

## Outcome of Open Vs Laparoscopic Abdominal Mesh Rectopexy

Aslam R, Latif A\* and Shah N

Department of General Surgery Hayatabd Medical Complex Peshawar Pakistan

**\*Corresponding author:**

Ayesha Latif,  
Postgraduate Resident (General Surgery),  
Department of General Surgery Hayatabad Medical  
Complex Peshawar Pakistan,  
E-mail: raashidaslamhmc@gmail.com

Received: 25 Aug 2022

Accepted: 07 Sep 2022

Published: 12 Sep 2022

J Short Name: AJSCCR

**Copyright:**

©2022 Latif A, This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and build upon your work non-commercially.

**Citation:**

Latif A. Outcome of Open Vs Laparoscopic Abdominal Mesh Rectopexy. *Ame J Surg Clin Case Rep.* 2022; 5(7): 1-4

**Keywords:**

Rectal prolapse; Incontinence, Constipation,  
Laparoscopic mesh rectopexy

**1. Abstract**

**1.1. Background:** Fecal incontinence is the first complaint of people with rectal prolapse, which is then followed by constipation. Rectal prolapse can only be effectively treated surgically. There are two methods: transabdominal and transanal/perineal. The abdominal treatments can be carried either laparoscopically or by an open surgery. Rectopexy with a laparoscopic technique is currently regarded as the gold standard treatment for rectal prolapse. The purpose of the study is to compare the effects of both techniques on conditions related to rectal prolapse.

**1.2. Material & Methods:** This comparative study was carried out at General Surgery Department of Hayatabad Medical Complex Peshawar from January 20 to December 2020. All 70 full-thickness rectal prolapse patients who had visited the surgery outpatient department regularly were included. The patients underwent either a laparoscopic or open mesh rectopexy. Following randomization along with operating time, recurrence within six months of follow-up, and time to resume bowel activity, assessments of postoperative pain, mean days of hospital stay, constipation, and incontinence score were made.

**1.3. Results:** In group A, 20(57.1%) were male and 15(42.9%) were female while 19(54.3%) were male and 16(45.7%) were female in group B. Mean BMI in group A was 24.1 and in group B was 23.4, respectively. (P=0.921). The mean operative time in the group A was 90 minutes (range 60-120 minutes) and 120 minutes (range 90-150 minutes) in group B (P=0.002). The mean days to resume bowel activity in group A was 3 days (range 1-5 days) and 2 days (range 1-3 days) in group B respectively (P=0.001). Mean hospital stay was 3.5 days in group A and 2.5 days in group B (P=0.004). The postoperative pain (VAS score) in group A was 3.8 as compared to group B 3.1 on the first postoperative day

(P=0.212) and 3.7 in group A compared to 2.2 in group B on the second postoperative day (P=0.005).

**1.4. Conclusion:** Laparoscopic mesh rectopexy results in lesser postoperative pain, lesser hospital stay and better patient satisfaction than open mesh rectopexy.

**2. Introduction**

A full-thickness rectum protrusion into the anal canal is referred to as a rectal prolapse [1]. Rectal intussusception, sometimes referred to as internal rectal prolapse, is the prolapse of the rectal wall without protrusion through the anus. It is important to distinguish between full-thickness rectal prolapse and mucosal prolapse, which occurs when only the rectal or anal mucosa is protruded [2,3]. The exact aetiology has not been fully disclosed yet. One of the various theories is that prolapse begins as a result of an intussusception of the rectum that occurs 6–8 cm from the anal verge [4]. In addition to a redundant sigmoid colon, diastasis of the levator ani, a deep cul-de-sac, a patulous anal sphincter, the lack of rectal-sacral attachments, pelvic floor laxity, weak sphincter complex, deep Douglas' pouch, pudendal neuropathy, loose rectal fixation are the most frequent coexisting conditions linked to rectal prolapse [5].

Some of the symptoms experienced by patients with rectal prolapse include anal incontinence, constipation, mucus discharge, and haemorrhage [6]. Constipation is the second most common complaint of patients, followed by faecal incontinence. Rectal prolapse can only be effectively treated surgically [7]. All surgical procedures that are available are designed to remove the prolapse, correct any associated functional abnormalities of incontinence or constipation, and avoid the development of new bowel dysfunction. All these results can be achieved either by fixation of the rectum to the sacrum and/or resection or plication of the redundant bowel [8]. There are two methods of approach: transabdominal or

transanal/perineal. The abdominal treatments can be carried either laparoscopically or by an open laparotomy. One of the extremely old and widely used forms of treatment is suture rectopexy for the treatment of rectal prolapse [9]. Conventionally, laparoscopic surgery is associated with less postoperative pain and hospital stay. Nowadays, rectopexy by laparoscopic approach is considered the gold standard treatment for rectal prolapse [10,11]. However, there is very limited data available comparing open suture rectopexy with the laparoscopic method.

