

# Short-term outcomes of laparoscopic suture rectopexy in the treatment of full-thickness rectal prolapse

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Article

*Kareem Kamel, Ahmad Mamdouh Kelany, Tarek Youssef Ahmed and Ahmed Aly Khalil*

*Department of General Surgery, Faculty of Medicine, Ain Shams University, Cairo, Egypt.*

## ABSTRACT

**Background:** Full-thickness rectal prolapse is a debilitating disease that is treated mainly surgically. Various abdominal and perineal procedures have been reported as a surgical treatment for rectal prolapse. Suture rectopexy by the laparoscopic approach has recently gained acceptance as a favored surgical technique for rectal prolapse treatment. This study aims to evaluate the short-term outcomes of laparoscopic suture rectopexy performed for full-thickness rectal prolapse (FTRP).

**Patients and Methods:** This is a retrospective observational study evaluating laparoscopic suture rectopexy as regards postoperative recurrence, bowel function, constipation and incontinence, sexual function, and overall satisfaction in a 6-month duration after surgery. The study included 31 adult patients admitted at Ain-Shams University Hospitals with complete rectal prolapse operated by the same surgical team between January 2021 and December 2022.

**Results:** Out of 31 patients who underwent laparoscopic suture rectopexy, one case only had a complete recurrence, no sexual disorders had been reported. Nineteen patients presented with constipation; seven of them had complete resolution, nine were significantly improved; however, three patients had no change. Eleven patients presented with incontinence, seven had complete resolution, and the other four were improved according to the Wexner score.

**Conclusion:** For full-thickness rectal prolapse, laparoscopic suture rectopexy is a safe procedure with a low recurrence rate and good functional results during the short-term follow-up.

**Key Words:** Laparoscopic suture rectopexy, rectal prolapse, short-term outcomes.

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**Corresponding Author:** Ahmad M. S. Kelany, BSc, Department of General Surgery, Faculty of Medicine, Ain Shams University, Cairo, Egypt. **Tel.:** 01092875669, **E-mail:** a7madmamdou7dr@gmail.com

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## INTRODUCTION

The primary treatment for adults with full-thickness rectal prolapse (FTRP) is surgery. Reducing the prolapse, enhancing bowel function and continence, and decreasing recurrence are the tenets of the treatment. Reducing the surgical risk is also crucial because FTRP patients are frequently elderly and commonly have associated comorbidities<sup>[1]</sup>.

There are two approaches for the treatment of full-thickness rectal prolapse: either perineal or abdominal. The perineal approach could be performed under local or spinal anesthesia, and it is usually reserved for frail patients; however, it carries a higher risk of recurrence. Moreover, abdominal approaches have a lower recurrence rate with a more robust repair through rectosacral fixation of the rectum<sup>[2,3]</sup>. Nevertheless, abdominal rectopexy entails the rectum's mobilization, which may result in autonomic nerve injury and consequently cause dysmotility and poor evacuation in the rectal area<sup>[4]</sup>.

The most common surgery performed for laparoscopic abdominal repair of FTRP has been ventral mesh rectopexy, which has become more common in recent

years. Laparoscopic suture rectopexy or posterior fixation rectopexy is an additional option. Both methods are frequently used to treat FTRP with low rates of short-term recurrence and good functional outcomes<sup>[5]</sup>. Reviewing the results of laparoscopic suture rectopexy, with an emphasis on prolapse recurrence, functional outcomes (constipation and incontinence based on the Wexner score), sexual function, and overall satisfaction, was the goal of this study.

## PATIENTS AND METHODS:

After the ethics committee approval, a retrospective study to evaluate laparoscopic suture rectopexy was conducted. Our study included 31 adult patients with complete rectal prolapse who underwent laparoscopic suture rectopexy at Ain Shams University Hospitals between January 2021 and December 2022. All the procedures were carried out by the same surgical team.

### *Inclusion criteria*

Laparoscopic suture rectopexy was performed for individuals with FTRP, older than 18 years of age, and completed at least 6 months after surgery.

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### Exclusion criteria

Patients younger than 18 years old with partial prolapse, associated with other prolapsed organs or recurrent cases. Other surgical procedures rather than laparoscopic suture rectopexy were excluded.

### Study procedure

Between January 2021 and December 2022, data were gathered from patients who underwent laparoscopic suture rectopexy at Ain Shams University Hospitals and had FTRP. Follow-up of patients was done at the outpatient clinic 1-month, 3- and 6-month postsurgery.

