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ORIGINAL ARTICLE

Laparoscopic Ventral Mesh Rectopexy in Patients with Full Thickness Rectal Prolapse: Our Experience

Tam Kat Rektal Prolapsus'lu Hastalarda Laparoskopik Ventral Mesh Rektopeksi Deneyimlerimiz

[1]Ramazan Saygın Kerimoğlu

[1]Konya City Hospital, Department of Gastrointestinal Surgery, Konya/TURKEY

Correspondence

Ramazan Saygın Kerimoğlu, Konya City Hospital, Department of Gastrointestinal Surgery, Akabe Street, Karatay-Konya/TURKEY

E-Mail: saygin_k@yahoo.com

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ABSTRACT

Objective: The gold standard method for the treatment of rectal prolapse is still unclear. This study aims to share the results of patients who underwent laparoscopic ventral mesh rectopexy surgery for rectal prolapse.
Design: Only cases who underwent laparoscopic procedure were included in the study.
Subjects/Patients: A total of 22 patients who were operated for rectal prolapse were analyzed.
Methods: The patient's data were evaluated including preoperative data, postoperative course and recurrence.
Results: Complications were observed in 6 patients in the early postoperative period (p=0.077). Complications observed in two patients, which resolved spontaneously during follow-up with minimal bleeding and postoperative ileus. Mean follow-up time was 16 months. There was no recurrence or mortality during this period.
Conclusion: Laparoscopic ventral mesh rectopexy still maintains its importance as one of the most effective options in the treatment of rectal prolapse, due to its high success rates, rapid and permanent resolution of clinical symptoms, and the positive effects of laparoscopy on quality of life.

Keywords: Rectal prolapse, laparoscopic surgery, mesh, recurrence

ÖZ

Amaç: Rektal prolapsus için optimal cerrahi yöntem halen netleşmemiştir. Bu çalışma, tam kat rektal prolapsus nedeniyle laparoskopik ventral meş rektopeksi cerrahisi uygulanan hastaların sonuçlarını paylaşmayı amaçlamaktadır.
Yöntem: Rektal prolapsus nedeniyle opera edilen 22 hasta incelendi. Hastalar, preoperatif veriler, postoperatif iyileşme dönemi ve nüks açısından değerlendirildi.
Bulgular: Tüm operasyonlar laparoskopik olarak yapıldı. Hastaların 6'sında erken postoperatif dönemde komplikasyon gelişti. (p=0.077). Erken postoperatif ileusu ve minimal kanaması olan 2 hastada takipte ek girişime ihtiyaç olmaksızın düzeldi. Ortalama takip süresi 16 ay idi. Bu dönemde nüks veya mortalite olmadı.
Sonuç: Laparoskopik ventral meş rektopeksi, klinik semptomların hızlı ve kalıcı çözümü ve laparoskopinin yaşam kalitesi üzerindeki olumlu etkileri nedeniyle rektal prolapsus tedavisinde en etkili seçeneklerden biridir.

Anahtar Kelimeler: Rektal prolapsus, laparoskopik cerrahi, meş, rekürrens

Introduction

Rectal prolapse is identified as full thickness protrude of the rectum out of the anal canal. Although the etiology of rectal prolapse has not been fully clarified, redundant sigmoid colon, levatory ani diastasis, anal sphincter pathologies and weakness of recto-sacral ligaments are considered as the most likely causes in the pathogenesis (1).

The incidence of rectal prolapse in female to male ratio is 6/1. In females, it reaches its peak towards the 7th decade (2,3). Depending on the degree and type of prolapse in patients was seen some complaints including rectal bloating, tenesmus, anal incontinence, constipation, mucous discharge, and bleeding can be seen. Fecal incontinence is seen in approximately 50-75% of patients and constipation is observed in 25-50% of them (4,5).

