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Outcomes of Laparoscopic Ventral Mesh Rectopexy in the Management of Complete Rectal Prolapse: A Single-Center Case Series at a tertiary care centre in rural setup

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Abstract:

Background: Complete rectal prolapse (CRP), or rectal procidentia, is a debilitating condition associated with constipation, fecal incontinence and impaired quality of life. Although several surgical approaches are available, laparoscopic ventral mesh rectopexy (LVMR) has emerged as a nerve-sparing technique that provides anatomical correction while potentially minimizing postoperative constipation. However, evidence regarding its clinical outcomes in rural tertiary-care settings remains limited. This case series evaluates the perioperative, clinical and functional outcomes of LVMR in patients with complete rectal prolapse at a tertiary-care centre in rural Karnataka, India.

Case Presentation: This retrospective single-centre case series included 15 patients with clinically diagnosed complete rectal prolapse who underwent LVMR between May 2024 and March 2026. The mean patient age was 54.4 years, with a male-to-female ratio of 3:2 and a mean BMI of 21.88 ± 1.87 kg/m². Constipation was the predominant presenting

symptom, reported in 10 patients, while all 15 patients presented with a history of something coming out per rectum. All patients underwent laparoscopic ventral mesh rectopexy using synthetic polypropylene mesh, performed by a single surgeon. The mean operative duration was 5 hours and 26 minutes, with a median hospital stay of 7 days and median ICU stay of 1 day. No 30-day readmissions or mortality were recorded. Postoperative follow-up was conducted at 2 weeks and 1, 3 and 6 months, with additional telephonic assessment. Among the documented follow-up observations, improvement in constipation was noted in 5 patients at 2 weeks, 2 at 1 month, 1 at 3 months and 2 at 6 months. No new-onset constipation, worsening of pre-existing constipation or recurrence was documented during the scheduled follow-up assessments.

Conclusion: Laparoscopic ventral mesh rectopexy demonstrated favourable short-term clinical and perioperative outcomes in this series of patients with complete rectal prolapse managed at a rural tertiary-care centre. The absence of documented recurrence, 30-day readmission and mortality, alongside improvement in constipation in several patients, supports its potential as an effective surgical approach in appropriately selected patients. Larger prospective studies with longer follow-up are required to establish the long-term functional outcomes and recurrence rates of this procedure.

Keywords: complete rectal prolapse, laparoscopic ventral mesh rectopexy, rectal procidentia, polypropylene mesh, surgical outcomes, constipation, recurrence, minimally invasive surgery

Background:

Complete rectal prolapse, also known as rectal procidentia or third-degree prolapse, is defined as the circumferential, full-thickness protrusion of all layers of the rectal wall through the anal canal[1]. It must be distinguished from mucosal prolapse, involving only the anal mucosa or partial rectal wall, and hemorrhoids, which are enlarged vascular cushions in the anal canal. Full-thickness prolapse shows concentric circumferential folds, whereas prolapsed hemorrhoids or mucosa show radial folds[2]. Despite its rarity, the condition carries substantial clinical importance due to high rates of fecal incontinence, constipation, and significant impairment of quality of life [3]. Global prevalence is estimated at approximately 0.25%–0.5% of the general population, with a strong female predominance of 6:1 to 9:1 and peak incidence in the seventh decade of life [4]. India departs from this global pattern, showing a male-predominant distribution affecting younger and middle-aged adults [5]. Complete rectal prolapse impairs anorectal function, commonly causing both fecal incontinence and obstructed evacuation.The pathophysiology underlying fecal incontinence in full-thickness rectal prolapse involves multiple structural and neurological factors. The prolapsing rectal mass acts as a physical conduit that dilates the anal canal and exerts a continuous stretch injury on the internal and external anal sphincters [6]. In addition, the protruding tissue chronically stimulates the rectoanal inhibitory reflex, lowering resting anal pressure and blunting the excitatory reflex [7]. Complete rectal

