Experience and results of laparoscopic ventral rectopexy in the treatment of rectal prolapse and rectocele

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ABSTRACT

Introduction: Prolapse and rectocele are conditions associated with defecatory obstruction and fecal incontinence, which have a significant impact on the quality of life of patients. The evolution of laparoscopic techniques for its correction has impacted current surgical management in terms of recurrence, complications and functional results.
Objective: To describe the short-term clinical results of laparoscopic ventral rectopexy (LVR) for the correction of rectal prolapse and symptomatic rectocele by the coloproctology service of the University Foundation of Health Sciences, Hospital de San José, Bogotá, Colombia.
Design: Retrospective observational study.
Material and Methods: The medical records of patients undergoing LVR for rectal prolapse and symptomatic rectocele between January 2019 and February 2023 were retrospectively reviewed. Demographic variables, etiology of obstructed defecation syndrome (ODS), pre- and postoperative Wexner incontinence score and Renzi ODS score, previous surgery, details of the surgical technique, length of hospital stay, complications, postoperative correction of constipation and/or incontinence and recurrence were registered. The maximum follow-up was 6 months.
Results: LVR was performed on 24 patients, 23 women, with a median age of 67 (IQR: 38-84) years. Rectal prolapse was the main indication for the procedure (62%) and 29% had a history of correction. The median surgical time was 120 (93-180) min. Synthetic meshes with a size between 15 and 20 cm were used, most frequently fixed to the sacral promontory (66%) with absorbable tacks. The average hospital stay was 1 day. There were no early complications. Two patients (13.3%) had prolapse recurrence. One of them was readmitted for constipation, abandoned treatment with osmotic laxatives, and had a recurrence after 90 days. Another, with a history of two previous surgeries for prolapse, recurred after 6 months. After LVR, all patients showed improvement in obstructed defecation and incontinence scale scores.
Conclusions: LVR had low risk, absence of early complications, favorable results in terms of obstructive symptoms and fecal incontinence, and low recurrence rate. Studies with longer follow-up are required to evaluate long-term results.
Keywords: *rectal prolapse, rectocele, laparoscopic ventral rectopexy, obstructed defecation syndrome, fecal incontinence*

INTRODUCTION

Rectal prolapse is an intussusception of the rectum that includes all its layers and protrudes beyond the anal canal. It is mainly caused by a progressive weakening of the pelvic diaphragm. It is a rare condition that occurs in less than 0.5% of the population, but it has a significant impact on the quality of life of patients, given its important association with fecal incontinence.[1]

It can be associated with enterocele, rectocele or vaginal prolapse. Within the pathophysiology, most develop an obstructed defecation syndrome (ODS) that leads to progressive damage to the anal sphincter and, in some cases, pudendal neuropathy. The prolapse, by occupying the lower rectum, produces its distension and reflex inhibition of the internal anal sphincter (rectoanal inhibitory reflex), decreasing the anal resting pressure and consequently favoring the development of fecal incontinence.[1,2]

Differences have been identified in the long-term results of surgical treatment of rectal prolapse between the perineal and abdominal approaches. After a 3-year follow-up, perineal techniques present a higher recurrence rate (close to 50%) than abdominal techniques (10-20%), although their complication rate is lower.[3-5]

Surgical techniques for prolapse repair are based on the principle of mobilizing, reducing, reinforcing, resecting or fixing the herniated rectum, with the aim of restoring the anatomy and functionality of the pelvic floor as well as reducing the symptoms related to the ODS and fecal incontinence.[6-8]

The evolution of laparoscopic abdominal techniques has had a great impact on the current surgical management of this condition. Laparoscopic ventral rectopexy (LVR) introduced by André D'Hoore has allowed a lower long-term recurrence (3-10%) and better functional results than classical techniques,[6,9,10] although it is not free of complications. Attempts have been made to identify predictive factors of recurrence in order to improve results.[2,11,12] LVR has been little used by Colombian coloproctologists, who more frequently perform perineal approaches. However, given the growing support for laparoscopic techniques reported in the literature, it is expected that this technique will be adopted.

