



# Use of colpocleisis associated to rectopexy as an approach to concomitant apical prolapse and external rectal prolapse

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## ABSTRACT

**Objectives:** The primary objective is to describe the long-term anatomic and subjective outcomes in women undergoing obliterative surgery for the management of pelvic organ prolapse with rectopexy. The secondary objective is to describe the adverse perioperative events.

**Methods:** This is a retrospective cohort of women who underwent Le Fort colpocleisis with laparoscopic Protack rectopexy at a tertiary care center between 2013 and 2021. A composite outcome for recurrent pelvic organ prolapse and rectal prolapse was defined as subjective failure (vaginal or rectal prolapse symptoms), objective failure (prolapse to or beyond the hymen or full thickness rectal prolapse), or any retreatment for prolapse. Patient's subjective outcomes was recorded at baseline and in the last follow-up visit. Adverse perioperative events were defined a priori and collected up to 6 weeks after surgery.

**Results:** None of the patients presented recurrence of pelvic organ prolapse and only one presented a symptomatic recurrence of rectal prolapse, not externalized over the anal margin therefore did not require surgical treatment. All the patients improved their scores in the Pelvic Floor Impact Questionnaire – Short Form 20 (PFIQ-20) survey, finding occasional worsening of the symptoms associated with urinary incontinence and voiding urgency. Only one patient presented a minor postoperative complication, which did not require hospital admission.

**Conclusion:** Although good results were achieved with a low rate of recurrence, additional studies with larger number of patients are needed to confirm this findings.

**Keywords:** Apical prolapse; colpocleisis; pelvic organ prolapse; protack rectopexy; rectal prolapse

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## INTRODUCTION

The simultaneous appearance of advanced prolapse of pelvic organs and rectal prolapse (RP), is observed in patients with severe damage of the pelvic floor. Even though they share the same pathophysiology, traditionally they have been treated as separate entities as they belong to different specialties. Their prevalence together is uncertain in the literature. It has been reported that 2% of women can present pelvic organ prolapse (POP) in stages III OR IV,<sup>1</sup> is less common the occurrence of rectal prolapse, estimated as 2.5 out of 100,000 people.<sup>2</sup>

Lately, pelvic floor specialists have opted for a multidisciplinary approach centered around the patient, establishing diverse strategies for the joint treatment of POP and RP, obtaining better surgical results and postoperative symptoms, referred to in the follow up consultations.

When choosing a synchronic treatment to treat POP and RP, the bibliography proposes correcting both defects through a single approach, abdominal or transperineal. There are many works that study the colposacropexy or the abdominal hysterocrocolpopexy, which are considered the gold standard treatment for apical prolapse associated with rectopexy. The advantage of utilizing the same incision to perform both procedures with good postoperative results have been described when employing this method. Their joint use increases the risk of specific complications of the use of mesh, sacroiliitis, duration of the surgery and exposition to anaesthetic drugs. This may represent a problem to consider in patients with a frail state of health.

In elderly patients with comorbidities, the preference is for vaginal approach to correct apical defects, since the correction of prolapse through an abdominal route has three times higher risk than the vaginal route of producing venous thromboembolism.<sup>3</sup> When utilizing the vaginal route for correction in patients older than 80 years, the reconstructive surgery presents a higher risk of complications than the obliterative approach (24.7% vs. 17%).<sup>4</sup>

Ventral rectopexy is an abdominal technique that uses mesh for the treatment of RP. In the last few years, it has gained popularity since it avoids de novo incomplete bowel emptying and the surgical risk associated with complications of the anastomosis after colon resection.<sup>5</sup> Currently, a fixation technique to the sacral promontory has been developed through the use of a stapler with titanium helical fasteners, thus being able to complete the suspension avoiding the use of meshes.

Taking into account these considerations and evaluating the particular characteristics of the patients included in this study, we have come to the agreement jointly with the coloproctology

service to perform in a single surgical act the protack abdominal rectopexy through a laparoscopy and a LeFort colpocleisis for the resolution of the concomitant presence of RP and POP. The primary objective of this study is to observe the long-term anatomic and subjective results and the secondary objective being to describe the adverse postoperative effects.

This is a retrospective observational study of cases report. For the recollection of them we have used the Hospital General de Agudos J. M. Penna Urogynecology service with the search criteria of the key words “obliterative surgery”, “colpocleisis”, “LeFort surgery” and selecting those results which also included the term “rectopexy”. This way, clinical histories of six patients who were operated in our institution between 2013 and 2021 were selected, in which the Urogynecology and Coloproctology were involved in the procedures.

