ORIGINAL ARTICLE

Laparoscopic Suture Versus Posterior Mesh Rectopexy for Surgical Treatment of Internal Rectal Prolaps

Mohamed A. Elkordy, Mohamed H. El-kasser, Mohamed A. Elshiek *

Department of General Surgery, Faculty of Medicine for Boys, Al-Azhar University, Cairo, Egypt

Abstract

Background: ***When the entire thickness of the rectum protrudes into the anal canal, this condition is called rectal prolapse. Internal rectal prolapse, also known as rectal intussusception, occurs when the prolapsed rectal wall does not extend into the anus.***

Aim and objectives: ***In order to evaluate the efficacy of laparoscopic suture (LS) vs posterior mesh rectopexy (LPMR) in addressing obstructed defecation and internal rectal prolapse.***

Patients and methods: ***Researchers from the Al-Azhar Faculty of Medicine's research ethics committee gave their stamp of approval to this prospective study (MS 10-2023), which took place in the hospital's General Surgery Department. Thirty patients were enrolled in the trial with the intention of undergoing a 6-month post-operative follow-up from January 1, 2023, to April 1, 2024, for the treatment of internal rectal prolapse with ODS that had not responded to constitutional and medicinal interventions.***

Results: ***At 6 and 12 months, there was a statistically significant difference between the groups when it came to squeeze anal pressure, first sensation, first urge, and intense urge defecation, but there was no difference when it came to resting anal pressure.***

Conclusion: ***Despite LS's decreased laxative reliance, LPMR had a shorter operation time and better squeezing anal pressure, first sensation, initial urge, acute urge defecation, and modified Longo score. But, there were some caveats to our study, including a smaller sample size.***

Keywords: LS; LPMR; Internal rectal prolaps

1. Introduction

Rectal prolapse is a situation in which the rectum protrudes into the anal canal. A deepening of the Douglas pouch, levator ani diastasis, an excessively mobile mesorectum, and a patulous anus are some of the anatomical anomalies seen in people with rectal prolapse. Adults are most likely to experience this between the ages of 40 and 70; however, it can strike at any moment.[1]

Surgery is the sole practical choice for treating adult patients; however, opinions vary on the optimal technique to employ. Following surgery to correct rectal prolapse, the patient should have better anorectal function and fewer functional complications.[2]

Rectal prolapse affects both sexes equally, but SR appears to work better in men, according to some research. This could be due to women's occult sphincter inadequacies, which were difficult to detect in the early years of prolapse surgery due to the lack of standard endoanal ultrasonography. [3]

The complication and recurrence rates of posterior mesh rectopexy performed laparoscopically are minimal, but the procedure is challenging to learn and perfect; hence, specialists in the field often seek out more education and training.[4]

Examining the effectiveness of posterior mesh rectopexy and laparoscopic suture in treating internal rectal prolapse, this study aims to improve blocked defecation.

Accepted 15 March 2025.
Available online 31 May 2025

* Corresponding author at: General Surgery, Faculty of Medicine for Boys, Al-Azhar University, Cairo, Egypt.
E-mail address: mohamedelshikh164@gmail.com (M. A. Elshiek).

https://doi.org/10.21608/aimj.2025.446546

2. Patients and methods

Al-Azhar University Hospital's General Surgery Department undertook this prospective study with the blessing of the Al-Azhar Faculty of Medicine's research ethics committee (MS 10-2023). Before participating in this trial, all patients were asked to sign an informed consent document.

Thirty patients were included in our study with the intention of following up for six months following surgery for internal rectal prolapse if their symptoms did not improve with constitutional or medicinal treatment. The study began on January 1, 2023, and ended on April 1, 2024.

Inclusion criteria:

Participants were Egyptian men and women between the ages of 15 and 60 seeking treatment for internal rectal prolapse symptoms at Al-Azhar University Hospital's General Surgery Department. After a thorough medical, radiographic, and history-taking process, the study included all patients whose symptoms persisted despite conservative and medicinal treatment for intrarectal prolapse (IRP) with or without anterior rectocele.

Exclusion criteria:

Recurrent cases, individuals with a history of radiation or other medical conditions, people with rectal or colonic inertia, and patients with complete rectal prolapse are also candidates for this procedure.