prolapse usually requires surgery, as conservative management cannot anatomically reduce or anchor full-thickness intussusception. Laxatives, pelvic floor therapy, and manual reduction may provide temporary relief, but surgery is the only potentially curative treatment [8]. Surgical management of complete rectal prolapse includes abdominal and perineal approaches; abdominal procedures generally provide more durable anatomical correction and lower recurrence, while perineal procedures remain useful in frail or high-risk patients [9]. Posterior mesh rectopexy provides durable repair but involves extensive pelvic dissection and may cause autonomic nerve injury, constipation, and sexual dysfunction, whereas ventral mesh rectopexy (VMR) uses limited anterior dissection with preservation of the lateral ligaments and sacral parasympathetic nerves, reducing postoperative constipation and permitting concomitant pelvic-organ suspension. Laparoscopic and robotic approaches have largely replaced open surgery because of lower surgical trauma and shorter hospitalization, with VMR increasingly used as a nerve-sparing abdominal technique for rectal prolapse [10]. However, mesh-related complications, particularly rectal or vaginal erosion, along with technical demands and recurrence in selected patients, remain important limitations [11]. The objective of this single-center tertiary-care dataset is to provide real-world evidence on the clinical, functional, and perioperative outcomes of laparoscopic ventral mesh rectopexy (LVMR) for complete rectal prolapse in a tertiary care rural setup with standardized surgical setting. It captures patient characteristics, operative outcomes, postoperative complications, symptom improvement and hospital stay of 15 cases.

Materials and methods:

This retrospective single centre observational study was conducted at a tertiary care center in Harohalli, Karnataka, India, to assess the clinical outcomes of laparoscopic ventral mesh rectopexy in patients with SCOPR. Patients admitted between May 2024 and March 2026 were included, and postoperative follow-up was continued until September 2026, a period of 6 months from the last case performed, with individual follow-up durations determined by the date of surgery and subsequent follow-up assessments. All procedures were performed by a single surgeon. The diagnosis was established through clinical examination, supported by appropriate investigations. Patient demographic characteristics, medical histories, operative details, and postoperative follow-up outcomes were retrospectively reviewed and are summarized in **Table 1**. The data was collected in a pre-formed google document which had questions

Table 1. Demographic characteristics, clinical presentation, perioperative parameters, and postoperative outcomes of the 15 patients who underwent laparoscopic ventral mesh rectopexy.

Characteristics of Patients	Numbers
Total number of patients	15
Mean age	54.4 years

Sex Ratio (M:F)	3:2
Mean BMI	21.88 ± 1.87 kg/m²
Clinical features	
Loose stools	5
Fever	1
Black coloured stools	1
Constipation	10
SCOPR	15
Mean Operating time	5 hours 26 minutes
Median Hospital stay	7 days
Median ICU stay	1 day
30 day re-admission	0
30 day mortality	0

SCOPR: something coming out per rectum

Data was collected using a structured proforma maintained in Google Docs, which included a detailed history-taking format covering the present history, past medical history, and personal history, with relevant information obtained from the patients' hospital records. Postoperative follow-up was conducted at 2 weeks and subsequently at 1, 3 and 6 months to document postoperative complications and sequelae, particularly constipation and disease recurrence **(Table 2)**.

Table 2. Postoperative follow-up outcomes at 2 weeks and 1, 3, and 6 months, documenting changes in constipation status, new-onset or worsening constipation, and recurrence following laparoscopic ventral mesh rectopexy.