The aim of rectal prolapse treatment is to treat anatomical and functional abnormalities that cause incontinence and constipation. This can be ensured by 1) hanging of the rectum and/or 2) resection of the prolapsed section. The procedure can be performed by the transanal/perineal or transabdominal route (6). Transabdominal repairs are the gold standard treatment options due to low recurrence rates. Recently, abdominal approaches are performed laparoscopically because of their known advantages. There are several procedures described for laparoscopic mesh rectopexy (6-8). In comparative studies and Cochrane meta-analyses, laparoscopic ventral mesh rectopexy (LVMR) was seen to be a more effective procedure than others (1,4). However, the cost-effective results of these procedures are still unclear. This study aims to share the results of patients who underwent LVMR surgery for rectal prolapse.

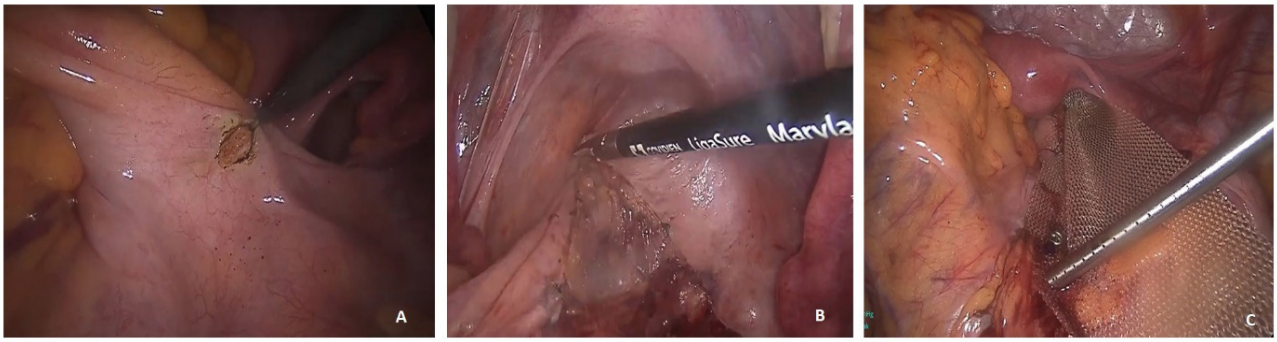

Fig 1. 'J' shaped peritoneal incision extending from the promontorium to the anterior peritoneal reflection (A), Accessing the rectovesical and rectovajinal/prostatic space by preserving the right ureter and hypogastric nerves without posterior dissection (B), Fixing the prolene mesh with prolene sutures first to the anterior rectum wall, and then to the promontorium using a tacker (C).

Material and Methods

Study Plan

A total of 22 patients who were rectal prolapse surgery between December 2019 and January 2022 were included in this retrospective study. Patient data were obtained from the hospital automation system and patient archive records. Two patients who underwent resection rectopexy, one patient whose perineal rectal prolapse was primary repaired due to serious comorbidities, 4 patients with solitary rectal ulcer syndrome with internal prolapse and 2 patients with rectal prolapse accompanied by rectocele were excluded from the study. Data of 13 patients were evaluated.

Preoperative Evaluation

Detailed medical histories of all patients were taken. The complaints, duration and toilet habits of the patients were recorded. In addition to detailed anal examinations, general physical examinations of all patients were performed. All patients underwent colonoscopy to exclude redundant colon and other colorectal pathologies. Manometry, defecography and measurement of colonic emptying time could not be applied to all patients due to technical difficulties.

Surgical Procedure

All operations were performed in the modified Lloyd Davies position. Four ports were used in the operations. One 10 mm port for optics above the umbilicus; 10 mm and 5 mm ports in the right lower quadrant and 5 mm port in the left lower quadrant were placed. If necessary, another 5 mm port was placed in the suprapubic region. After entering the abdomen, a 'J' shaped peritoneal incision was made from the right side of the promontory extending to the anterior reflection of the peritoneum. Right ureter and hypogastric nerves were preserved. Then, a 15x3 cm prolene mesh was fixed to the anterior surface of the rectum with a 3/0 prolene suture, and then to the promontory with a tacker proximally. After hemostasis, the previously opened peritoneum was then reapproximated to completely cover the mesh, and the operation was terminated (Figures 1A, 1B and 1C).