At random, we divide our patients into two categories:

Fifteen patients were recommended for laparoscopic posterior mesh resection in Group A, with an average ODS score ranging from 21.7 to 24. Fifteen patients were recommended for laparoscopic suture rectopexy in Group B, with an average ODS score ranging from 21.4 to 24.

Data collection methods:

Apply a modified Longo score that incorporates a lifestyle modification parameter, seven symptom-based parameters, and the patient's medical history to assess the patient's blocked defecation. The rectal wall prolapse and its numerous concentric folds were shown when the patient was asked to bear down. A comprehensive evaluation of the rectum is required to ascertain the integrity of the anal sphincter, detect masses in the anal canal and lower rectum, and detect internal rectal prolapse by feeling the patient push down. The vaginal walls were checked when the patient was at rest and when they were straining to identify cystocele and rectocele. Before and after surgery, at 6 and 12 months, anorectal manometry was conducted using a 24-channel water-perfused catheter with a latex balloon to evaluate rectal sensations, pressures in the anal sphincter, and the presence or absence of anismus.

Magnetic resonance defecography was performed on all cases. The purpose of the colonoscopy was to rule out proximal lesions, and the rectal ulcer was biopsied to rule out cancer. Additionally, standard preoperative laboratory testing was conducted.

Preparation and position of patients in the two groups:

Prior to the procedure, every patient was administered 1 gram of ceftriaxone and 500 milligrams of metronidazole, and they were given two rectal enemas. Anaesthesia was then induced.

Post-operative:

We evaluated, asked about, and documented a patient's symptoms while they were in the hospital, which may have included blockage defecation, constipation, and a return of prolapse. It was recommended that they refrain from taking anything orally (NPO) until the flatus is gone, and then keep drinking fluids while receiving ongoing monitoring.

Follow up:

Six months and twelve weeks following the procedure, patients returned to the outpatient clinic for a reassessment; thereafter, anorectal manometry was used monthly, and finally, a senior surgeon oversaw all follow-up care for a full year. Varying the Longo score, patients.

Statistical analysis:

In order to conduct statistical analyses, pre-coded data was input into the computer using SPSS, version 21 of the statistical package for social science software. Quantitative data summarized using mean and standard deviation; qualitative data summarized using number and percent. To compare quantitative variables between two normally distributed groups, we will use an independent test, and to compare qualitative variables, we will use a chi-square test. For statistical significance, a p-value of less than 0.05 was used.

3. Results

Table 1. Demographic data distribution among the groups under study.

	GROUP A (LPMR) N=15	GROUP B (LS) N=15	P-VALUE
AGE (YEARS)			
MEAN± SD	36.7±12.8	34±15.02	0.60
SEX			
MALE	4 (26.7%)	5 (33.3%)	0.69
FEMALE	11 (73.3%)	10 (66.7%)	
BMI (KG/M2)			
MEAN± SD	22.9±2.2	24.2±1.54	0.07
MARITAL STATUS			
SINGLE	7 (46.7%)	4 (26.7%)	0.25
MARRIED	8 (53.3%)	11 (73.3%)	
RESIDENCE			
URBAN	7 (46.7%)	6 (40%)	0.71
RURAL	8 (53.3%)	9 (60%)	

P value >0.05 indicates no significance, P value <0.05 indicates statistical significance, and p<0.001 indicates strong significance.

Age, sex, BMI, marital status, and place of residence were not significantly different between LPMR and LS, (table 1; figure 1).

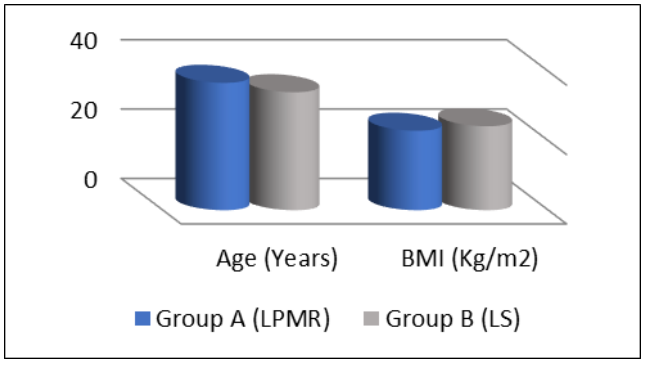

Figure 1. Comparison of the study groups with respect to age and body mass index.