In order to perform laparoscopic rectopexy, the patients were placed in Loyd Davies position and after pneumoperitoneum was done and trocars were placed, we proceeded to the desperitonization of mesosigma and opening of the peritoneal fold, liberating the superior rectum in all of its circumference. After this, both lateral sides of the rectosigmoid were fixed to the sacral promontory through the use of a stapler with titanium helical fasteners (ProTack™, Medtronic) using two tackers on each side. When a satisfactory hemostasis confirmed and with the reduction of the rectal prolapse, we continued with the vaginal approach, for which the patient was repositioned to a lithotomy with their extremities lower than 90°. When performing the LeFort colpocleisis two rectangular strips of vaginal mucosa were spun off, one anterior and one posterior and two lateral tunnels which allow the drainage of uterine or cervical secretions were created. The vaginal closing was done through the union of the vesicovaginal with the rectovaginal fascia with the rectovaginal and through suturing in various planes, concluding with a perineoplasty and high vulvar cleisis as reinforcement.

Adverse effects related to the surgery are defined as the ones which occurred during the surgery itself or within the first 30 postoperative days. According to the bibliography, the adverse effects include, damage of the neighboring organs (bladder, urethra, intestines), vascular lesion, hemorrhage greater than 500 cc, the need of transfusions, the need of conversion to a laparotomy, ileus, intestinal obstruction, pelvic abscess, surgical wound infection, sepsis, cardiorespiratory complications, deep vein thrombosis, pulmonary embolism, hospital readmission and surgical reintervention.

Recurrence of prolapse was defined according to anatomical and subjective criteria. When an apical descent that is over the

hymeneal line or an exteriorization of the rectal prolapse outside of the anal margin is produced, or in the face of the need of performing a new surgery for the correction of the prolapse or at the appearance of subjective discomforts due to the sensation of a foreign body in the vagina or rectum recurrence was diagnosed.

Before surgery, every patient completed the standardized Pelvic Floor Impact Questionnaire – Short Form 20 (PFIQ-20) survey to evaluate the presence of symptoms related to urinary and colorectal prolapse and their effect on the quality of life. All of them agreed to the publication of these case reports and signed an informed consent form.

We contacted five of these patients, since one passed away a few years before, and we supplied them with the same survey in order to evaluate their postoperative results.

## CASE REPORT

**Case 1:** Eighty-five year-old patient, G5P4Ab1, with a history of arterial hypertension, left bundle branch blockage, frequent ventricular extrasystoles, mild chronic obstructive pulmonary disease and anal incontinence, with no desire to maintain coital function. The physical exam showed stage III pelvic organ prolapse (POP) (C+3), atonic anal sphincter and rectal prolapse 4 cm outside of the anal margin. It was decided to proceed with laparoscopic rectopexy and LeFort colpocleisis, each procedure lasting 100 and 40 minutes respectively. No intra or extra operative complications were registered. A follow up was done a year later and there were no signs of recurrence until the patient's death.

**Case 2:** Seventy year-old patient, G2P2, with a history of arterial hypertension, hypertensive stroke and anal incontinence, with no desire to maintain coital function. The physical exam showed stage IV POP (C+6) and rectal prolapse 6 cm outside of the anal margin. It was decided to proceed with laparoscopic rectopexy and LeFort colpocleisis, each procedure lasting 90 and 40 minutes respectively. No intra or extra operative complications were registered. After an eight-year follow up, no recurrence was evidenced.

**Case 3:** Eighty-two year-old patient, G3P3, with a history of ventricular arrhythmia, arterial hypertension, type II diabetes, anal incontinence and mixed urine incontinence, with no desire of maintaining coital function. The physical exam showed stage IV POP (C+7) and rectal prolapse 5 cm outside of the anal margin (Figure 1). It was decided to proceed with laparoscopic rectopexy and LeFort colpocleisis associated with the placement of a transobturator sling. Each procedure lasted 100 and 45 minutes respectively. No intra or extra operative complications were registered. After a six-year follow up, no recurrence was evidenced.