Follow up period	Constipation improved	New onset constipation	Constipation remained the same	Worsening of pre-existing constipation	Recurrence

2 weeks	5 patients	0 patients	5 patients	0 patients	0 patients
1 month	2 patients	0 patients	3 patient	0 patients	0 patients
3 months	1 patients	0 patient	2 patient	0 patients	0 patients
6 months	2 patients	0 patients	0 patient	0 patients	0 patients

A structured follow-up sheet was used to record the occurrence of new symptoms, worsening of pre-existing symptoms, and recurrence of previously resolved symptoms at each follow-up interval. Constipation severity before and after surgery was objectively assessed using the Wexner score **(Table 3)**, with all fifteen patients having preoperative scores ranging from 11 to 20, indicative of moderate to severe constipation. Patients who were unable to attend subsequent in-person follow-up visits were contacted by telephone to obtain relevant clinical information. Additionally, all fifteen patients underwent a telephonic interview at the time of manuscript preparation to assess their postoperative status and outcomes.

Table 3. Wexner constipation scoring system

Frequency of Bowel movements: 0. 1-2 times per 1-2 days. 1. 2 times per week 2. Once per week 3. Less than once per week 4. Less than once per month	**Minutes in the toilet to defecate:** 0. Less than 5 minutes 1. 5-10 minutes 2. 10-20 minutes 3. 20-30 minutes 4. More than 30 minutes
Painful evacuation effort: 0. Never 1. Rarely 2. Sometimes 3. Usually 4. Always	**Type of assistance:** 0. No assistance 1. Stimulative laxatives 2. Digital assistance or enema
Feeling incomplete evacuation: 0. Never 1. Rarely 2. Sometimes 3. Usually 4. Always	**Unsuccessful attempts for evacuation per 24 hours:** 0. Never 1. 1 to 3 2. 3 to 6 3. 6 to 9 4. More than 9
Abdominal Pain:	**Duration of constipation:**

0. Never 1. Rarely 2. Sometimes 3. Usually 4. Always	0. Less than a year 1. 1-3 years 2. 3-5 years 3. 5-7 years 4. More than 7 years

1-10: Mild constipation, 11-20: Moderate constipation, 21-30: Severe Constipation

Bowel was prepared preoperatively by administering to all patients using one packet of Peglec dissolved in 2 L of water, which was consumed over a 2-hour period between 4:00 and 6:00 pm on the day preceding the surgery. In accordance with the institutional antibiotic prophylaxis protocol, intravenous Ceftriaxone (1 g) and Metronidazole (500 mg) were administered 30 minutes to 1 hour prior to the surgical incision. Following induction of general anesthesia, a urinary catheter was inserted. Patients were positioned supine and secured to the operating table to facilitate safe positioning in steep Trendelenburg with right tilt to displace the small bowel [12]. Laparoscopic access was established using four trocars: a 10-mm port at the umbilicus, a 5-mm port in the left upper quadrant, a 12-mm port in the right iliac fossa, and a 10-mm port in the right upper quadrant[13]. In female patients, a transvaginal retractor or blunt probe was introduced to provide anterior countertraction against the posterior vaginal wall. For male patients, a Foley’s catheter guides identification of the prostate and Denonvilliers' fascia [14]. The primary surgeon operated from the patient's right side, while the camera assistant was positioned on the upper right and the second assistant on the left.

The peritoneal incision commences over the promontory and extends along the right pararectal gutter in an inverted J- or L-configuration, entering the cul-de-sac. Dissection remains confined to the anterior areolar plane, extending distally until the puborectalis and levator ani musculature are fully exposed. Spared posterior and lateral fascial pillars prevent disruptions in defecatory dynamics. A tailored synthetic prolene mesh of size 3x12cm is positioned in the rectovaginal space (As shown in Figure 1.) The inferior edge is anchored laterally to the pelvic floor muscles and secured along the anterior rectal wall with Ethibond 2-0 suture in the distal part and to the pre sacral fascia proximally along with absorbable tackers. The rectum is drawn upward out of the pelvis to obliterate the prolapse, and the mesh was fixed tension-free to the sacral promontory periosteum with helical titanium tacks. Complete closure of the pelvic peritoneum with 2-0 barbed suture (PDS) was used to close the peritoneum over the mesh which seals the implant extraperitoneally (As shown in Figure 2.), protecting loops of bowel from prosthetic contact or entrapment [15].