Table 2. Distribution of patient's history among the groups under study.

	GROUP A (LPMR) N=15	GROUP B (LS) N=15	P-VALUE
SMOKING			
YES	6 (40%)	7 (46.6%)	0.71
PREVIOUS SURGERY			
COLONIC OR RECTAL SURGERY	1 (6.6%)	0 (0%)	0.30
APPENDECTOMY	5 (33.3%)	6 (40%)	0.704
UPPER ABDOMINAL SURGERY	2 (13.3%)	3 (20%)	0.624
OTHER	1 (6.6%)	0 (0%)	0.309
SYMPTOMS DURATION (YEARS)			
MEAN± SD	1.43±0.2	1.31±0.7	0.528

P value >0.05 indicates no significance, P value <0.05 indicates statistical significance, and p<0.001 indicates strong significance.

The duration of symptoms, appendectomy, upper abdominal surgery, colonic or rectal surgery, smoking, and other factors did not significantly differ between LPMR and LS, (table 2; figure 2).

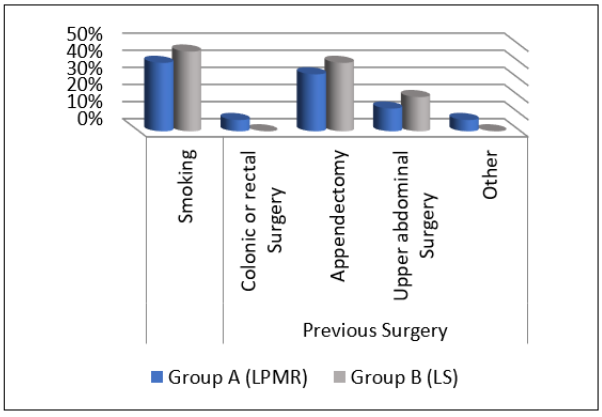

Figure 2. Distribution of smoking and previous surgery among the groups under study.

Table 3. Distribution of pre-operative symptoms and lesions among the groups under study.

	GROUP A (LPMR) N=15	GROUP B (LS) N=15	P-VALUE
PRE-OPERATIVE SYMPTOMS			
DIFFICULTY IN DEFECATION	15(100%)	15(100%)	1
BLEEDING PER RECTUM	3(20%)	3(20%)	1
MUCOUS DISCHARGE	4(26.7)	3(20%)	0.6
RECTAL LESIONS			
ANTERIOR RECTOCELE	9(60%)	6(40%)	0.2
RECTAL ULCER	3(20%)	4(26.7)	0.6

P value >0.05 indicates no significance, P value <0.05 indicates statistical significance, and p<0.001 indicates strong significance.

LPMR and LS did not differ statistically significantly in terms of anterior rectocele, rectal ulcer, mucous discharge, bleeding per rectum, or difficulty defecating, (table 3; figure 3).

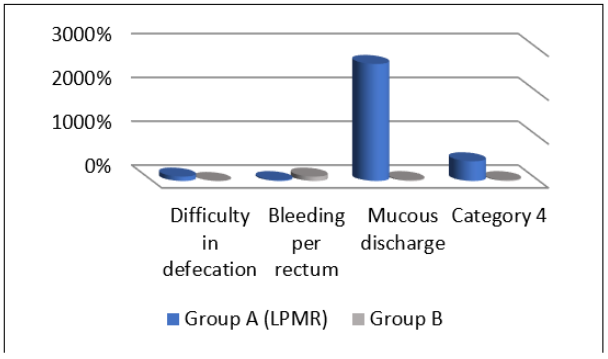

Figure 3. Distribution of pre-operative symptoms among the groups under study.

Table 4. Distribution of operative and postoperative data among the groups under study.