**Case 4:** Seventy year-old patient, G5P3C1Ab1, hypertensive, with a history of obstructive defecatory symptoms for which rehabilitation of the pelvic floor muscles has been indicated, a surgical history of a colpoproctoplasty done 28 years ago and a LeFort colpocleisis done three years ago, complicated by development of a perirectal abscess and perineal dehiscence. The patient was seen for vaginal prolapse, which extends to the hymeneal line, contained by fibrous bridge in the middle third portion, associated with rectal prolapse which protrudes 5 cm outside the anal margin. It was decided to proceed with laparoscopic rectopexy and LeFort colpocleisis, each procedure lasting 110 and 45 minutes respectively. No intra or extra operative complications were registered. After five-year follow up, chronic constipation, persistent atony of the external anal sphincter, intermittent appearance of rectal prolapse of 1 cm, not associated with others defecatory disorders, were evidenced. The coloproctology service indicated the continuation of rehabilitation of the pelvic floor musculature, which is still ongoing with symptomatic improvement.

**Case 5:** Seventy-two year-old patient, G6P5Ab1, with a history of chronic constipation, type II diabetes, COPD, smoker, with no desire of maintaining coital function, physical exam presents stage IV POP (C+5), a hypotonic anal sphincter and rectal prolapse of 9 cm outside the anal margin (Figure 2). It was decided to proceed with laparoscopic rectopexy and LeFort colpocleisis, each procedure lasting 80 and 45 minutes respectively. During the postoperative period, a skin infection above the abdominal incision was developed, which responded favorably to antibiotic treatment. After a four- year follow up, no recurrence was evidenced.



**Figure 1.** Genital prolapse stage IV C+7 and 5 cm rectal prolapse

**Case 6:** Seventy-three year-old patient, G4P4, with a history of Chagas disease, hidden urinary incontinence and anal incontinence, with no desire of maintaining coital function. Physical exam shows POP stage IV (C+5) and complete rectal prolapse with more than 15 cm of rectum exteriorization, which cannot be reduced in the office (Figure 3). Laparoscopic rectopexy and LeFort colpocleisis was done, completing each procedure in 60 minutes. No intra or extra operative complications were evidenced. It was decided to reevaluate urinary incontinence during post operation with an eventual placing of a trans-obturator vaginal tape (TOT) sling.

## Results

Between 2013 and 2021, six rectopexies associated with obliterative surgery were done in our institution. All of the patients were symptomatic and presented stage II POP or higher, and with RP with 4 to 15 cm outside of the anal margin. One of these patients had been previously operated for POP on two separate occasions.

The average age of the patients was 75.5 years (70–85 years), all being multiparous and having 3 children (3–5 children) born on average, mostly through vaginal delivery. All patients had comorbidities, cardiovascular ones being the most common.

The average surgical time of the laparoscopic rectopexy was 90 minutes (60–110 minutes), 45 minutes (40–60 minutes) being employed for the obliterative surgery. Therefore, the average of the total surgical time when taking into account both procedures resulted in 135 minutes (120–155 minutes). One patient also received treatment for urinary incontinence with the tot sling procedure.

The average hospital stay was 2 days (1–3 days). As for the intra or postoperative complications, one case of skin infection on the access point of an abdominal trocar was encountered, with a positive response to antibiotic treatment. The hematic loss was low in all the cases, being lower than 100 cc, and no thromboembolic events were registered. No patient required rehospitalization due to postoperative complications.

The mean time of the follow up was 49 months (6–87 months). None of the patients presented recurrence of POP and only one of them presented symptomatic recurrence of rectal prolapse, not exteriorized outside of the anal margin and thus received rehabilitation with a positive response without requiring surgical treatment.

The PFIQ-20 survey results (Table 1), show the improvement in patients scores. In some patients, the worsening of symptoms associated with urinary incontinence and urinary urgency were registered, while the rest of the evaluated parameters show an improvement in all cases.

## DISCUSSION

RP and POP share a common pathophysiology: advanced age, obesity, the chronic increase of abdominal pressure, constipation and a background of obstetric trauma and consequently a weakening of the pelvic floor and damage of the pudendal nerve, generating laxity on the structural support of the pelvic organs and debilitating the anal sphincter, predisposing the appearance of rectal prolapse.

Rectal prolapse is an infrequent condition which develops primarily in women, with rates of 6:1 in respect to men.<sup>1</sup> Rectal prolapse is classified as internal when intussusception of the descending colon or sigmoid within the inferior colonic segment and external when the rectum protrudes through the anus. This can be associated with symptoms such as the sensation of a foreign body in the rectum, difficulty during defecation, sensation of incomplete rectal evacuation and mucous secretion.