Although, it should be noted that ultimately the technique used for rectal mobilization (anterior vs. posterior) and rectopexy (suture vs. mesh), as well as the approach (open, laparoscopic, or robotic), depend on the surgeon's preference and experience.[4,5,8,9,12,13]

The aim of the present study is to describe the mid-term clinical outcomes of LVR for the correction of rectal prolapse and associated symptomatic rectocele.

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Received: May 2023. Accepted: June 2024

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MATERIAL AND METHODS

The medical records of patients with symptomatic rectal prolapse and rectocele treated with LVR in the coloproctology service of the Fundación Universitaria de Ciencias de la Salud, Hospital de San José, Bogotá, Colombia between January 2019 and February 2023 were retrospectively reviewed. All patients over 18 years of age were included, and those with incomplete medical records or no follow-up were excluded.

Demographic variables, etiology of ODS, symptoms measured pre- and postoperatively with the Wexner incontinence score and the Renzi ODS score, and previous surgical repair were recorded. Details of surgical technique, complications, hospital stay, postoperative correction of constipation and/or incontinence, and prolapse recurrence were also assessed.

A descriptive analysis of clinical outcomes at 30 days, 90 days, and 6 months postoperatively was performed. Two patients were followed up only up to 30 days, given the date of the surgical procedure.

Quantitative variables are expressed as median and interquartile range (IQR) or median and minimum and maximum values, and qualitative variables as absolute and relative frequencies.

RESULTS

Twenty-four patients (23 women) with a median age of 67 (IQR: 38-84) years were included. The main characteristics of the population are detailed in Table 1. Six (25%) patients had a history of prolapse and rectocele repair, most (85%) operated on via perineal approach; 62.5% had studies to rule out intraluminal lesions and assess defecatory function. The median Wexner fecal incontinence score was 12 (IQR 6-16) and the Renzi ODS score was 8 (IQR 5-12).

The indication for the procedure was rectal prolapse in 15 (62.5%) patients and rectocele in 9 (37.5%). The median operative time was 120 (range: 93-180) min. Polypropylene meshes were used in 75% of patients and coated meshes in the remainder (4 polypropylene meshes coated with biogel, Sepramesh IP Composite™ and 2 polyester meshes coated with collagen and glycerol matrix, Symbotex™). A 5x15 cm mesh was used in 45% of patients. The most commonly used fixation method (66.7%) was absorbable tackers (Table 2).

The urinary catheter was removed within the first 24 hours. The median hospital stay was 1 day (range: 1-5). There were no postoperative complications within 30 days after surgery.

Table 1. Population characteristics.

Data	Patients (n=24)
Age. median (IQR)	67 (58-77)
Sex. n (%)	
Female	23 (95.8)
Male	1 (4.2)
Background. n (%)	
High blood pressure	13 (54)
Diabetes mellitus	6 (25)
Hypothyroidism	1 (4.2)
Schizophrenia	1 (4.2)
Dyslipidemia	1 (4.2)
Heart failure	1 (4.2)
History of repair. n (%)	7 (29.2)
Perineal technique	6 (85.7)
Anterior rectopexy with mesh	1 (14.3)
Symptoms. median (IQR)	
Wexner Incontinence Score	12 (6-16)
Renzi ODS Score	8 (5-12)
Preoperative studies. n (%)	15 (62.5)
Colonoscopy	12 (80)
Anal manometry	5 (33.3)
Dynamic MRI	1 (6.7)

IQR: Interquartile range. ODS: Obstructive defecation syndrome. MRI: magnetic resonance imaging.

One patient was readmitted for constipation before her 90-day follow-up. She was prescribed an osmotic laxative, which was discontinued at the patient's discretion, and a recurrence of prolapse was diagnosed during her 90-day follow-up. Another patient with a history of two prior repairs (one perineal and one by ventral mesh rectopexy) had recurrence of prolapse at 6 months.

However, none of these patients presented worsening of symptoms, as they did not present an increase in the Renzi ODS scale (8 vs. 0 preoperatively and postoperatively, respectively) (Fig. 1) or in the Wexner fecal incontinence scale (12 vs. 2 preoperatively and postoperatively, respectively) (Fig. 2).

Patients with prolapse recurrence presented the highest scores on both the Renzi scale (8, in the patient who recurred at 90 days) and the Wexner scale (10, in the patient who recurred at 6 months).

Table 2. Indications and characteristics of the procedure.