	GROUP A (LPMR) N=15	GROUP B (LS) N=15	P-VALUE
OPERATIVE TIME (MIN)			
MEAN± SD	81.9±5.1	95.9±8.1	<0.001
INTRAOPERATIVE BLEEDING			
YES	1 (6.6%)	2 (13.3%)	0.543
DURATION OF HOSPITAL STAY (DAY)			
MEAN± SD	3.13±0.8	2.8±1.01	0.329
PASS OF FLATUS (HOURS)			
MEAN± SD	20.6 ±2.7	20.3 ±3.6	0.79
RECURRENCE			
YES	1 (6.6%)	1 (6.6%)	1
MORTALITY			
YES	0 (0%)	0 (0%)	1

P value >0.05 indicates no significance, P value <0.05 indicates statistical significance, and p<0.001 indicates strong significance.

When it came to operative time, there was a statistically significant distinction between LPMR and LS, but not when it came to intraoperative bleeding, length of hospital stay, flatus pass, recurrence, or death, (table 4; figure 4).

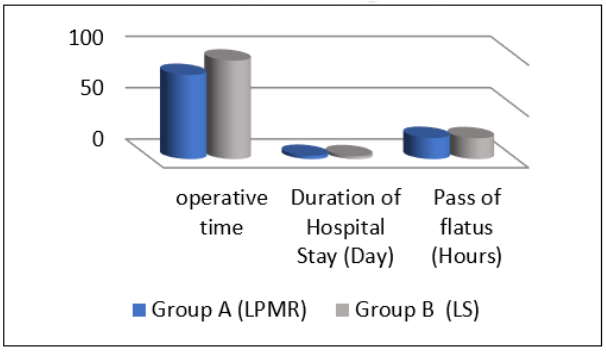

Figure 4. Distribution of operative time, duration of hospital stay and pass of flatus among the groups under study.

Table 5. Distribution of 6,12 months post-operative assessment among the groups under study.

	GROUP A (LPMR) N=15	GROUP B (LS) N=15	P-VALUE
RESTING ANAL PRESSURE (MMHG) MEAN± SD			
6 MONTHS POST OPERATIVE	33.2±2.05	33.8±1.6	0.37
12 MONTHS POST OPERATIVE	33.4±2.09	33.5±2.2	0.89
SQUEEZE ANAL PRESSURE (MMHG) MEAN± SD			
6 MONTHS POST OPERATIVE	150.4±14.5	139.6±9.7	0.02
12 MONTHS POST OPERATIVE	155.4±8.4	145.5±16.3	0.04
FIRST SENSATION (MMHG) MEAN± SD			
6 MONTHS POST OPERATIVE	50±2.67	29.2±1.56	<0.001
12 MONTHS POST OPERATIVE	54.1±2.53	36.06±1.66	<0.001
FIRST URGE (MMHG) MEAN± SD			
6 MONTHS POST OPERATIVE	122.2± 6.91	79± 3.81	<0.001
12 MONTHS POST OPERATIVE	102.13± 4.86	75.26± 3.36	<0.001
INTENSE URGE DEF. (MMHG) MEAN± SD			
6 MONTHS POST OPERATIVE	229.86± 17.43	200.13± 12.81	<0.001
12 MONTHS POST OPERATIVE	220.33± 11.73	190.26± 8.81	<0.001

P value >0.05 indicates no significance, P value <0.05 indicates statistical significance, and p<0.001 indicates strong significance.

No statistically significant difference was found in terms of resting anal pressure between the groups that were studied, but there was a variation in terms of squeeze anal pressure, first sensation, first urge, and intense urge definition after 6 and 12 months, (table 5; figure 5,6).

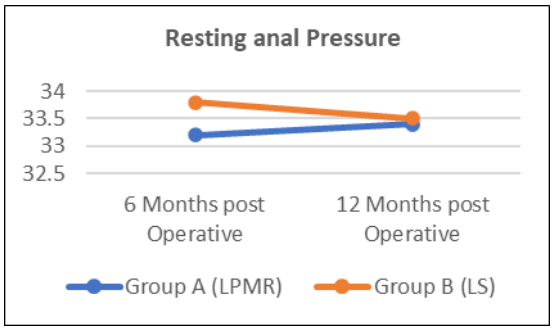

Figure 5. Distribution of resting anal pressure at interval time among the groups under study.