It has been reported that 9% to 27% of the patients with RP have concomitant appearance of POP. It is estimated that patients operated for RP have a relative risk of requiring surgery due to



**Figure 2.** Genital prolapse stage IV C+5 and 9 cm rectal prolapse

Table 1. Score of PFIQ-20 before and after the procedure		
	Basal PFIQ-20	PFIQ-20 of last control
Case 1	47	-
Case 2	39	10
Case 3	58	4
Case 4	24	4
Case 5	47	12
Case 6	52	12

PFIQ-20: Pelvic Floor Impact Questionnaire – Short Form 20

uterine prolapse or of the vaginal walls, 3.1 and 3.2 respectively. Patients with RP are described to have a higher prevalence of urinary incontinence resulting in more severe symptoms than the general population. Only 45% of the patients mention this symptom to the colorectal surgeons during the RP evaluation.<sup>7</sup>

When treating patients with pelvic floor dysfunctions, it is important to carry out an integral and comprehensive approach, being those who present RP examined not only by colorectal surgeons but also by urologists or gynecologists specialized in pelvic floor dysfunctions. Kapoor et al.<sup>8</sup> found that the multidisciplinary approach associated with cost savings, improve postoperative recovery and increased patient satisfaction.

There are only a few studies that focus on the concomitant approach to genital prolapse of pelvic organs and rectal prolapse. In the available bibliography it is proposed the possibility of solving both by surgery through an abdominal approach (laparotomic or minimally invasive) or perform a transperineal approach for both pathologies, solving the rectal prolapse via Delorme or Altemeier techniques, and the vaginal via a reconstructive or obliterative surgery.

The decision on the approach will depend on the patient’s comorbidities, surgical history, the patient’s preference and negative to the employment of abdominal meshes, even though the choice is often influenced by the surgeon’s experience without it being a truly correct criteria of selection.

Different studies address the results of associating surgical techniques such as rectopexy and colpexy or hysteropexy, with the rate of complications being 25% in some of them.<sup>5</sup> Unger et al.<sup>9</sup> analyzed retrospectively 36 cases of women who had been concomitantly intervened by a sacrocolpexy and a minimally invasive abdominal rectopexy, and found that the combination of both techniques increases the risk of requiring a transfusion (2.8%), development of abdomino-pelvic abscesses (11.1%) and osteomyelitis (5.6%). Weinberg et al.<sup>10</sup> considered that combining these procedures predisposes the body to a higher risk of superficial infection of the surgical site, organ or space infections, reopening of the wound and to urinary infections. Even though several of these studies consider that these adverse effects primarily occur at the expense of rectopexy, a large multicenter study which evaluated the results of laparoscopic rectopexy, determined that it is a safe technique. In the same study, the mortality rate of this surgery was 0.1%, the rate of complications unrelated to meshes was 11% and the rate of complications due to meshes was 2%, this last one being comparable to the rate in colposacropexies that utilize meshes.<sup>11</sup> In our study, the rate of complications was low and with a low impact on patients quality of life, without increasing morbimortality in any case.



Figure 3. A) Genital prolapse stage IV C and 15 cm rectal prolapse irreducible. B) Same patient six months after the operation

In elderly patients with comorbidities a transperineal approach is preferred for the treatment of RP and, in cases of minor prolapses than those described in our series of cases, anal encirclement is considered to be a technique with good long-term results.<sup>12</sup> Even laparoscopic approach is considered the gold standard,<sup>13</sup> while ventral rectopexy with mesh and rectopexy with sutures are the classic techniques. Patients with RP who present symptoms before surgery, anal incontinence and constipation, reach a higher grade of improvement after the ventral rectopexy,<sup>14</sup> a technique that gain popularity for avoiding *de novo* constipation generated by the extensive dissections and the lateral rectal stalk division.<sup>5</sup>

When conducting a systematic revision where both laparoscopic procedures are compared, Lobb et al.<sup>14</sup> found that the recurrence of RP is higher after a rectopexy with sutures, but this finding was not confirmed in the meta-analysis. Therefore, the rectopexy with sutures represents an alternative in which complications of mesh use are avoided, although it is postulated that it might not generate enough adherence to prevent recurrence and may cut the fixed tissue. Inspired by this technique, Karim et al.<sup>15</sup> were the first to describe a procedure free of mesh and sutures, that utilizes ProTack™ in order to execute the sacrum fixation.

Rectopexy with ProTack™ presents a high success rate. Karim et al.<sup>15</sup> in their series of 16 patients report a prolapse of the rectal mucosal and a total rectal prolapse 3 years after the procedure. Rectopexy with ProTack™ then results fast, safe, effective and possesses a low rate of recurrences, offering good functional results to patients usually treated through a transperineal approach.