Aim of this research is to compare the outcome of open vs laparoscopic mesh rectopexy of the abdomen in terms of conditions associated with rectal prolapse.

### 3. Materials and Methods

This comparative study was conducted in the Department of General Surgery Hayatabad Medical Complex Peshawar from January to December 2020. Permission was granted by the Ethics Committee of the institute. All consecutive patients with full-thickness rectal prolapse who had attended the surgery outpatient department were included in the study. The details of the patients and the findings were recorded after obtaining informed and written consent. The patients had undergone either open mesh rectopexy or laparoscopic mesh rectopexy. Assessment of postoperative pain, mean days of hospital stay, constipation, and incontinence score along with operative time, recurrence within six months of follow-up, and time to resume bowel activity were done. The patients were followed up for 18 months at regular intervals.

Patients who were below the age of 18 years, those with comorbidities and associated malignancies were excluded from the study.

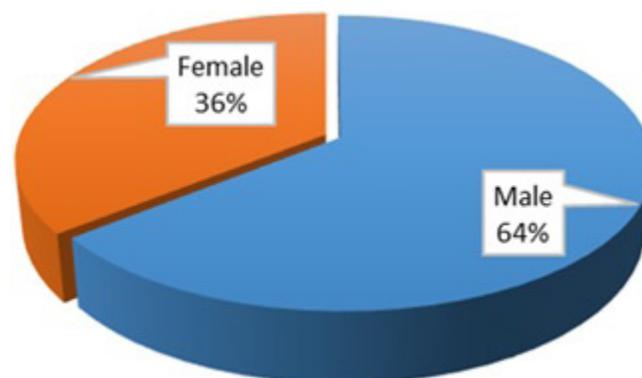
All patients who fulfilled the inclusion criteria recorded their demographic profile (age, sex, weight, BMI). Patients were randomized into two groups i.e. group A and B. One group underwent open mesh rectopexy while the other group underwent laparoscopic mesh rectopexy. All patients were operated by an experienced surgical team. Statistical analysis was performed using IBM SPSS Version 23.0. P value <0.05 was considered statistically significant.

### 4. Results

Total 70 patients were included. Age ranged between 18-60 years with a mean age of 39 years. There were 45(64.3%) males and 25(35.7%) females with male to female ratio of 1.8:1. (Figure 1). Patient were equally divided into two groups (35 patients in each) i.e. A & B. Group A patients underwent open abdominal mesh rectopexy and group B had undergone laparoscopic mesh rectopexy.

In group A, 20(57.1%) were male and 15(42.9%) were female while 19(54.3%) were male and 16(45.7%) were female in group B. Mean BMI in group A was 24.1 and in group B was 23.4, respectively. (P=0.921). The mean operative time in the group A was 90 minutes (range 60-120 minutes) and 120 minutes (range 90-150 minutes) in group B (P=0.002). The mean days to resume bowel activity in group A was 3 days (range 1-5 days) and 2 days (range 1-3 days) in group B respectively (P=0.001). Mean hospital stay was 3.5 days in group A and 2.5 days in group B (P=0.004). The postoperative pain (VAS score) in group A was 3.8 as compared to group B 3.1 on the first postoperative day (P=0.212) and 3.7 in group A compared to 2.2 in group B on the second postoperative day (P=0.005). Table 1.

No recurrence & mortality in either group was noted.



**Figure 1:** Gender Wise Distribution

**Table 1:** Outcome of the Study

Outcome	Group A	Group B	P value
<b>Gender</b>			
Male	20 (57.1%)	19 (54.3%)	0.872
Female	15 (42.9%)	16 (45.7%)	
<b>BMI</b>			
Mean BMI	24.1	23.4	0.921
<b>Surgery time</b>			
Operative time (mean)	90 min (60-120)	120 min (90-150)	0.002
<b>Bowel activity</b>			
Days (mean)	3 days (1-5)	2 days (1-2)	0.004
<b>Post-op VAS pain score</b>			
Pain day 1 (mean)	3.8	3.1	0.005
Pain day 2 (mean)	3.7	2.2	

## 5. Discussion

Rectal prolapse has been treated with a variety of surgical techniques, but none of them has emerged as the preferred method. The goal of surgical care is to rectify the prolapse, treat symptoms including incontinence and constipation, and minimize any surgical risks in order to restore normal rectal physiology [12]. Laparoscopic methods have been regarded as the procedure of choice for full rectal prolapse due to the relative rate of recurrence and well acknowledged advantages of minimally invasive surgery. Kessler H et al concluded that laparoscopic mesh rectopexy is the preferred surgical option because of its nil long term adverse outcomes [13]. There are no long-term advantages to laparoscopic mesh rectopexy over open mesh rectopexy. The same indications apply to open mesh rectopexy and laparoscopic mesh rectopexy, respectively. Prolapse repair treatments were a pioneer in the field of minimally invasive surgery, which is a reflection of how easy it was to adapt open surgical methods to the laparoscopic modality. There are many open surgical options for treating full rectal prolapse [14,15].