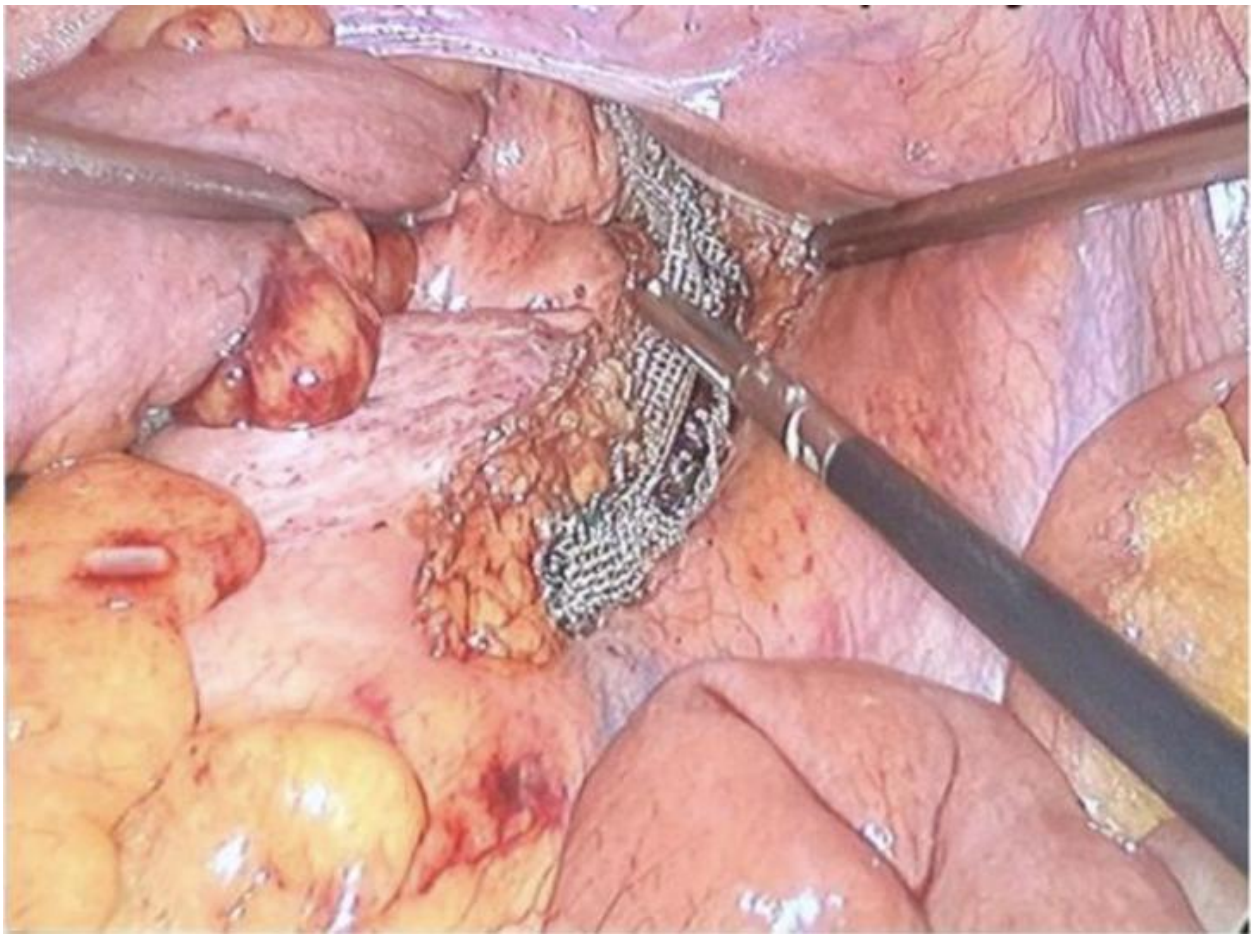


Figure 1. A tailored polypropylene (Prolene) mesh (3 × 12 cm) positioned in the rectovaginal space and secured to the pelvic floor muscles, anterior rectal wall, and presacral fascia using Ethibond 2-0 sutures and absorbable tackers.