Statistical Analysis

Data were obtained using the SPSS 15.0 packet program. Chi-square test was used to compare categorical variables. Student t test was used to compare the means of two independent groups.

Results

In this retrospective analysis, 8 out of 13 patients were male, with a mean age of 54 (range, 19-73). Demographic data of the patients are given in Table 1. The most common symptom in the patients was constipation (10 patients, 76.9%) and the number of patients with multiple symptoms was 4 ($p<0.001$).

Data about the surgical procedure of the patients and information about the complications observed in the postoperative period are given in Table 2. The median operative time was 153 minutes. There was no conversion to open surgery related to any per-operative complication in any of the patients. Complications occurred in 6 patients in the early perioperative period ($p=0.077$). Primary repair was performed in one patient who had an intraoperative bladder injury, one patient with wound infection recovered after broad-spectrum antibiotic therapy, Urinary retention in 2 patients, early postoperative paralytic ileus and minimal bleeding in 2 patients resolved spontaneously after follow-up. The mean long-term follow-up period was 16 months and there was no recurrence or mortality in this period. Late complications occurred in 2 patients ($p=0.277$), Laparoscopic bridectomy was performed in one patient with late ileus due to adhesion. Constipation was recurred in 1 patient.

Table 1. General demographic data

Data		n/%	p
Gender (n/%)			<0.001
	Male	8 (61.5%)	
	Female	5 (38.5%)	
Age (years) (median)		54 (19-73)	
BMI (median)		22 (18-30)	
Symptoms (n/%)			<0.001
	Constipation	10 (76.9%)	
	Incontinence	3 (23.1%)	
	Bleeding	1 (7.7%)	
	Mucous rectal discharge	2 (15.4%)	
	Multiple	4 (30.8%)	

Table 2. Operative process and postoperative complications

Features		n/%	p
Operative process			
	Mean operating time (min.)	153 (70-220)	
	Mean hospital stay (days)	1.3 (1-4)	
	Conversion to open surgery (n/%)	0	
Mean follow-up time (months)		16 (8-25)	
Early Complications (n/%)			0.077
	Urinary retention	2 (15.4%)	
	Wound infection	1 (7.7%)	
	Early paralytic ileus	1 (7.7%)	
	Bleeding	1 (7.7%)	
	Close organ injury	1 (7.7%)	
Late Complications (n/%)			0.277
	Recurrence	0	
	Delayed ileus	1 (7.7%)	
	De-novo constipation	1 (7.7%)	
	Mortality	0	

Discussion

In this study, data of 13 patients who underwent LVMR surgery for full-thickness rectal prolapse were presented and it was concluded that LVMR is a highly effective treatment option in rectal prolapse.

The definite etiology of rectal prolapse is yet unclear. Etiologic factors may be congenital or acquired, and involve poor bowel habits, neurological disorders, female gender, and previous anorectal surgery. Anatomical pathology that causing of rectal prolapse include prolapsed sigmoid colon, levator ani diastasis, anal sphincter pathologies and weakness of the rectosacral ligaments (9,10).

Rectal prolapse is seen in women especially and its incidence increase with age. It reaches peak levels in the seventh decade (2,3). This protrusion can be reduced spontaneously or by manual intervention. Fecal incontinence is seen in approximately 50-75% of patients and constipation is observed in 25-50% (4,5). Less frequent presenting symptoms include tenesmus, mucus discharge, hemorrhage, and pain (11). Chandra et al. (12) in their retrospective study involving 15 patients, found that the female gender was higher, and the mean age was 50. In addition, they found that the rates of incontinence and constipation in the patients were close to each other, while they found that the majority of the patients had redundant colon. In the series of 75 cases by Hammond et al. (11) which has almost the highest volume of patients in the literature, the number of women with rectal prolapse was found to be 10 times more than men. In addition, in this study, the mean age was 60.8 years and the most common symptom was a protruding rectal mass, and the rate of fecal incontinence was found to be 39%. In our study, median age of patients is 54. Contrary to the literature data, male gender was higher (8 vs 5 patients) ($p<0.001$). The most common symptoms in patients are constipation (76.9%) and fecal incontinence (%23.1).