The common surgical steps amongst all these surgeries are rectal mobilization with fixation of the rectum to the sacrum either by the sutures or by a mesh. The outcome of the surgery can be enhanced by adding a resection and anastomosis of the recto-sigmoid [16]. A study by Deen KI et al revealed that laparoscopic mesh rectopexy can be done with good outcomes due to its shorter hospital span, diminished postoperative pain, and better cosmetic results [17]. Laparoscopic mesh rectopexy involving any kind of mesh fixation increases the value of surgery, duration of the operation, and, therefore, the technical skills required to accomplish the operation in comparison to laparoscopic mesh rectopexy. The addition of recto-sigmoid resection and anastomosis to laparoscopic mesh rectopexy makes the procedure more technically demanding when practiced for all cases of complete prolapse of the rectum. There is a requirement to spot patients with complete prolapse of the rectum who are likely to profit from this procedure instead of recommending it for all cases [18].

Duration of surgery is one of the key parameters to be attributed to the advantages of an operation. In the present study, the mean duration of open mesh rectopexy was 90 minutes while the time tak-

en for laparoscopic mesh rectopexy was 120 minutes. The study done by Darzi A et al reported that the average duration of laparoscopic mesh rectopexy was 96 minutes [19]. The longer duration in laparoscopy is understandable as it is technically challenging. The length of mean postoperative hospital stay is used as a yardstick for the patient's recovery and postoperative complications. In the present study, it was 3.5 days in group A while a patient stayed only for 2.5 days in group B. Jacobs LK et al, showed a similar result regarding the duration of hospital stay after laparoscopic mesh rectopexy [20]. Laparoscopic mesh rectopexy is a relatively safe procedure with minimal morbidity and no mortality.

Bowel activity resumed earlier in the laparoscopic group as compared to the open group in the present study. It had taken 3 days for the bowel activity to resume in group A, while in less than that time the patients in group B started experiencing bowel activity in 2 days. Stage JG et al, demonstrated in their study an improved and early bowel activity but increased operative time in patients undergoing laparoscopic surgery for colorectal cancer [21]. Postoperative pain is as debilitating to the patient as to the surgeon. It is regarded as one of the important yardsticks in deciding the type of surgery for a particular disease. Sajid MS have shown that patients undergoing laparoscopic colorectal surgery had lesser postoperative pain than patients undergoing the open colorectal procedure [22]. In the present study, postoperative pain had been compared between the groups on day 1 and 2. The result showed the patients in group B had statistically significant lower pain as compared to group A. Incidence of recurrence is regarded as one of the important parameters to evaluate the success of an operation. There are no long-term advantages to laparoscopic mesh rectopexy over open mesh rectopexy. The same indications apply to open mesh rectopexy and laparoscopic mesh rectopexy, respectively [23].

## 6. Limitation

Smaller sample size, single-center research and shorter follow-up period are the study's shortcomings. A larger study comparing the long-term outcomes of open versus laparoscopic mesh rectopexy may be conducted in the future.

## 7. Disclosures

Conflicts of interest: In compliance with the ICMJE uniform disclosure form, all authors declare the following:

Payment/services info: All authors have declared that no financial support was received from any organization for the submitted work.

Financial relationships: All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work.

Other relationships: All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

## 8. Conclusions

Laparoscopic mesh rectopexy had lower postoperative discomfort and higher patient satisfaction than open mesh rectopexy. However, laparoscopic mesh rectopexy patients require longer operating times. Laparoscopic mesh rectopexy also requires technical skill to perform.