Figure 2. Complete peritoneal closure over the mesh using 2-0 barbed PDS suture, sealing the implant in an extraperitoneal position.

Results:

In the present study, we assessed the demographic features of all the 15 study subjects who presented with rectal prolapse and were operated with laparoscopic ventral mesh rectopexy during the time period of May 2024 and March 2026. We observed that the mean age of the subjects was 54.4 years. There was a male preponderance observed in the current study, which is against a well-established female preponderance in the disease. The observed M:F ratio was 3:2.

In the current study, we assessed the clinical presentation of rectal prolapse among the study subjects. We observed that along with the obvious chief complaint of something coming out per rectum (As shown in Figure 3.), among associated complaints, the commonest was constipation (n = 10, 66.67%), followed by loose stools (n = 5, 33.33%), and black coloured stools (n = 1,

6.67%) and fever (n = 1, 6.67%). None of the patients in this series had incontinence as an associated symptom. The mean duration of SCOPR among the study subjects was found to be 1.8 months. All the patients (n = 15, 100%) were managed with laparoscopic ventral mesh rectopexy. The mean operative time was 5 hours 26 minutes. No intra-operative blood transfusion was required. Median length of hospital stay was 7 days. There was no peri-operative mortality. No mesh-related complications such as mesh infection, erosion, etc., were observed. There were no other complications noted, such as injury to ureter/s or major blood vessels. There were no conversions to open surgery. There were no recurrences observed in the study population.

At median follow-up of 6 months, constipation improved among 4 (80%), remained the same among 1(20%), and worsened amongst none (0%). The follow-up findings are summarized in **Table 2.**



Figure 3. Clinical presentation of rectal prolapse, with protrusion of tissue through the anal opening.

Discussion:

Rectal prolapse can be broadly classified into internal and external forms. Internal prolapse, commonly referred to as recto-rectal intussusception, encompasses Grades I–IV of the Oxford Rectal Prolapse Grading System (ORPGS), whereas external prolapse corresponds to Grade V (Table 4.) The ORPGS evaluates the descent of the rectal wall on radiologic defecography across five sequential anatomical grades [16]. Patients with external rectal prolapse commonly report protrusion of tissue through the anus, which may be accompanied by constipation, rectal

bleeding, pain, or faecal incontinence. In contrast, internal prolapse more frequently manifests as obstructed defecation or faecal incontinence.

Table 4. Classification of rectal prolapse into internal (Grades I–IV) and external (Grade V) forms according to the Oxford Rectal Prolapse Grading System.

Oxford Grading System for Rectal Prolapse		
Internal Rectal Prolapse		
Rectal Intussusception	Grade I	Descends no lower than the proximal limit of a rectocele
	Grade II	Descends into the level of a rectocele, but not into the anal canal
Rectoanal Intussusception	Grade III	Descends to the top of the anal canal
	Grade IV	Descends into the anal canal
External Rectal Prolapse	Grade V	Protrudes from the anus

The National Institute for Health and Care Excellence (NICE). Laparoscopic Ventral Mesh Rectopexy for Internal Rectal Prolapse.; 2018. https://www.nice.org.uk/guidance/ipg618/evidence/overview-final-pdf-4897863901.

External full-thickness rectal prolapse generally requires surgical intervention, whereas internal prolapse may initially be managed conservatively through dietary modification, lifestyle changes, pelvic floor rehabilitation, biofeedback, and psychological support when indicated. Surgery may be considered when these measures fail to provide adequate symptomatic relief [17]. For patients with internal rectal prolapse who remain symptomatic despite conservative treatment, laparoscopic ventral mesh rectopexy is an established surgical option, provided the patient is fit for general anaesthesia and has no contraindications to an abdominal approach. Previous major pelvic surgery, pelvic irradiation, severe pelvic inflammatory disease, and relevant pelvic pathology may influence the choice of procedure [18]. Alternative interventions, including the Delorme procedure and stapled transanal rectal resection (STARR), may be considered in selected patients according to the underlying pathology and individual clinical circumstances [19].

