments were transected. Anteriorly, dissection was performed at the level of the rectovaginal septum. The mesorectum was separated from the levator ani muscle, caudally, as far as the coccyx bone. Then, an assistant lifted the rectum to a position suitable for rectopexy, and we anchored the rectum to the sacral promontory with three 2 – 0 polypropylene sutures at 3 points. To avoid infection we did not resect the sigmoid colon or use mesh. Reperitonealization of the pelvis was not performed. Drains were not used. All skin incisions were closed with absorbable sutures (Fig. 1).

Results

Short-term operative outcomes are summarized in Table 2. There were no conversions. Median operative time

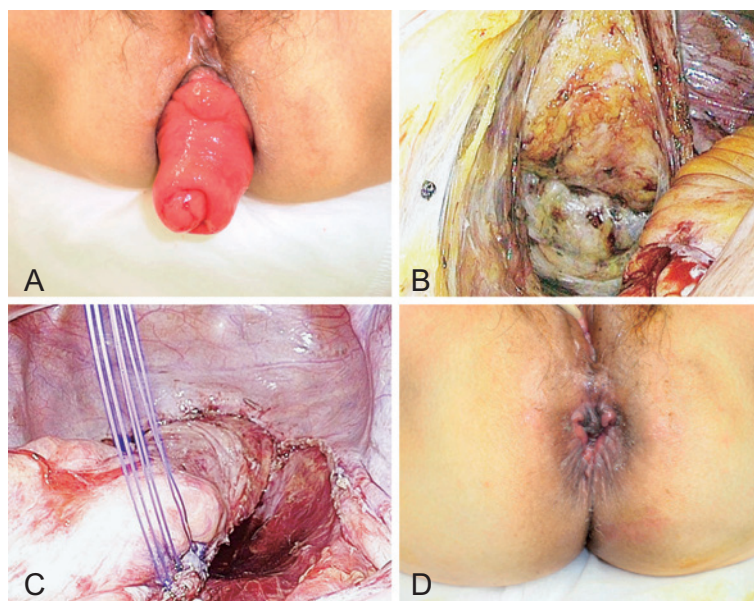


Fig. 1 Laparoscopic suture rectopexy for full-thickness rectal prolapse. A patient with full-thickness rectal prolapse (A). The rectum is mobilized to the level of the levator ani at the posterior aspect of the rectum (B). The rectum is anchored to the sacral promontory with three 2-0 polypropylene sutures (C). Full-thickness rectal prolapse treated by laparoscopic suture rectopexy (D).

Table 2 Surgical results

No.	Conversion	Bleeding volume (ml)	Operation time (min)	Complications, surgical	Complications, medical	Hospital stay (days)	Follow-up period (days)	Recurrence	Postoperative ADL
1	N	50	216	N	N	7	1338	N	0
2	N	0	171	N	N	11	244	N	0
3	N	0	183	N	Heart failure	19	124	N	1
4	N	0	275	N	Aspiration pneumonia	35	19	N	0
5	N	0	142	N	Heart failure	14	34	N	0
Median	-	-	183	-	-	14	124	-	-

N: none, ADL: activities of daily living

was 183 minutes (range, 142 – 275 minutes). Although 3 of 5 patients (60%) had postoperative complications, only 1 patient developed a grade 3 complication according to the Clavien-Dindo classification. Two patients (cases 3 and 5) developed heart failure that was treated with diuretics alone, and patient 4 developed aspiration pneumonitis and required a temporary tracheotomy to manage sputum. Median hospital stay was 14 days (range, 7 – 35 days). All patients were ambulatory at hospital discharge. There has been no recurrence during a median follow-up period of 4

months (range, 19 – 1338 days).

Discussion

Although the present patients were very elderly (age 90 – 100 years), they all had a high ADL level before FTRP and had been living comfortably without the help of others. However, refractory FTRP greatly impaired ADL, and they needed the help of others to perform routine activities. To allow them to regain their independence a more radical treatment was considered. After consultation

with anesthesiologists, we decided that laparoscopic rectopexy was the best choice for these very elderly patients with FTRP.

Traditionally, most surgeons believe that operative risk is too high for elderly patients and therefore offer less invasive procedures to this population.^{5,6)} In addition, a Cochrane systematic review found that a laparoscopic approach resulted in fewer postoperative complications and shorter hospital stays, as compared with an open approach.⁷⁾ In the treatment of FTRP, a perineal approach such as the Delorme or Altemeier procedure is usually chosen, to avoid the risk of complications associated with general anesthesia and laparotomy. However, 3 of the 5 patients in our series had recurrent FTRP that had been previously treated with a transperineal procedure. FTRP was refractory in the present patients because protrusion of the rectal wall ranged from 50 to 150 mm. We therefore selected the more radical laparoscopic suture rectopexy without resection. Compared with a perineal approach, an abdominal approach has advantages, such as a lower recurrence rate, but there have been no randomized controlled trials comparing these approaches.^{8,9)} In addition, laparoscopic suture rectopexy without resection is a less invasive technique and avoids infections associated with mesh use. The use of this procedure for treatment of rectal prolapse was first described by Sudeck in 1922. Studies of suture rectopexy reported a morbidity rate of 0% to 16%,¹⁰⁻¹³⁾ no deaths, and a recurrence rate of 2% to 9%.¹⁴⁾ In this series, we were able to perform suture rectopexy laparoscopically in all patients. There were no deaths. Although there were no complications associated with laparoscopic suture rectopexy, the rate of postoperative medical complications was high (60%; 3 of 5 patients). One patient developed aspiration pneumonitis postoperatively, which was successfully managed. Two patients developed mild heart failure, which was treated by diuretics alone. Ultimately, all patients were able to return home after surgery. For patients older than 90 years, factors significantly associated with mortality were emergency surgery, an American Society of Anesthesiologists classification of III or higher, bedridden status, medical history (>4 associated organ defects), and malignant disease.¹⁵⁾ In addition, need for a non-elective procedure, open surgery, and presence of advanced malignant disease were significantly associated with morbidity.⁴⁾

In our series, there was no recurrence, although the follow-up period was relatively short (median, 4 months;

range, 19 – 1338 days). A previous study reported a high rate of recurrence 10 years after laparoscopic suture rectopexy,¹²⁾ which suggests our patients require longer follow-up. Although ADL was greatly impaired in our patients after FTRP development, all patients returned to satisfactory QOL. Postoperatively, 4 patients had a PS of 0 and 1 had a PS of 1. However, posterior rectal mobilization and lateral ligament in the pelvic resection in this procedure are likely to cause postoperative constipation, the severity of which should be evaluated.^{7,16)} The present patients will need to be monitored for several years in order to evaluate the outcomes of this procedure for refractory FTRP.

No previous study has evaluated the feasibility of laparoscopic suture rectopexy for very elderly adults, but our experience suggests that this procedure is beneficial for patients older than 90 years who are active and in good general health. However, surgeons should carefully evaluate the ability of such patients to tolerate such surgery and focus on perioperative management, to avoid unexpected complications.

Conflicts of interest: The authors have no conflicts of interest to disclose.

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