Delorme Procedure for the Management of Rectal Prolapse in a Patient with a Rigid Pelvis: Case Report and Literature Review

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ABSTRACT

Rectal prolapse significantly impacts quality of life, primarily due to its association with fecal incontinence. There has been a clear shift in prolapse management toward the laparoscopic abdominal approach. However, the results of this approach are inconsistent, and a significant proportion of patients, ineligible for laparoscopic techniques, continue to undergo perineal treatment. Nevertheless, the available evidence remains insufficient to support the preference for one approach over another.

Recent studies have demonstrated that perineal techniques have lower recurrence rates than previously reported. The Delorme perineal procedure is a safe option with results similar to other approaches. It is particularly suitable for elderly patients with comorbidities and/or anatomical variants that render them ineligible for abdominal techniques.

We present a case of a patient with rectal prolapse, multiple sclerosis, and a rigid pelvis who was treated with a Delorme procedure with favorable results.

Keywords: *Rectal prolapse; Fecal incontinence; Rigid pelvis; Perianal approach; Delorme procedure*

INTRODUCTION

Rectal prolapse is a rare condition that affects less than 0.5% of the population. It significantly impacts patients' quality of life, primarily due to its association with fecal incontinence.[1,2] Clinically, rectal prolapse is identified by the protrusion of the rectal wall, which can occur during Valsalva maneuvers or even while at rest.

There are perineal and abdominal techniques available for its correction. Historically, perineal techniques have been associated with higher recurrence rates, nearing 40%, while abdominal techniques have lower recurrence rates, ranging from 10% to 20%. Both approaches have low complication rates.[3–4]

Abdominal surgical techniques focus on reducing and fixing the prolapsed rectum to the sacrum, with or without resection of the redundant sigmoid colon. Perineal techniques consist of a rectosigmoidectomy, or a rectal mucosa resection, followed by plication of the muscular wall, without fixation. The objective is to restore the anatomy and functionality of the pelvic floor, and decrease symptoms related to defecation obstruction and fecal incontinence.[5]

The primary objective of abdominal surgical techniques is to reduce the prolapsed rectum and fix it to the sacrum, with or without the resection of the redundant sigmoid colon. Perineal techniques include procedures such as rectosigmoidectomy, or rectal mucosal resection and muscle wall plication, both without fixation. These treatments aim to restore the anatomy and function of the pelvic floor and relieve symptoms related to fecal incontinence and obstruction during defecation.

The scientific literature increasingly supports laparoscopic techniques over perineal approaches. However, it is essential to recognize the lack of conclusive evidence that definitively favors one method over another. Approximately 60% of rectal prolapse repairs are performed using the perineal approach, especially in nonagenarians and patients with several comorbidities.[3,5]

We present a case of rectal prolapse in a patient with a rigid pelvis, treated using the Delorme technique.

CASE

A 66-year-old female patient presented with a three-year history of symptoms, consisting of an anal mass, occasional rectal bleeding, and fecal incontinence. The patient was referred to coloproctology as a result of a deterioration in her symptoms. Her Wexner score was 20, and her ODS score was 10.

A physical examination revealed an atonic anal sphincter and complete rectal prolapse, with edematous mucosa. Manometry revealed hypotonia of the internal sphincter, decreased voluntary contraction, and a type IV dyssynergic pattern. The rectoanal inhibitory reflex was present. Defecography revealed a spastic pelvic floor, with no evidence of organocele.

Initially, laparoscopic ventral rectopexy with mesh was considered; however, due to the patient's history of systemic sclerosis and pelvic floor spasticity, which rendered a laparoscopic approach unfavorable, a Delorme procedure was selected.

Surgical Technique

The procedure was performed under general anesthesia in the jackknife position. A Lone Star® retractor was then placed at the anal margin, exposing the anal canal and enabling the exteriorization of the prolapse. The circumferential submucosal dissection was initiated 1 cm from the dentate line. Hypertonic saline infiltration with adrenaline was performed to facilitate the dissection and total release of the redundant mucosa. Adequate hemostasis was confirmed, and muscle plication was performed with six sutures of 2-0 polydioxanone. Subsequently, the dissected mucosa was resected, and the edges were sutured with 2-0 polydioxanone, beginning with sutures in all four quadrants. The retractor was successfully removed without complications (Fig. 1).

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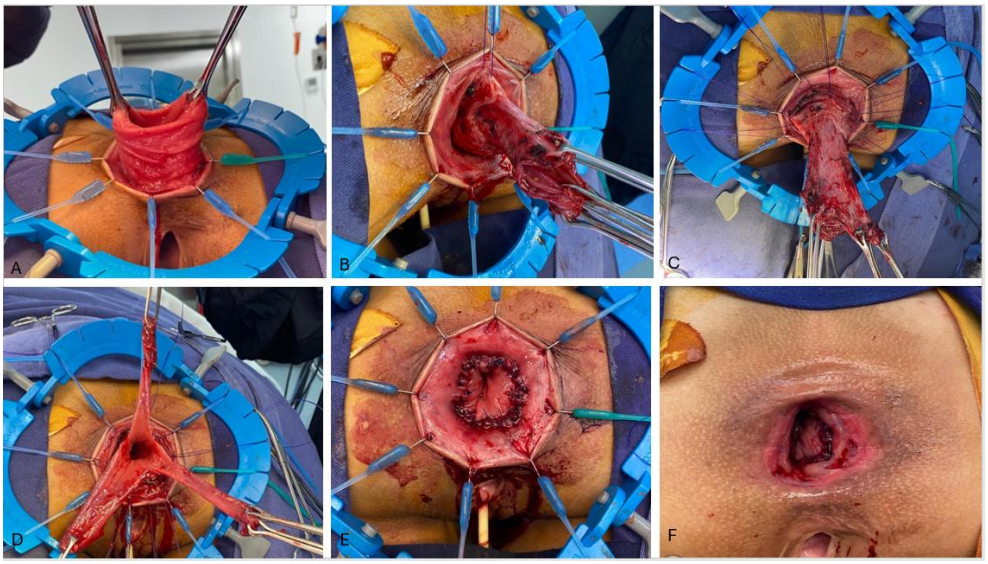