Furthermore, rectal prolapse may coexist with pelvic organ or genital prolapse, making assessment for associated pelvic floor disorders an important component of the preoperative evaluation. A vaginal examination should therefore be considered in female patients when clinically appropriate [20]. Magnetic resonance defecography may be useful in patients with obstructed defecation and suspected internal prolapse, while anorectal manometry may be considered in patients presenting with faecal incontinence or obstructed defecation when the

findings are likely to influence management. Neurophysiological investigations may be indicated when rectal prolapse is associated with a suspected neurological disorder. In patients with clinically evident complete external rectal prolapse, additional anorectal functional testing is not routinely necessary in every case; however, it may be appropriate for selected patients, particularly those with faecal incontinence or other symptoms suggestive of underlying pelvic floor dysfunction [21].

Rectopexy procedures can be delivered via conventional open laparotomy, minimally invasive laparoscopy, or robotic-assisted surgery [22]. Minimally invasive laparoscopic rectopexy has become the standard modality for suitable candidates, offering reduced operative blood loss, decreased postoperative pain, and shorter hospital stays compared to open laparotomy [23]. (Table 5.) summarizes the different types of laparoscopic rectopexy procedures for complete rectal prolapse.

Table 5. Comparison of different laparoscopic rectopexy techniques used in the surgical management of complete rectal prolapse, highlighting their surgical technique, advantages and disadvantages

Procedure Type	Surgical Technique	Functional Advantages	Disadvantages
Ventral Mesh Rectopexy	Anterior mesh placement; spares posterior nerves [24]	Preserves autonomic function; improves continence [24]	Higher male recurrence risk; rare mesh erosion [25]
Posterior Mesh Rectopexy	Circumferential posterior mobilization with mesh [26]	Lowest recurrence rates in comparative trials [27]	Postoperative or de-novo constipation risk [28]
Suture Rectopexy	Direct presacral fixation without synthetic mesh [29]	Shorter operative time; zero mesh morbidity [29]	Modestly increased recurrence versus mesh repairs [29]
Resection Rectopexy	Sigmoidectomy combined with suture rectopexy [26]	Major improvement in preoperative constipation [26]	Anastomotic leakage risk; higher morbidity [26]

LVMR shows a tendency toward lower recurrence than posterior suture rectopexy, although evidence is not definitive across all techniques. A randomized trial reported recurrence rates of 8.82% with LVMR versus 23.33% with LPSR at a median 6.1-year follow-up; it was not powered for recurrence significance [30]. Meta-analyses generally favored mesh over suture rectopexy (OR 0.28 and 0.41), although heterogeneity and nonsignificant pooled results were

reported. A systematic review reported recurrence rates of 3.7% after VMR versus 8.6% after suture rectopexy for complete rectal prolapse [31]. In elderly patients, LVMR had 2% recurrence versus 20% after perineal stapler resection, with a longer recurrence-free interval.

In a 220-patient retrospective series, recurrence was 39% after LVMR versus 26% after resection rectopexy, particularly in redo repairs (10-year recurrence: 63% vs 25%); functional outcomes were similar [32].