### Diagnosis and evaluation

Symptoms of FTRP include rectal pain and pressure, incomplete evacuation, constipation, straining, incontinence, mucous discharge, and bleeding. Rectal prolapse is a clinical diagnosis based on the patient's complaint and correlated by physical examination. Digital examination usually shows a diminished voluntary tone and the entire bowel wall is prolapsing.

Other tests may be used in the preoperative assessment of rectal prolapse. Colonoscopy rules out other colonic pathologies and reveals descent of tissue during straining and occasionally anterior rectal wall ulcer. Defecography shows extreme mobility of the rectum from its fixating point to the sacrum, redundant mesorectum, and funnel formation as the rectum descends through the anal canal. Anal manometry may show low anorectal pressure and diminished anal squeeze pressure. Understanding the baseline of anal sphincter complex strength before surgery helps in predicting continence results and the possible need for postoperative physiotherapy. EMG provides objective evidence of pudendal nerve injury and gives some prediction of continued recovery after surgery.

### Operative method

On the day before the operation, patients were ordered to take a clear fluid diet all day and to have a fleet enema in the evening and the morning of the operation day. This procedure is done under general anesthesia. The patient is positioned on the operating table in the Trendelenburg position. A urinary catheter is inserted. Next, the subsequent port locations were used:

The camera port is at the umbilicus, 12 mm trocar at the right iliac fossa, 5 mm in the upper right quadrant, and an additional 5 mm on the left side, just below the umbilicus. Mobilization of the rectum starts at the sacral promontory. The peritoneum in the right side of the rectum is incised to enter the avascular presacral space. Hypogastric nerve branches and ureters are identified and preserved. Posterior dissection is continued down to the level of the levators. Complete posterior dissection was scored in all patients. Dissection proceeds anteriorly into

the rectovaginal plane in women and rectovesical space in men. Left-sided mobilization was not done. The rectum is then pulled cephalad, and two to three nonabsorbable interrupted stitches were anchored to the periosteum of the sacral promontory and fixed to the rectal wall and the mesorectum (Figs. 1-3).

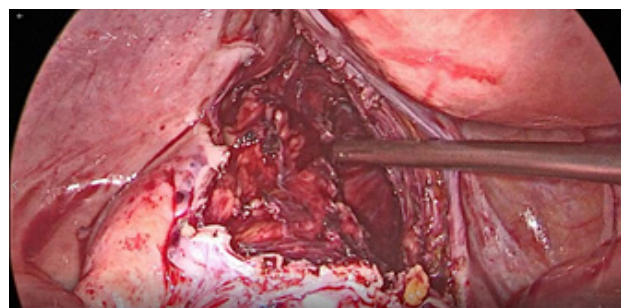


Fig. 1: Complete posterior dissection down to the levators.



Fig. 2: Stitches anchoring to the sacral promontory.

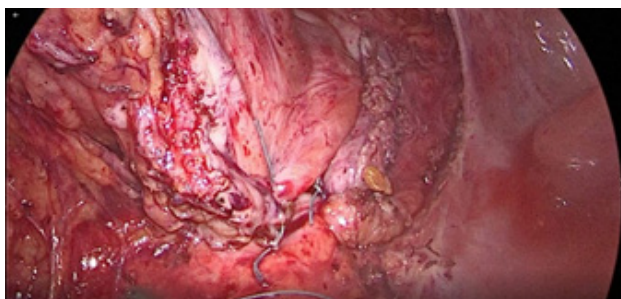


Fig. 3: Final look after fixation.

### Study outcomes

**During follow-up visits, the following parameters were evaluated:**

- (a) Recurrence and if present, is it a full-thickness or a mucosal prolapse recurrence?
- (b) Changes in constipation and symptoms of difficult evacuation.
- (c) Changes in fecal incontinence according to the Wexner score (Table 2).
- (d) The effect on sexual function.
- (e) And the overall satisfaction according to the satisfaction score (Fig. 8).

Table 2: Wexner score for incontinence<sup>[6]</sup>

Type of incontinence	Frequency				
	Never	Rarely	Sometimes	Usually	Always
Solid	0	1	2	3	4
Liquid	0	1	2	3	4
GAS	0	1	2	3	4
Wears pad	0	1	2	3	4
Lifestyle alteration	0	1	2	3	4

Never, 0; rarely, less than 1/month; sometimes, less than 1/week, greater than or equal to 1/ month, usually, less than1 /day, greater than or equal to 1/week, always, greater than or equal to 1/day. 0, perfect; 20. Complete incontinence.