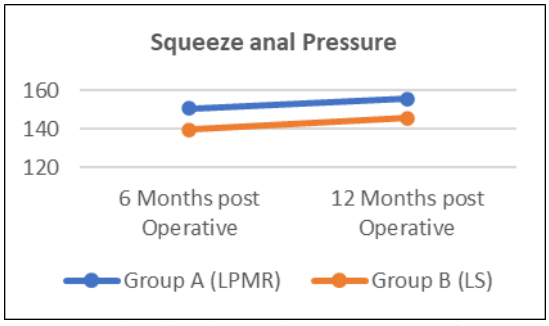

Figure 6. Distribution of squeeze anal pressure at interval time among the groups under study.

Table 6. Distribution of modified Longo score and laxative dependence at interval time among the groups under study.

	GROUP A (LPMR) N=15	GROUP B (LS) N=15	P-VALUE
MODIFIED LONGO SCORE MEAN± SD			
6 MONTHS POST OPERATIVE	14.6±4.5	9.6±1.2	0.0003
12 MONTHS POST OPERATIVE	10.53±2.09	8.13±1.12	0.0005
LAXATIVE DEPENDENCE			
6 MONTHS POST OPERATIVE	6 (40%)	1 (6.6%)	0.03
12 MONTHS POST OPERATIVE	3 (20%)	0 (0%)	0.031

P value >0.05 indicates no significance, P value <0.05 indicates statistical significance, and p<0.001 indicates strong significance.

The modified Longo score and laxative reliance were significantly different between the groups at six and twelve months, (table 6; figure 7).

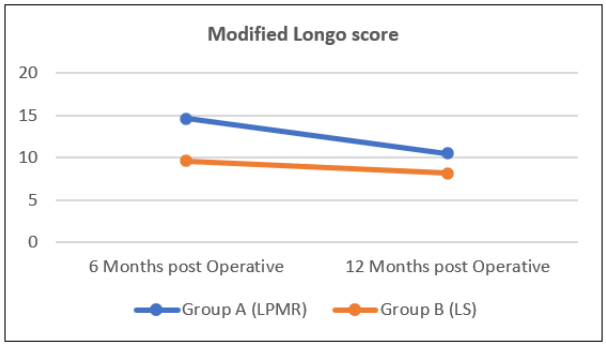

Figure 7. Distribution of modified Longo score at interval time among the groups under study.

4. Discussion

The complete thickness of the rectum protruding through the anal canal is known as rectal prolapse. Rectal intussusception, also known as internal rectal prolapse, occurs when the rectal wall prolapses but does not extend into the anus. [5]

A superfluous sigmoid colon, a patulous anal sphincter, diastasis of the levator ani, and loss of the rectal sacral attachments are some of the causes of rectal prolapse. Historically, treatments for rectal prolapse should return the body to normal.[6]

Based on demographic information, LPMR and LS did not differ statistically significantly in terms of age, sex, BMI, marital status, or place of residence. Our findings were corroborated by Lundby et al.,[7] who contrasted variations in functional results Twelve months following the comparison of laparoscopic posterior sutured rectopexy and laparoscopic ventral mesh rectopexy (LVMR) in patients with rectal prolapse, a study involving 75 patients—37 of whom had laparoscopic posterior sutured rectopexy and 38 of whom had laparoscopic ventral mesh rectopexy—found that the groups under investigation were similar in terms of age, sex, and body mass index.

Both LPMR and LS were found to have similar patient histories with respect to smoking, appendectomy, colonic or rectal surgery, upper abdominal surgery, other, and the length of time that symptoms persisted. Our research concurred with Abuelnasr et al.,8 They stated that there was not a statistically significant distinction in the duration of symptoms, smoking, appendectomy, upper abdominal surgery, colonic or rectal surgery, or other factors between the groups under study.

Regarding difficulty defecating, bleeding per rectum, mucous discharge, anterior rectocele, and rectal ulcer, there was no statistically significant distinction between LPMR and LS based on preoperative symptoms and rectal lesions.

Sayed et al.,[9] A study comparing the outcomes of LVMR and LPMR for patients with rectal prolapse involved 44 patients, of whom 22 underwent laparoscopic posterior mesh rectopexy and 22 underwent ventral mesh rectopexy.

Consistent with Abuelnasr et al.,[8] uncovered no statistically significant variations among the study groups with regard to rectal ulcer, anterior rectocele, mucous discharge, bleeding per rectum, or difficulty voiding.