Data	Patients (n=24)
Indication for procedure, n (%)	
Rectocele	9 (37.5)
Rectal prolapse	15 (62.5)
Operative time: min, median (min-max)	120 (93-180)
Length of hospital stay: days, median (min-max)	1 (1-5)
Type of mesh, n (%)	
Synthetic	24 (100)
Polypropylene	18 (75)
Coated	6 (25)
Mesh size: cm, medium (min-max)	
Length	15 (15-20)
Width	5 (4-6)
Fixation method, n (%)	
PDS™ suture	6 (25)
Absorbatack™	16 (66.7)
Sorbafix™	2 (8.3)

DISCUSSION

This study reports the clinical results of a series of 24 patients who underwent LVR for symptomatic prolapse or rectocele. To date, it is the first series of this type published by a group from Colombia. Although international guidelines currently indicate that the techniques used for these patients depend on the surgeon's preference and experience,[8] international reports increasingly demonstrate that LVR is approaching the technique of choice for the management of this condition, which further values the publication of studies from countries where experience with this technique is scarce.[4,8,14]

The population included in this study was mostly women (94%), over 60 years of age and with comorbidities, commonly arterial hypertension (54%) and diabetes (25%), which is consistent with what is described in the literature on risk factors for rectal prolapse or rectocele.[1,2]

The most common symptom was fecal incontinence, which predominated over symptoms of obstructed defecation. The preoperative Wexner score, with a median of 12, indicated moderate fecal incontinence, with complete rectal prolapse or rectocele.

All our patients with rectal prolapse had a definitive indication for surgical treatment. The objective of surgery is to correct the anatomical defect by providing support points, in order to relieve bowel dysfunction and avoid complications.[6] Different studies have shown that LVR with mesh meets these objectives and also prevents pelvic floor lowering, with lower recurrence rates, less postoperative constipation and a low percentage of complications associated with the mesh. In addition, it offers the benefits of minimally invasive procedures such as short hospital stay, low percentage of incontinence or urinary urgency, early removal of the urinary catheter and little bleeding, among others.[3,11,15,] As an additional advantage, this technique has proven to be safe and efficient in the management of recurrences,[10,11] which

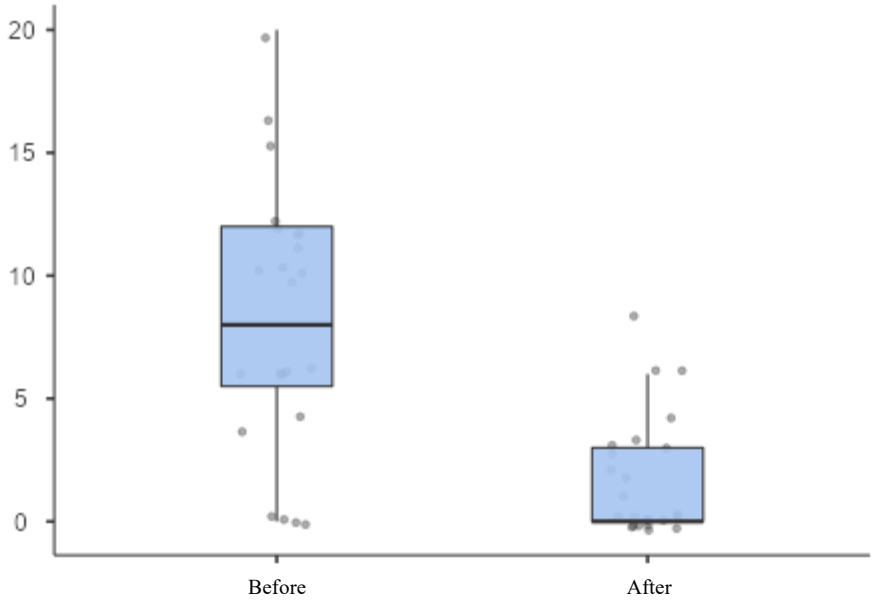

Figure 1. *Renzi obstructed defecation syndrome scores before and after laparoscopic ventral mesh rectopexy.*