In anterior-only approaches—such as ventral rectopexy—dissection remains restricted to the peritoneal reflection and the prerectal space. Maintaining an avascular plane posterior to Denonvilliers' fascia or developing the interfascial space insulates the anterolateral neurovascular bundles against mechanical traction, diathermy burns, and ischemia [33]. Laparoscopic platforms provide magnified stereoscopic visualization that assists surgeons in navigating these micro-spaces without violating the nervous network [34]. By sparing the posterior visceral-parietal planes and preserving the sacral parasympathetic outflow, anterior dissection preserves propulsive colonic motor activity. In a landmark cohort of 42 patients undergoing anterior-limited rectopexy, obstructed defecation resolved in 84% of cases (16 of 19 patients) with new-onset obstructed defecation occurring in only two patients and zero induction of slow-transit obstipation. While autonomic-preserving techniques significantly decrease functional morbidity [35].

The main trade-off between rectopexy techniques is functional morbidity versus mesh-related complications. Posterior mesh rectopexy requires extensive dissection, increasing the risk of constipation and defecatory dysfunction. Although overall complication rates are similar, ventral mesh introduces specific prosthetic risks. Pre-existing constipation and dolichocolon may contribute to persistent symptoms in over 30% of cases [36]. One study reported higher recurrence after ventral versus posterior mesh rectopexy (11.2% vs 0.8%), potentially due to technical challenges in the narrow male pelvis [37]. The true incidence of mesh related complications remains uncertain because adverse events are inconsistently reported and trials are often underpowered to detect rare complications. The overall mesh-complication rate is 1.4%; reported complications include erosion (64.8%), fistula (11.4%), and graft detachment (13.6%) [38]. Over 90% of erosion cases require reoperation, potentially involving mesh excision, bowel resection, or stoma creation. Evidence comparing synthetic and biological meshes remains heterogeneous and low-quality, leaving the optimal material uncertain [39]. Overall, VMR may better preserve bowel function and reduce defecatory symptoms, but mesh-related complications and recurrence risks require consideration.

LVMR is consistently associated with improved faecal incontinence and constipation, with a meta-analysis estimating weighted mean improvement rates of 79.3% for faecal incontinence and 71% for constipation [40]. In the largest long-term observational cohort, incontinence fell from 37.5% preoperatively to 11.1% postoperatively and obstructed defecation/constipation fell from

54.0% to 15.6% after laparoscopic ventral rectopexy [41]. Smaller prospective and retrospective cohorts have also reported significant postoperative improvements in the Wexner Constipation Score (WCS), Obstructed Defecation Syndrome (ODS) score, Birmingham Bowel and Urinary Symptoms (BBUS) score, and Faecal Incontinence Severity Index (FISI), including an improvement in ODS score from 10.76 to 6.28 and FISI score from 9 to 5 in one recent series [42].

The benefits appear to be more pronounced for faecal incontinence, whereas improvements in constipation tend to be more variable over time. One long-term study demonstrated sustained reductions in FISI and Constipation Scoring System (CSS) scores for up to 7 years, with at least 50% improvement maintained in approximately 75% of patients with faecal incontinence compared with 50% of patients with constipation [43]. Another recent cohort reported near-complete resolution of digital assistance and prolonged straining, a reduction in faecal incontinence from 43.4% to 11.2%, and persistent constipation or laxative use in 22.4% of patients [44]. Postoperative constipation may persist, particularly in patients with pre-existing constipation or a redundant colon.

Long-term recurrence after LVMR ranges from **2.8% at a median 23 months** to **8.2–10.5% at 10 years**, depending on follow-up and patient characteristics [45]. Recurrence in internal rectal prolapse among men reached 36.4% in multicentre registries.

VMR limits dissection to the anterior rectovaginal plane, preserving posterolateral autonomic nerves and reducing denervation. Compared with posterior mesh rectopexy, VMR leads to less de novo constipation as autonomic nerves are preserved and may minimise postoperative constipation. At six years, a randomised trial found lower constipation symptom and obstructed defecation scores after ventral versus posterior repair (PAC-S: 0.5 vs 1.0, $P = 0.031$), suggesting improved bowel function. Both techniques may improve continence, with reported resolution rates of approximately 79–95%.