Although the present study found no statistically significant distinction between LPMR and LS with regard to intraoperative bleeding, duration of hospital stay, flatus pass, recurrence, or mortality, a highly significant difference was observed with regard to operative time.

In contrast, Mohammed et al.,[10] In a study comparing the outcomes of anterior and posterior mesh rectopexy and determining which technique is better, 24 patients with rectal prolapse were split into 12 groups, 12 of whom underwent LPMR and 12 of whom underwent laparoscopic anterior mesh rectopexy. Although the LPMR group required more time to operate, the study did not find any statistically significant differences in bleeding, hospital stay duration, or recurrence rates between the groups.

There was a statistically significant distinction between the groups under research in terms of squeezing anal pressure, first sensation, first urge, and acute urge intensity, as evaluated by post-operative assessment at the interval time. At six and twelve months, there was no statistically significant variation in resting anal pressure between the groups that were part of the study.

Our findings concurred with Abuelnasr et al.,[8] Results for measures of squeezing anal pressure, first sensation, initial urge, and severe urge def showed statistically significant differences between the groups at 6 and 12 months. Resting anal pressure measurements, however, did not show a statistically significant change. The groups differed significantly with respect to the modified Longo score and the interval time measures of laxative dependence. Abuelnasr et al.,[8] While comparing the study groups at 6 and 12 months on the modified Longo score and at the same time on the laxative dependence scale, they discovered a statistically significant difference.

In contrast, Lundby et al.,[7] found no statistically significant difference in the groups tested with respect to the 12-month blocked defecation syndrome score.

4. Conclusion

The LPMR had significant lower operation time and higher squeeze anal Pressure, first sensation, First Urge, Intense Urge defecation and modified Longo score than LS, although LS had lower laxative dependence than LPMR. However, our study had limitations such as lower sample size.

Disclosure

The authors have no financial interest to declare in relation to the content of this article.

Authorship

All authors have a substantial contribution to the article

Funding

No Funds : Yes

Conflicts of interest

There are no conflicts of interest.

References

1. Felt-Bersma RJF, Tiersma ESM, Cuesta MAC. Rectal prolapse, solitary rectal ulcer, syndrome of the descending perineum and rectocele. In: Colon and rectal.2005;50:499-554.
2. Abcarian HERAND, Prolapse and procidentia. In: Surgery of the alimentary tract.1991;25(8):331–48.
3. Cook TA, Mortensen N. Prolapse of the rectum. In: Oxford textbook of surgery. 2000;30: 1083-88.
4. Gurland B, Zutshi M. Rectal prolapse The ASCRS textbook of colon and rectal surgery, 3rd edn.2016;60:1077–1089.
5. Tsunoda A. Surgical Treatment of Rectal Prolapse in the Laparoscopic Era; A Review of the Literature. J Anus Rectum Colon. 2020;4(3):89-99.
6. Farag A, Mashhour AN, Raslan M, et al. Laparoscopic Pelvic Organ Prolapse Suspension (Pops) Versus Laparoscopic Ventral Mesh Rectopexy for Treatment of Rectal Prolapse: Prospective Cohort Study. World J Surg.2020; 44:3158–3166.
7. Lundby L, Iversen LH, Buntzen S, et al. Bowel function after laparoscopic posterior sutured rectopexy versus ventral mesh rectopexy for rectal prolapse: a double-blind, randomised single-centre study. Lancet Gastroenterol Hepatol. 2016;1(4):291-297.
8. Abuelnasr MI, Elgohary H, Nuh A, et al. Laparoscopic Suture versus Ventral Mesh Rectopexy for the surgical Treatment of Internal Rectal Prolapse. Benha Medical Journal. 2023; 40:211-223.
9. Sayed MM, Reyad HA, Korany M, et al. Comparison between Laparoscopic Ventral and Posterior Mesh Rectopexy for Rectal Prolapse. World.2022;15(3): 240.
10. Mohammed IA. Result Evaluation between Laparoscopic Anterior and Posterior Mesh Rectopexy in Complete Rectal Prolapse. The Egyptian Journal of Hospital Medicine.2019;75(4):2606-2610.