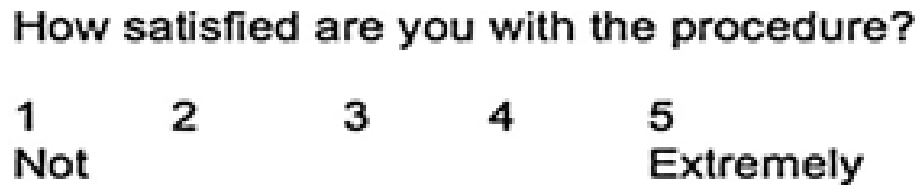


Fig. 8: Satisfaction score of De Bruijn et al. (2019)<sup>[7]</sup>.

**Statistical analysis**

The sample size was calculated using OpenEpi, Version 3, Open-source calculator, and based on a study carried out by Lobb et al., 2020.

A sample of 31 patients with complete rectal prolapse who underwent lap suture rectopexy will be sufficient to achieve study objectives based on a hypothesized % frequency (patients with CRP had a recurrence rate of 8.6% after SR.), the margin of error of  $\pm 5$  is associated with a confidence level of 95.0%.

**RESULTS:**

This is a retrospective cohort observational study that was conducted on 31 patients, who presented with complete rectal prolapse and were treated with laparoscopic suture rectopexy; 22 (70%) out of the study group were male patients, with a mean age of 34 (Table 1).

Postoperative outcomes have been reviewed among the studied group. Most of the patients have not experienced a significant disturbing issue after surgery, while few of them have experienced one or more varieties of postoperative undesired outcomes.

Based on the data from our patients, there were 19 out of 31 patients (61.2%) presented with constipation before surgery. After surgery, there were seven (36.8%) patients with complete resolution, nine (47.3%) had improved regarding constipation symptoms, while three (15.8%) of these 19 patients stated that constipation was unchanged (Table 3) (Fig. 4).

In terms of incontinence, there were 11 out of 31 (35.5%) patients with complaints preoperatively scoring: 3–9 on the Wexner score. Postoperatively, there was marked improvement among these patients; seven out of the 11 (63.7%) were completely continent (Score: 0), while the other four (36.3%) patients improved to score 1–3. Other evacuation difficulties were improved significantly in more than 80% of the studied patients (Tables 2, 3) (Fig. 5).

Postoperative sexual performance has been reviewed in our study showing almost no affection. Two patients developed erectile dysfunction in the first 2 months postsurgery but gradually improved to normal. Another patient mentioned deep-seated pelvic pain after intercourse that relieves spontaneously. At the end of our follow-up, no erectile dysfunction or retrograde ejaculation was reported.

Complete recurrence of rectal prolapse was observed in only one case, while two (6.5%) cases presented partial prolapse during the 6 months of follow-up. That case of complete recurrence was reoperated and underwent laparoscopic resectional rectopexy as the stitches were not properly anchored to the sacral promontory (Table 4, Fig. 6).

While reviewing the overall satisfaction according to the laparoscopic rectopexy questionnaire of De Bruijn et al. (2019)<sup>[7]</sup>, it could be observed that 25 (80.6%) patients of the studied group were totally satisfied (score: 5), while the other six were satisfied to a great extent (score: 3-4). This means that unimproved symptoms should not be considered a big disturbing outcome post-rectopexy (Table 5, Fig. 7).

**Table 1:** Demographic data and characteristics of the studied patients

	Total N=31 [n (%)]
Age	
Mean±SD	34.35±10.23
Range	19–60
Sex	
Female	9 (29.0)
Male	22 (71.0)