## References

- Murphy PB, Wanis K, Schlachta CM, Alkhamesi NA. Systematic review on recent advances in the surgical management of rectal prolapse. *Minerva Chir.* 2017; 72(1): 71-80.
- Bishawi M, Foppa C, Tou S, Bergamaschi R. Recurrence of rectal prolapse following rectopexy: a pooled analysis of 532 patients. *Colorectal Dis.* 2016;18(8):779-84.
- Shastri-Hurst N, McArthur DR. Laparoscopic rectopexy for rectal prolapse: Will it be the gold standard?. *Ind J Surg.* 2014; 76(6): 461-6.
- Magruder JT, Efron JE, Wick EC, Gearhart SL. Laparoscopic rectopexy for rectal prolapse to reduce surgical-site infections and length of stay. *World J Surg.* 2013; 37: 1110-4
- Formijne Jonkers HA, Draaisma WA, Wexner SD, Broeders IA, Bemelman WA, Lindsey I, et al. Evaluation and surgical treatment of rectal prolapse: an international survey. *Colorectal Dis.* 2013; 15(1): 115-9.
- Tsunoda A. Surgical treatment of rectal prolapse in the laparoscopic era; a review of the literature. *J Anus Rectum Colon.* 2020, 4:89-99.
- Hori T, Yasukawa D, Machimoto T, et al. Surgical options for full-thickness rectal prolapse: current status and institutional choice. *Ann Gastroenterol.* 2018, 31:188-197.
- Chaudhry R. Laparoscopic mesh rectopexy: an effective treatment for complete rectal prolapse. *Med J Armed Forces India.* 2010; 66: 108-12.
- Madiba TE, Baig MK, Wexner SD. Surgical management of rectal prolapse. *Arch Surg.* 2005; 140: 63-73.
- Kim DS, Tsang CB, Wong WD, Lowry AC, Goldberg SM, Madoff RD. Complete rectal prolapse: evolution of management and results. *Dis Colon Rectum.* 1999; 42: 460-6.
- Solomon MJ, Young CJ, Eyers AA, Roberts RA. Randomized clinical trial of laparoscopic versus open abdominal rectopexy for rectal prolapse. *Br J Surg.* 2002; 89: 35-9.
- Purkayastha S, Tekkis P, Athanasiou T, Aziz O, Paraskevas P, Ziprin P, Darzi A. A comparison of open vs. laparoscopic abdominal rectopexy for full-thickness rectal prolapse: a meta-analysis. *Dis Colon Rectum.* 2005; 48: 1930-40.
- Kessler H, Jerby BL, Milsom JW. Successful treatment of rectal prolapse by laparoscopic mesh rectopexy. *Surg Endosc.* 1999; 13: 858-61.
- Siproudhis L, Bellissant E, Juguet F, Mendler MH, Allain H, Bretagne JF, Gosselin M. Rectal adaptation to distension in patients with overt rectal prolapse. *Br J Surg.* 1998; 85: 1527-32.
- Heah SM, Hartley JE, Hurley J, Duthie GS, Monson JR. Laparoscopic mesh rectopexy without resection is effective treatment for full-thickness rectal prolapse. *Dis Colon Rectum.* 2000; 43: 638-43.
- Graf W, Karlbom U, Pålman L, Nilsson S, Ejerblad S. Functional results after abdominal suture rectopexy for rectal prolapse or intussusception. *Eur J Surg.* 1996; 162: 905-11.
- Milsom JW, Böhm B, Hammerhofer KA, Fazio V, Steiger E, Elson P. A prospective, randomized trial comparing laparoscopic versus conventional techniques in colorectal cancer surgery: a preliminary report. *J Am Coll Surg.* 1998; 187: 46-54.
- Deen KI, Grant E, Billingham C, Keighley MR. Abdominal resection rectopexy with pelvic floor repair versus perineal rectosigmoidectomy and pelvic floor repair for full-thickness rectal prolapse. *Br J Surg.* 1994; 81: 302-4.
- Steele SR, Goetz LH, Minami S, Madoff RD, Mellgren AF, Parker SC. Management of recurrent rectal prolapse: surgical approach influences outcome. *Dis Colon Rectum.* 2006; 49: 440-5.
- Darzi A, Henry MM, Guillou PJ, Shorvon P, Monson JR. Stapled laparoscopic mesh rectopexy for rectal prolapse. *Surg Endosc.* 1995; 9: 301-3.
- Jacobs LK, Lin YJ, Orkin BA. The best operation for rectal prolapse. *Surg Clin North Am.* 1997; 77: 49-70.
- Stage JG, Schulze S, Møller P, Overgaard H, Andersen M, Rebsdorf-Pedersen VB, Nielsen HJ. Prospective randomized study of laparoscopic versus open colonic resection for adenocarcinoma. *Br J Surg.* 1997; 84: 391-6.
- Sajid MS, Siddiqui MR, Baig MK. Open versus laparoscopic repair of full-thickness rectal prolapse: are-meta-analysis. *Colorectal Dis.* 2010; 12: 515-25.
- Hoel AT, Skarstein A, Ovrebø KK. Prolapse of the rectum, long-term results of surgical treatment. *Int J Colorectal Dis.* 2009; 24: 201-7.