Evidence supporting LVMR as a preferred procedure is limited by few randomised trials, long-term attrition, underpowered complication reporting, and technical heterogeneity [46]. Evidence beyond 5–10 years is scarce and mainly observational or retrospective. Attrition from loss to follow-up, deaths, and unreturned questionnaires reduces evaluable cohorts, while retrospective interviews introduce recall bias [47]**.** In a 12-year cohort of 175 patients, 42 were lost to follow-up and 57 died; only 62 remained for functional assessment. Recurrence reached 10.5% at 10 years, with recurrence associated with deteriorating bowel function. The true incidence of mesh-related complications remains uncertain because adverse events are inconsistently reported and trials are often underpowered to detect rare complications. Comparisons with laparoscopic posterior sutured rectopexy (LPSR) and resection rectopexy are limited by variations in dissection, lateral mobilisation, mesh dimensions, and fixation methods. Robotic assistance may facilitate deep pelvic suturing, but its clinical superiority over laparoscopy remains unproven

[48]. Meta-analysis found no significant recurrence difference between suture rectopexy and VMR ($P = 0.76$), despite lower absolute recurrence in observational VMR cohorts. Differences in lateral ligament division and presacral dissection complicate attribution of constipation outcomes to the procedure versus the mobilisation technique. Thus, despite promising functional outcomes, evidence supporting LVMR as the preferred procedure remains constrained by limited long-term data, uncertain mesh safety estimates, and heterogeneous techniques. Individualised surgical selection and counselling by a colorectal surgeon remain important. Our complete case-series results compare patients' demographic characteristics, symptoms, operative outcomes, postoperative functional improvement, complications, and recurrence with the literature.

Conclusion:

Laparoscopic ventral mesh rectopexy (LVMR) demonstrated favourable short-term perioperative and clinical outcomes in the surgical management of complete rectal prolapse in this single-centre case series of 15 patients. The procedure was associated with satisfactory anatomical outcomes, with no documented recurrence, mesh-related complications, conversion to open surgery, 30-day readmission or perioperative mortality during the study period. Improvement in constipation was observed in several patients, without documented new-onset or worsening postoperative constipation. These findings support the feasibility of performing LVMR in a tertiary-care centre in a rural setting, with outcomes consistent with the favourable functional results reported in existing literature. However, the retrospective design, small sample size and relatively short follow-up period limit the generalisability of these findings and the assessment of long-term recurrence and mesh-related complications. Larger prospective, multicentre studies with standardised functional assessment and extended follow-up are warranted to establish the long-term safety, efficacy and functional benefits of LVMR in patients with complete rectal prolapse.

Declarations:

Ethics approval and consent to participate: Ethical approval for the study was obtained from the Institutional Ethics Committee (IEC) of Dr. Chandramma Dayananda Sagar Institute of Medical Education and Research. Written informed consent was obtained from all patients for the use of their clinical data for research purposes. Patient confidentiality and anonymity were strictly maintained throughout the study.

Consent for publication: Written informed consent was obtained from all patients prior to the collection and use of their clinical data for this case series. The patients were informed that the collected information, including any clinical photographs used for publication, would be anonymised to ensure that no personally identifiable information was disclosed. They were also informed that the data would be used solely for research and academic publication purposes. All patients voluntarily provided their consent after being adequately informed about the purpose and scope of the study.

Availability of data and materials: The data and materials supporting the findings of this study are available from the corresponding author upon reasonable request.

Competing interests: None declared

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Author Contributions: P.M. was the principal operating surgeon and performed all surgical procedures included in the study. He also contributed to maintaining patient records and coordinating postoperative follow-up. C.D., S.C., and Z.N. were involved in reviewing hospital records and collecting relevant clinical data. C.D. and P.M. additionally coordinated patient follow-up and collected postoperative outcome data. All four authors (P., C.D., S.C., and Z.N.) contributed to data analysis, interpretation of findings, and synthesis of the study results. All

authors participated in drafting, critically reviewing, and revising the manuscript and approved the final version for publication.

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