Obliterative surgery for the treatment of POP is considered a minimally invasive technique and it represents an option of treatment for elderly patients, with comorbidities, a history of multiple abdominal interventions, with no desire of maintaining active vaginal coital function and for those who reject the use of mesh. This surgery possesses the advantage of being a fast technique with a low rate of complications, limited intraoperative blood loss, easy recovery, it also does not significantly alter body image, with a success rate higher than 90%.<sup>4,16-18</sup> The factors that determine the success of the surgery are, a postoperative anatomical change which determines a narrow genital hiatus of approximately 2.8 cm and total vaginal longitude of 4.5 cm or shorter.<sup>19</sup> Obliterative surgery provides improvement in the patients quality of life comparable to the improvements supplied by the vaginal reconstructive surgery.<sup>18</sup> In studies conducted by Barber et al.<sup>20,21</sup> the improvement of intestinal symptoms resulted similar to the improvements reported after prolapse reconstructive surgeries

via abdominal and vaginal approach. In a study conducted by Gutman et al.<sup>22</sup> where intestinal symptoms, previous to the colpocleisis and a year after the procedure are compared, an improvement was found of all preexisting obstructive symptoms of colorrectal and anal discomfort, as well as in the majority of the symptoms of anal incontinence, with the exception of the incontinence of solid feces. Furthermore, in this study the development of symptoms of *de novo* intestinal discomfort was infrequent.<sup>22</sup> These findings coincide with the results obtained when comparing the items of quality of life of the PSIQ-20 survey before and after the combined surgical procedure. Although cases of *de novo* rectal prolapse appearance after performing a colpocleisis have been reported,<sup>17,23-25</sup> this fact might be associated with the severity of the initial pelvic floor damage in patients who received obliterative surgery, the simultaneous performance of the levator ani plication or some level of RP previous to the procedure that was not detected in the initial evaluation. Even then, its incidence is low and this phenomenon has not been studied in relation to the joint repair of RP and POP. In our series of cases only one event of rectal prolapse recurrence was found by associating LeFort colpocleisis and laparoscopic rectopexy. In this case, recurrence was intermittent and up to 1 cm, therefore it was decided to manage it through conservative treatment with pelvic floor rehabilitation and since it was not associated with any other colorectal symptoms, it has not required a surgical approach.

In regards to surgical times, as it has been shown in cases of patients with comorbidities and a high-risk clinical state, procedures will try to be time limited in order to reduce the risk. It is important to highlight that a sacrocolpopexy might take as much as twice the time that is required to complete a colpocleisis, more so if a laparoscopic approach is utilized (167 minutes vs. 60 minutes vs. 192 minutes, respectively).<sup>26,27</sup>

Laparoscopic rectopexy may require up to 171 minutes to complete and the association of techniques for the joint treatment of POP and RP may require approximately 240 minutes to complete both procedures via laparoscopy.<sup>10</sup>

In these cases, the resolution through combined laparoscopy for RP and an obliterative vaginal surgery for the treatment of POP was able to be done in 140 minutes (120–155 minutes), well below the usual required time in studies evaluating other approaches.

It can be concluded that the option of combining obliterative surgery with laparoscopic rectopexy complies with the desired criteria for the treatment of elderly patients and those with comorbidities since it presents a high rate in symptomatic improvement, with a low rate of recurrence which is maintained

long-term with a prolonged follow up period and through which it is possible to decrease surgical time and intra and postoperative complications.

The strengths of this study are the extensive follow-ups on and high rate of recruitment of operated patients. The limitations consist of the low number of cases and its design limitations.

As far as it is known this is the first study to evaluate the combination of an obliterative technique with a laparoscopic rectopexy for the concomitant approach of POP and RP. Even though good results have been achieved with a low rate of recurrence, more studies with a higher number of patients and randomization need to be done in order to confirm the findings of this work.

## ETHICS

**Informed Consent:** Obtained.

**Peer-review:** Externally peer-reviewed.

## Contributions

Concept: A.L., I.S., F.L., R.B., M.S.I.; Design: A.L., I.S., F.L., R.B., M.S.I.; Data Collection: A.L., I.S., F.L., R.B., M.S.I.; Analysis: A.L., I.S., F.L., R.B., M.S.I.; Literature Search: A.L., I.S., F.L., R.B., M.S.I.; Writing: A.L., I.S., F.L., R.B., M.S.I.

## DISCLOSURES

**Conflict of Interest:** No conflict of interest was declared by the authors.

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