COMPARATIVE EVALUATION OF VENTRAL MESH RECTOPEXY AND LAPAROSCOPIC POSTERIOR RECTOPEXY IN THE TREATMENT OF FULL-THICKNESS RECTAL PROLAPSE

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Abstract: Background: Rectal prolapse remains a challenging condition in colorectal surgery, with multiple surgical options and no universal standard. Minimally invasive abdominal procedures, particularly ventral mesh rectopexy (VMR) and laparoscopic posterior rectopexy (LPR), are increasingly considered optimal approaches due to low recurrence and favorable functional outcomes.

Objective: To compare early and long-term outcomes of ventral mesh rectopexy and laparoscopic posterior rectopexy without resection in patients with full-thickness rectal prolapse.

Methods: A prospective comparative study included 54 patients with complete rectal prolapse. Patients were divided into two groups: Group A (n=27) underwent ventral mesh rectopexy, Group B (n=27) underwent laparoscopic posterior rectopexy without resection. Outcomes assessed included operative time, blood loss, postoperative complications, length of hospital stay, recurrence rate, and functional outcomes (constipation and fecal incontinence scores) at 12 and 24 months.

Results: VMR demonstrated significantly better improvement in constipation and incontinence scores, with lower recurrence rates compared to posterior rectopexy. Posterior rectopexy showed shorter operative time but higher incidence of postoperative constipation.

Conclusion: Ventral mesh rectopexy provides superior functional outcomes and lower recurrence rates compared to laparoscopic posterior rectopexy, particularly in patients with associated pelvic floor dysfunction.

Keywords: rectal prolapse, ventral mesh rectopexy, laparoscopic rectopexy, posterior rectopexy, pelvic floor, minimally invasive surgery.

Introduction

Full-thickness rectal prolapse is a debilitating condition that significantly impairs quality of life, causing fecal incontinence, constipation, and discomfort. Minimally invasive abdominal approaches, such as ventral mesh rectopexy (VMR) and laparoscopic posterior rectopexy (LPR) without resection, have become preferred techniques due to their low recurrence rates and favorable functional outcomes.

VMR corrects anterior rectal prolapse while preserving autonomic nerves and

addressing associated pelvic floor defects, reducing the risk of postoperative constipation. LPR involves posterior fixation of the rectum to the sacrum without bowel resection and offers a technically simpler approach, although it may be associated with altered bowel function.

Despite increasing use of these minimally invasive techniques, comparative data on their effectiveness, recurrence, and functional outcomes remain limited. This study aims to compare VMR and LPR in patients with full-thickness rectal prolapse, focusing on surgical safety, postoperative recovery, and long-term functional results.

Aim of the Study

To perform a comparative analysis of clinical and functional outcomes of ventral mesh rectopexy and laparoscopic posterior rectopexy without resection in patients with full-thickness rectal prolapse.

Materials and Methods

Study Design - Prospective, comparative, single-center clinical study.

A total of 54 patients with full-thickness rectal prolapse were included.

Inclusion Criteria	Exclusion Criteria
Age ≥ 18 years	Rectal or colorectal malignancy
Full-thickness external rectal prolapse	Inflammatory bowel disease
Symptomatic disease (incontinence, constipation, discomfort, bleeding)	Severe pelvic infection
ASA I–III	Previous pelvic irradiation
Ability to provide informed consent	Severe cardiopulmonary decompensation (ASA IV–V)
	Pregnancy

Groups

Patients were divided into two equal groups:

- Group A (n=27): Ventral Mesh Rectopexy (VMR)
- Group B (n=27): Laparoscopic Posterior Rectopexy without resection (LPR)

Surgical Technique

Ventral Mesh Rectopexy (Group A)

The peritoneum was incised on the right side of the rectum. Only the anterior rectal wall was mobilized. A polypropylene mesh was fixed distally to the anterior rectal wall and proximally to the sacral promontory. The mesh was peritonealized.

Posterior Rectopexy (Group B)

The rectum was mobilized posteriorly down to the pelvic floor. Fixation to the

presacral fascia was performed using non-absorbable sutures. No bowel resection was done.

Outcome Measures

- Operative time (minutes)
- Intraoperative blood loss (ml)
- Postoperative complications (Clavien–Dindo classification)
- Length of hospital stay (days)
- Recurrence rate at 12 and 24 months
- Functional outcomes:
- Constipation (Wexner Constipation Score)
- Fecal incontinence (Wexner Incontinence Score)

Statistical Analysis

Data were analyzed using SPSS software. Quantitative variables were compared using Student's t-test. Categorical variables were analyzed using chi-square test. A p-value <0.05 was considered statistically significant.

Results

Baseline Characteristics

Parameter	Group A (VMR)	Group B (LPR)
Mean age	54.2 ± 11.3	56.1 ± 10.8
Female (%)	74%	70%
Constipation (%)	63%	59%
Incontinence (%)	48%	44%

No statistically significant differences were observed between groups.

Intraoperative Data

Parameter	VMR	LPR	p-value
Operative time (min)	112 ± 18	95 ± 15	<0.05
Blood loss (ml)	60 ± 20	55 ± 18	>0.05

Postoperative Outcomes

Outcome	VMR	LPR
Complications	2 (7.4%)	3 (11.1%)
Hospital stay (days)	3.2 ± 1.1	3.5 ± 1.3

Complications were minor (Clavien I–II).

Functional Outcomes

Constipation

- VMR: improvement in 81.5% of patients
- LPR: improvement in 55.6% of patients ($p < 0.05$)

Fecal Incontinence

- VMR: improvement in 77.8%
- LPR: improvement in 59.3%

Recurrence

Time	VMR	LPR
12 months	1 (3.7%)	2 (7.4%)
24 months	1 (3.7%)	3 (11.1%)

VMR demonstrated significantly lower recurrence rates.

Discussion

Our findings demonstrate that ventral mesh rectopexy offers superior functional outcomes and lower recurrence compared to laparoscopic posterior rectopexy. The preservation of autonomic nerves and correction of the anterior compartment likely explain the lower incidence of postoperative constipation and improved continence.

Posterior rectopexy, while technically simpler and shorter in duration, was associated with a higher incidence of postoperative constipation, likely due to disruption of pelvic autonomic nerves during posterior mobilization.

These results align with contemporary literature, which supports VMR as the preferred technique in patients with associated pelvic floor dysfunction, especially women and patients with obstructed defecation syndrome.

Limitations

- Single-center study
- Moderate sample size
- Lack of randomization
- No quality-of-life questionnaires used

Conclusion

Ventral mesh rectopexy is a safe and effective surgical technique for the treatment of full-thickness rectal prolapse, providing better functional outcomes and lower recurrence rates compared to laparoscopic posterior rectopexy without resection. It should be considered the procedure of choice, particularly in patients with pelvic floor weakness and constipation.

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