**Table 3:** Preoperative and postoperative constipation and incontinence

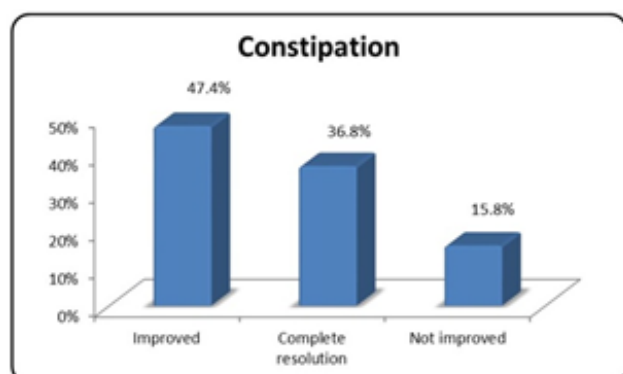
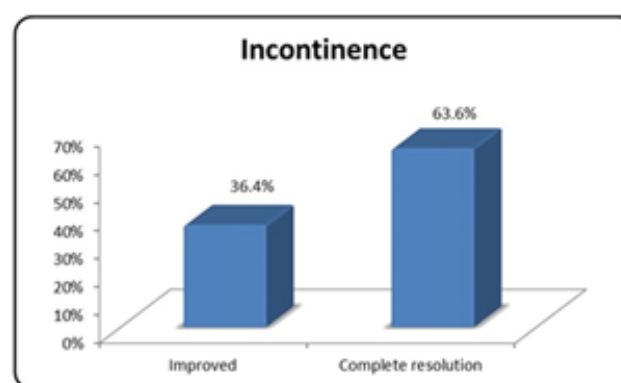
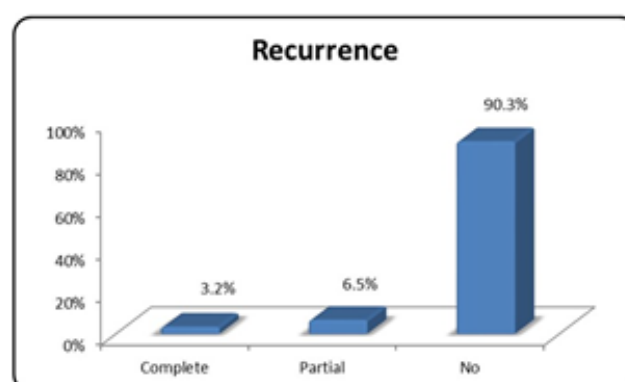
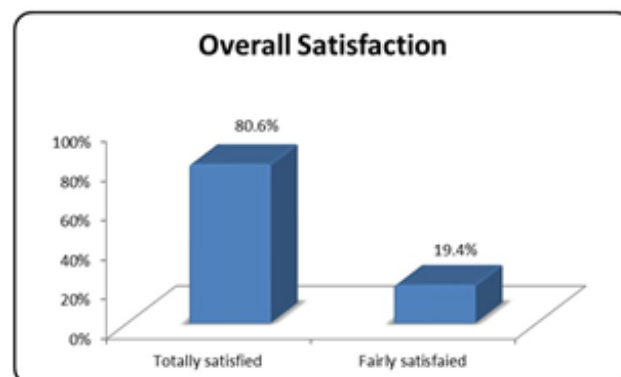
	Preoperative	Postoperative
Constipation	19 (61.2%)	9: Improved 7: complete resolution 3: No change
Incontinence	11 (35.5%) Score (3–9)	4: Improved (score: 1–3) 7: complete resolution (score: 0)

**Table 4:** Incidence of postoperative recurrence among the studied patients

Postoperative	Total N=31 [n (%)]
Recurrence	
No	28 (90.3)
Partial	2 (6.5)
Complete	1 (3.2)

**Table 5:** Incontinence and overall satisfaction among the studied patients

	Total N=31 [n (%)]
Overall satisfaction	
Median (IQR)	5 (4–5)
Range	3–5
Totally satisfied (5)	25 (80.6)
Fair (3-4)	6 (19.4)

**Fig. 4:** Constipation results.**Fig. 5:** Incontinence results.**Fig. 6:** Recurrence results.**Fig. 7:** Overall satisfaction.

## DISCUSSION

There is no universal agreement on which of the various surgical methods used to treat rectal prolapse should be used<sup>[8]</sup>. Numerous investigations found no discernible difference in the functional outcome between posterior sutured laparoscopic rectopexy and ventral mesh laparoscopic rectopexy<sup>[9]</sup>.

This study describes laparoscopic suture rectopexy that was carried out on 31 individuals by surgeons with a great deal of expertise in laparoscopic rectal surgery. There was minimal morbidity, no surgical death, and



no conversion to open surgery. It could be observed in this study that the majority of patients were males (71%) which is contrary to global incidence.

In Western nations, rectal prolapse primarily affects elderly women; but, in Egypt, young men have the highest rate of full rectal prolapse. This has been linked in the past to proctosigmoiditis brought on by schistosomiasis, which is more common in young men and endemic in many rural parts of Egypt. This notion is refuted by Abou-Zeid *et al.* (2016), who also highlight additional socioeconomic status-related characteristics that are more likely to be the root cause of the disease distribution in the population<sup>[10]</sup>.