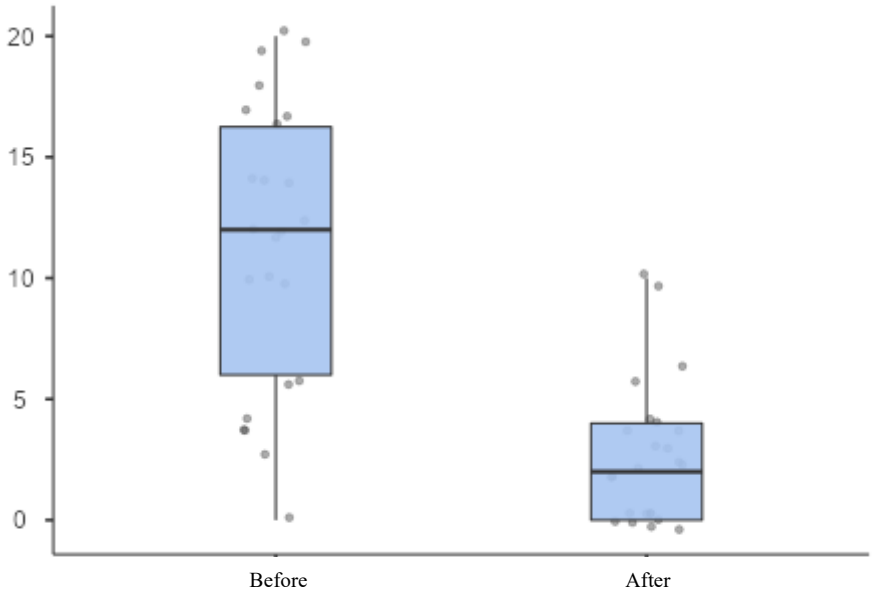

Figure 2. *Wexner fecal incontinence scores before and after laparoscopic ventral mesh rectopexy.*

was beneficial in 29.2% of the patients in this series who had a history of previous prolapse repair.

Our results were consistent with the international literature, taking into account that it is a limited sample. Only one patient was readmitted for constipation, she was prescribed osmotic laxatives, which she did not follow, subsequently presenting a recurrence of the prolapse. The nature of the study does not allow causal associations, however the literature has identified this as one of the risk factors for presenting worse functional results and greater recurrence.[2,11,16] The rest of the patients did not present complications associated with the procedure, either at 30 or at 90 days.

The urinary catheter was removed early in all patients and all, including the 2 (13.3%) with recurrence of prolapse, presented a subjective improvement in their symptoms measured on the Wexner and Renzi scales, contributing a benefit to their quality of life. Considering that patients with this pathplpgy who do not receive surgical treatment have worse functional results, it is necessary to report the experience of groups from different countries that begin to adopt this technique, in order to compare results and, at some point, find a consensus regarding the best surgical option.[7,17-19]

In all patients in this series, synthetic meshes were used, 25% of which were coated on one of their two sides. There were no complications associated with the mesh and, given the sample size, no differences between the different meshes were evaluated. It is important to note that a higher rate of recurrence and complications has been described with the use of non-biological meshes, although since they are not used in our institution, it was not possible to evaluate their performance. It would be important in the future to propose a comparative study that includes biological meshes to help clarify these controversies.[2,20-22]

Regarding mesh fixation, absorbable tackers were predominantly used in this study. No complications associated with any of the fixation methods were observed, however, it was not possible to assess the postoperative pain associated with them since these data were not available in the medical records. This is a possible line of future research, since the debate on which is the best method of fixation is another cause of current controversy.[10]

To conclude, it is emphasized again that, despite being a small series, this is the first study of this type carried out in Colombia and one of the few in Latin America.

Among the limitations of the study are its retrospective nature and its limited sample, in addition to the short-term follow-up that does not allow for the formulation of associations with greater epidemiological weight. However, as a first experience it is considered of great value since it allowed researchers to raise new questions to continue with this line of research and to present new future studies related to the different types of meshes and fixation methods.

CONCLUSIONS

LVR was a low-risk procedure, with no immediate complications and a low recurrence rate, in line with what has been reported in the international literature. It had favorable results regarding fecal incontinence and obstructive symptoms in patients with rectal prolapse and rectocele, clinically evaluated with the Wexner incontinence scale and Renzi ODS scale, which indicated an objective improvement in their quality of life. Studies with longer follow-up are required to evaluate long-term results.

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