Nowadays, many surgeries are performed laparoscopically in line with increasing technological developments and innovations. The duration of hospital stay and return to work of patients are shortened. Likewise, transabdominal repairs required for rectal prolapse are often performed laparoscopically. In the study by Hammand et al. (11) which included both abdominal and perineal repairs, the mean hospital stay was 3±2.5 days and the hospital stay was shorter in perineal repairs. In the LVMR series by Chandra et al. (12) they found the mean operative time to be 200 min (180-310 min) and the mean hospital stay to be 4 days (3-21 days). Similarly, Naeem et al. (2) found the mean operative time to be 150 min and the mean hospital stay to be 3 days (2-11 days). In addition, in the same study, they found the rate of conversion from laparoscopy to open surgery as 6.4%. In our study, mean operation time was 153 minutes (70-220) and the mean hospital stay was 1.3 days (1-4 days). The operative time was similar to the data in the literature, and the hospital stay was shorter than the data in the literature. This may be attributed to the recent emphasis on recommendations in studies on early discharge.

In rectal prolapse surgeries, complications are possible due to colorectal region anatomy (narrow

pelvis, redundant colon, etc.) and physiology (clean-contaminated, contaminated area, etc.) and close organ neighborhoods (such as major vascular structures, ureter and bladder). In a study of 15 cases by Chandra et al. (12) iatrogenic injury was observed in 1 patient, urinary retention in 1 patient, and surgical site infection in 2 patients. Complications of similar type and frequency were also seen in the study of Naeem et al. (2). No data on mesh-related complications were found in any study. Urinary retention in 2 patients, wound infection in 1 patient, early paralytic ileus in 1 patient, minor bleeding in 1 patient, and iatrogenic injury in 1 patient were observed in our study, consistent with literature data.

In the literature, it is seen that patients are followed up for a long time in order to fully reveal conditions such as recurrence and de-novo constipation, which indicate the success or failure of the surgery. Chandra et al. (12) followed-up the patients who underwent LVMR for an average of 22 months, and they did not detect any recurrence, de-novo constipation and incontinence in any patient during this period. Naeem et al. (2) detected recurrence in 1 patient (3.2%) and prolonged ileus in 2 patients (6.4%) at the end of an average follow-up period of 6-18 months, but they did not see de-novo constipation. In our study, delayed ileus was observed in 1 patient and de-novo constipation was observed in 1 patient during the mean follow-up period of 16 months. However, no recurrence was observed.

Studies involving fecal incontinence data have reported that LVMR is associated with greater improvement in constipation and faster resolution of symptoms compared to procedures involving lateral and posterior rectal dissection. Functional results of the patients in our study were consistent with these studies in the literature, pre-existing constipation resolved in most patients, and de-novo constipation did not develop in any patient (13-15).

In conclusion, LVMR maintains its importance as one of the most effective options in the treatment of rectal prolapse due to its high success rates, rapid and permanent resolution of clinical symptoms, and positive effects of laparoscopy on quality of life. Before treating the prolapse, a thorough evaluation is essential to distinguish whether the prolapse is due to constipation or other pelvic floor diseases. Thus, the appropriate surgical option and multidisciplinary treatment support can be adjusted as needed. In addition, patients should be informed and counseled that not all damaged functions can be restored by surgery. Currently, it seems reasonable to recommend laparoscopic procedures to eligible patients.

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Conflicting of Interest

All authors declare no conflict of interest and financial relationships. This article, either in full or in part, has not been previously published or is not being assessed for publication in either printed form or as digital media.

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