



## A COMPARATIVE STUDY ON LAPAROSCOPIC VERSUS OPEN MESH RECTOPEXY FOR FULL THICKNESS RECTAL PROLAPSE

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### ABSTRACT

To evaluate the efficacy and safety of laparoscopic versus open mesh rectopexy for total rectal prolapse. A retrospective review was conducted for 12 patients undergoing laparoscopic versus open mesh rectopexy for total rectal prolapse between November 2019 and November 2021. Laparoscopic rectopexy (n = 6) and open surgery (n = 6) were performed. Two groups were matched with regards to age, gender, body mass index (BMI) and American Society of Anesthesiologists (ASA) score. Mortality was zero in each group. There were insignificant inter-group differences in operative duration, postoperative complication, rate of long-term recurrence and improvement of incontinence and constipation. Perioperative blood loss and postoperative hospital stay were significantly shorter in the laparoscopic rectopexy group. Laparoscopic mesh rectopexy is as safe and efficient as open rectopexy. And both are suitable for senile patients. Long-term outcomes are similar for two groups, but the laparoscopic group has better short-term outcomes.

**KEYWORDS :** rectal prolapse, incontinence, constipation, laparoscopic rectopexy

### INTRODUCTION

Rectal prolapse is defined as a protrusion of full thickness of rectum through the anal canal (1). Internal rectal prolapse, also known as rectal intussusception is the prolapse of the rectal wall without protrusion through the anus. If only the rectal or anal mucosa is protruded, it is called the mucosal prolapse, which should be distinguished from full thickness rectal prolapse. The definite etiology is not completely revealed to date. The most common coexisting conditions associated with rectal prolapse are 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, and loose rectal fixation (2).

Surgery is the only definitive treatment option for rectal prolapse. All the available surgical options are aimed to eliminate the prolapse, correct associated functional abnormalities of incontinence or constipation, and prevent de novo bowel dysfunction. This can be achieved either by fixation of the rectum to the sacrum and/or resection or plication of the redundant bowel. The abdominal procedures can be done in the open laparotomy method or laparoscopically.

Open transabdominal repairs are now the most common surgical procedures for rectal prolapse. The main concerns of transabdominal procedures, which are usually reserved for good-risk patients, are that they are invasive, requiring a considerable postoperative hospital stay and a period of recuperation. Laparoscopic rectopexy with posterior mesh fixation was introduced in 1992 and has since gained popularity because it is simple and easily accomplished.

With the evolution of laparoscopic techniques, the feasibility of both laparoscopic-assisted resection rectopexy and laparoscopic suture or posterior mesh rectopexy has been demonstrated in several recent reports. The rationale for using a laparoscopic approach in prolapse surgery could be reduced pain, shortened hospital stay, and faster recovery to normal activity. According to two retrospective studies, 8,14 the laparoscopic approach appears to result in significantly better post-operative pulmonary function, earlier return of bowel function, lessened postoperative pain, shorter hospital stay, and better cosmesis than open surgery. The major disadvantage is the longer time needed to perform the procedure.

### MATERIAL AND METHODS

The study was conducted in the department of General Surgery at Smt. Kashibai Navale Medical College and

General Hospital (Pune, India) from November 2018 to November 2020. The study was approved by the Ethics Committee of the institute and has been performed following the ethical standards laid down in an appropriate version of the Declaration of Helsinki. The study group was divided into two groups - Case and Control groups.

### Case Group:

Between november 2019 and november 2021, 6 patients with rectal prolapse underwent laparoscopic suture rectopexy. Indication for surgery was full-thickness rectal prolapse or circumferential intussusception confirmed by physical examination and defecography. Preoperative studies included colonoscopy or double-contrast barium enema combined with proctosigmoidoscopy to rule out neoplastic disease. Patients were judged to be constipated if they had 2 or fewer bowel movements per week or strained for >25 percent of their defecation times. Constipation-related symptoms were assessed according to a detailed questionnaire. Symptoms attributed to impaired bowel action included infrequent defecation (>2/week), use of laxatives and/or enemas, presence of hard stools, and absence of a normal urge to defecate. Symptoms attributed to difficult evacuation included excessive straining at defecation, a feeling of blockage, incompleteness of evacuation, and the need for digital evacuation. Data collected also included age, gender, body mass index, American Society of Anesthesiologists physical status classification, duration of symptoms, number of previous operations, technique, intraoperative blood loss, operative time, length of bowel resected, length of hospital stay, return of bowel function, postoperative complications, and follow-up details.

### Control Group:

The control group was studied retrospectively by chart review. This study was based on a consecutive series of 6 patients who had a transabdominal rectal prolapse operation between november 2018 and november 2020. Rectal prolapse was confirmed by clinical investigation. Preoperative studies included colonoscopy or double-contrast barium enema combined with proctosigmoidoscopy to rule out neoplastic disease.