Figure 1. *Delorme procedure in jackknife position.* ***A.*** *Placement of the Lone Star® retractor and externalization of the prolapse with forceps.* ***B.*** *Circumferential submucosal dissection.* ***C.*** *Placement and repair of the sutures for muscle plication.* ***D.*** *Knotted muscle sutures and preparation of the mucosa before resection and suturing.* ***E.*** *Complete mucosal suture. F. Final result.*

Postoperative Outcome

The patient had no immediate complications and was discharged on the first postoperative day. She attended follow-up appointments at 15 and 30 days after the procedure. The rectal prolapse was completely corrected, with no further episodes of rectal bleeding. Her fecal incontinence improved, as indicated by a Wexner score of 12. At the last postoperative follow-up, three months after the procedure, her Wexner score was 8, due to the occasional persistent incontinence of solid and liquid stools, and pad use. However, there was an improvement in her quality of life. She was recommended to continue pelvic floor rehabilitation. No postoperative manometry was performed.

DISCUSSION

Rectal prolapse is the intussusception of the rectum, including all its layers, that protrudes beyond the anal canal. It is primarily caused by a progressive weakening of the muscular diaphragm, leading to a pelvic floor imbalance. This condition affects nearly 0.5% of the population, with women accounting for 70% of cases, particularly in individuals over 70. It notably impacts quality of life, as it is closely associated with fecal incontinence. Clinically, it is identified by the protrusion of the rectal wall at rest or during Valsalva maneuvers on physical examination.[1]

Most patients experience an obstruction during defecation, which leads to straining and progressive damage to the anal sphincter. In some cases, this is accompanied by pudendal neuropathy, resulting in rectal distension and a reflex inhibition of the internal anal sphincter. As a consequence, anal pressure at rest is reduced, increasing the likelihood of fecal incontinence.[1,2]

Approaches to rectal prolapse repair include abdominal and perineal techniques. Historically, perineal techniques have been associated with a higher recurrence rate compared to abdominal techniques, with reported rates reaching up to 40%. André D'Hoore has introduced the laparoscopic ventral rectopexy technique, reporting low long-term recurrence rates and adequate functional results, even in nonagenarian patients with comorbidities unsuitable for conventional abdominal surgery.[5,6] However, contrary to traditional thinking, several recent studies have reported recurrence rates in perineal approaches as low as 10%,

associated with a low rate of complications. According to the 2018 Consensus Statement of the Italian Society of Colorectal Surgery, these surgical procedures performed by perineal approach are considered first-line for patients deemed unsuitable for abdominal approaches (open or laparoscopic), such as older adults, those with multiple comorbidities, and/or those with anatomical variants. It is important to note that this recommendation does not specify which anatomical variants were considered.[5]

The Delorme procedure was first described in 1990. This surgical technique involves the excision of the prolapsed rectum mucosa, followed by plication of the remaining denuded muscle and suture of the mucosa. The main advantage of this approach is that it eliminates the need for removing any part of the colon or rectum, thus reducing the risk associated with a complicated anastomosis.[7]

Although a high recurrence rate has traditionally been reported for this procedure, recent studies have shown that, when performed by experts and with proper patient selection, the recurrence rate can be as low as 10%, comparable to other procedures. While no specific information is available regarding the use of this procedure in complex pelvic scenarios, consensus recommendations for managing rectal prolapse suggest that it is an excellent alternative for patients with challenging pelvic access and those at a high risk of anastomotic leakage, as illustrated in the case presented in this report.[5]

The best surgical procedure should consider both individual patient factors and procedural aspects to identify the most appropriate approach. While laparoscopic techniques are increasingly preferred over perineal methods, the evidence supporting this preference remains controversial. Conducting randomized clinical trials in conditions with low incidence and low consultation rates associated with shame and social stigma is challenging.

The PROSPER study, the largest randomized clinical trial comparing surgical treatments for rectal prolapse, found no statistically significant differences in recurrence rates between perineal and abdominal approaches, with rates close to 11% in both cases. The increase in recurrence rates associated with abdominal approaches, which contrasts with those previously reported, is notable and probably related to

the inclusion of less experienced surgeons.[5] However, this trial had limitations, including issues with recruitment and follow-up, which reduced its ability to detect small differences in quality-of-life outcomes.

Finally, we consider that all that has been previously discussed justifies the current recommendation to approach rectal prolapse treatment on an individualized basis, tailored to both the surgeon's experience and the patient's specific circumstances.

CONCLUSION

Despite the growing preference among experts for laparoscopic techniques for rectal prolapse repair, current evidence does not favor either laparoscopic or perineal methods. This determination must be made on an individual patient basis, considering predominant symptoms, clinical characteristics, and personal history.

In the present case, the infrequent clinical history and the challenges it posed for the abdominal approach led to the selection of the Delorme perineal technique, which yielded positive results. This procedure is associated with a low risk of immediate complications and a low recurrence rate; therefore, it should be considered as a viable management option in selected cases.

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