Short-term outcomes have been reviewed during the 6-month postoperative period for the entire studied group. Two cases were diagnosed with partial recurrence (mucosal prolapse) (6.5%) and a single case with complete recurrence that required to be reoperated. Intraoperatively, the stitches were not properly anchored to the sacral promontory.

Complete recurrence was reported in many studies. Hsu *et al.*<sup>[11]</sup> reported 7% in a total of 180 patients, 8.6% in Lobb *et al.*<sup>[12]</sup> who reviewed 976 patients, but with prolonged periods of follow-up more than ours.

Anal incontinence and constipation are two issues that are associated with full rectal prolapse. More than half of patients with rectal prolapse also have concomitant incontinence because patients with total rectal prolapse have a significantly worse rectal adaptation to distension, which may exacerbate anal incontinence. Because of its simplicity, the Cleveland Clinic Florida (Wexner) fecal incontinence score is still the most used in the United States (Table 2). A total of five factors-frequency of incontinence to gas, liquid, and solid, requirement for pad, and lifestyle modifications-are calculated and are rated on a scale from 0 (absent) to 4 (daily). A score of 0 indicates total continence, whereas a score of 20 indicates complete uncontrol<sup>[13]</sup>.

In this study, we used this questionnaire to know the improvement in symptoms postoperatively. Continence levels improved obviously. Eleven patients out of 31 (35.5%) complained of incontinence by degrees between 3 and 9 on the Wexner score. Postoperatively, seven (63.7%) patients were completely continent (score: 0), while the rest (36.3%) mentioned mild incontinence (score: 1-3) postoperatively, with no marked incontinence. These outcomes match with other studies by Foppa *et al.*<sup>[14]</sup> and Chaudhry *et al.*, 2010<sup>[15]</sup>, which show significant improvement of incontinence post-rectopexy even if it was incompletely resolved.

In 15–65% of individuals, prolapse is associated with constipation. Constipation rose from 10 to 47%, according to studies, and there may be a relationship between denervating the left colon and rectum and kinking at the rectosigmoid junction due to a redundant sigmoid colon prolapsing into the Douglas pouch. This could be particularly true if mobilization causes damage to the lateral ligaments that carry the parasympathetic innervation to the left colon. When lateral ligaments are cut as opposed to left intact, at least two published studies have shown a greater frequency of constipation and significant changes in rectal sensation<sup>[15]</sup>.

Out of the 19 patients in our study who had constipation preoperatively, 16 had improved; seven of these patients had total resolution, and the remaining nine had noticeable improvement but were not cured. Constipation did not change for the remaining three subjects. The reason for this improvement in the degree of constipation observed in our study is the adopted surgical technique in which lateral ligaments were not divided to facilitate rectal movement.

Resectional rectopexy (RRP) lowers the theoretical risk of rectosigmoid kinking, but nonresectional rectopexy (NRRP) may have an inherent risk of severe constipation according to some previous studies. RRP is associated with reduced postoperative constipation than the nonresectional method, according to a recent Cochrane study<sup>[16]</sup>.

However, a nonrandomized trial showed that postoperative constipation was similarly reduced by laparoscopic NRRP and RRP (70 and 64%, respectively)<sup>[17]</sup>. More recently, a large retrospective research showed that postoperative constipation scores from laparoscopic NRRP were comparable to those from RRP<sup>[18]</sup>.

Sexual function was an important factor to follow-up in our study. Although pelvic surgery is associated with both retrograde ejaculation and impotence, there were no recorded cases of sexual dysfunction after surgery. One patient reported deep-seated pelvic pain after intercourse that relieved spontaneously in hours. In a study including 118 male patients with laparoscopic posterior rectopexy, Ganapathi *et al.*<sup>[19]</sup> reported just two male patients with a new onset of sexual dysfunction after surgery, which was attributed to the age factor.

This low complication rate had an impact on the patient's satisfaction. Twenty-five (80%) patients were completely satisfied, while the rest were satisfied but to a lesser extent.

## CONCLUSION

Laparoscopic suture rectopexy is a safe, feasible procedure for the treatment of complete rectal prolapse. It improves the functional results, has a low recurrence rate, and is associated with few complications. The key to success of this procedure is the standardization of its technique.

## LIMITATIONS

It is a retrospective study conducted on a small number of patients in a relatively short duration. Further studies should be conducted to emphasize the results of the laparoscopic suture rectopexy technique on a bigger population and longer duration of time.

## CONFLICT OF INTEREST

There are no conflicts of interest.

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