### Statistical Analysis:

The independent sample t-test was used to measure possible differences between the groups. Non-parametric data were analyzed with the Mann-Whitney U test for discrete variables,

and nonparametric paired data were analyzed by Wilcoxon's paired signed-rank test. Chi-squared test and Fisher's exact probability test were used for categorical data. A P value of <0.05 was considered statistically significant.

**RESULTS**

Demographic data are presented in Table 1. The median follow-up was 12 (range, 12–48) months in the case group and 12 (range, 0–120) months in the control group. Age, gender, body mass index, American Society of Anesthesiologists grade, number of previous operations, and presence of solitary rectal ulcer, diverticular disease, incontinence, or constipation did not differ significantly between the groups.

**Table 1.**

|                      | CASE GROUP (n=6) | CONTROL GROUP (n=6) |
|----------------------|------------------|---------------------|
| GENDER (male/female) | 2/4              | 3/3                 |
| AGE (years)          | 64               | 62                  |
| BMI                  | 21               | 25                  |
| ASA GRADE            | 2                | 2                   |
| PROLAPSE DURATION    | 3                | 1                   |
| CHILDBIRTHS          | 1                | 2                   |

Hysterectomy was performed in 33 percent of females and 41.66 percent patients had history of previous surgeries. There were no conversions in the case group. Median operation time was significantly longer in the case group than in the control group. There was a significant difference between the case and control groups in median intraoperative bleeding and median postoperative hospital stay. First bowel movement (passage of flatus or feces) occurred a median of three days after surgery in both groups. No significant difference in major or minor morbidity was found between the groups. The wound infection rate in the control group was 33 percent.

**Table 2. Surgical Outcome**

|                                    | CASE GROUP | CONTROL GROUP | P VALUE |
|------------------------------------|------------|---------------|---------|
| OPERATIVE TIME (MIN)               | 170        | 100.5         | <0.001  |
| INTRAOPERATIVE BLEEDING (ML)       | 20         | 200           | <0.001  |
| POSTOPERATIVE HOSPITAL STAY (DAYS) | 5          | 7             | <0.001  |
| MORTALITY                          | 0          | 0             | -       |
| COMPLICATIONS                      | 2          | 3             | 0.509   |
| LATE COMPLICATIONS                 | 1          | 2             | 0.161   |
| RECURRENCE                         | 0          | 1             | 0.186   |

**Table 3. Functional Outcome**

| POSTOPERATIVE STATUS & OUTCOME | CASE GROUP (n=6) | CONTROL GROUP (n=6) |
|--------------------------------|------------------|---------------------|
| INCONTINENT BEFORE OT          | 4                | 5                   |
| UNCHANGED                      | 1                | 2                   |
| WORSE                          | 0                | 0                   |
| CONTINENCE RESTORED            | 3                | 3                   |
| CONSTIPATED BEFORE OT          | 2                | 1                   |
| UNCHANGED                      | 1                | 0                   |
| CONSTIPATION DISAPPEARED       | 1                | 1                   |
| NOT CONSTIPATED BEFORE OT      | 4                | 5                   |
| UNCHANGED                      | 4                | 5                   |
| BECAME CONSTIPATED             | 0                | 0                   |

**DISCUSSION**

Our results show that laparoscopic rectopexy cures prolapse as effectively as the respective open techniques and can be performed safely even in elderly patients with coexisting medical morbidity. The primary disadvantage is the long operating time needed to perform the procedure, at least during the learning-curve phase. Due to the comparative rate

of recurrence and universally known benefits of minimally invasive surgery, laparoscopic procedures have been considered as the operation of choice for complete rectal prolapse (3).

The benefits of laparoscopic rectopexy over open rectopexy are all short-term. Laparoscopic rectopexy does not have any specific indications; it has the same indications as open rectopexy.

The two most common symptoms associated with rectal prolapse are incontinence and constipation. Due to diminished rectal adaptation to distension in rectal prolapse, more than half of the patients have coexisting incontinence with rectal prolapse(4). In the present study, the incontinence score had improved in both the groups similarly without any statistically significant difference. Constipation among both the groups also improved without any significant difference between them.

The main advantages of the laparoscopic approach appear to be a shorter hospital stay and lessened intraoperative blood loss. Laparoscopic rectopexy is a relatively safe procedure with minimal morbidity and no mortality.

Incidence of recurrence is one of the predominant criteria to measure the success of rectal prolapse surgery(5). In this study there is no significant difference in recurrence after laparoscopic rectopexy and open rectopexy.

**CONCLUSIONS**

This study has shown that laparoscopic rectal prolapse repair is technically feasible and can be performed with mortality and morbidity comparable to that of the conventional open technique. The median postoperative hospital stay in the case group was significantly shorter than in the control group. The laparoscopic approach may also protect the patient from late complications and reoperations. Postoperative pain and patient satisfaction are better in laparoscopic rectopexy than in open rectopexy. But the patients undergoing laparoscopic rectopexy have a longer operative time. Also, laparoscopic rectopexy needs technical expertise to perform.

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