Review Article

Best approaches to rectal prolapse

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Abstract: Rectal prolapse is a bothersome and debilitating condition with both functional and anatomical underpinnings. The prevalence of rectal prolapse rises in both elderly women and in younger women with functional bowel disorders, a history of chronic straining, and a history of psychiatric disorders. Commonly reported symptoms include fecal incontinence (FI), constipation, rectal urgency, pain, and symptoms of obstructed defecation, and concomitant pelvic organ prolapse is common. There are hundreds of techniques described to repair rectal prolapse, and no single procedure has been definitively proven to be superior. Perineal procedures are advocated for frail and higher risk patients and age is not an absolute contraindication for surgery when quality of life is impacted. Abdominal rectopexy prolapse repairs are considered more durable than perineal operations, and minimally invasive options make this the preferred approach for many. However, there is no consensus or standardization on the extent of dissection, the use and type of mesh, and how to manage patients at high risk for recurrence or with recurrent prolapse. Overall, the morbidity and mortality rate is low, with approximately 10% of patients experience postoperative complications. In general, patients experience improvement in symptoms, function, and quality of life after rectal prolapse repair, highlighting the importance of offering surgical management promptly when rectal prolapse is diagnosed. This review covers the clinical presentation and work up for patients with rectal prolapse and the operative management with a focus on rectopexy procedures.

Keywords: Rectal prolapse; ventral mesh rectopexy; posterior suture rectopexy

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Introduction

Rectal prolapse is a relatively uncommon condition with an incidence of 2.5 cases per 100,000 annually (1). However, amongst older women, the incidence of prolapse or incontinence rises substantially, and nearly 50% of women over 80 will report urinary or fecal incontinence (FI) or pelvic organ prolapse (2). True rectal prolapse involves the full thickness intussusception of the rectum through the anal canal such that the rectum is externalized. Other subtypes of rectal prolapse include internal prolapse, where intussusception occurs only within the anal canal and therefore, the rectum is not seen externally, and partial thickness prolapse where redundant mucosa prolapses. Prolapse can occur intermittently; for some patients, prolapse occurs only with defecation while for others prolapse also occurs with standing or walking.

The prevalence of rectal prolapse rises in two distinct patient populations: elderly women and younger women, particularly those with a history of chronic straining,

functional bowel disorders, autism or other psychiatric disorders (3). In older women, concomitant pelvic organ prolapse is common (approximately 30%) (4) and other associated risk factors in the older population include: multiparity (though 30% of women with rectal prolapse are nulliparous), pelvic floor weakness or diastasis of the levators, a deep cul-de-sac, a weak anal sphincter, chronic straining, functional disorders that lead to difficulty with elimination, and other anatomical variations that lead to obstruction and difficulty with elimination. Men represent 10% of the rectal prolapse cohort (1). In this population, irritable bowel disorders, chronic straining conditions, connective tissue disorders and hypermobility (e.g., Ehlers-Danlos syndrome) (5) are risk factors for prolapse.

Rectal prolapse is a bothersome disorder and can be debilitating for some patients. Commonly reported symptoms include FI, rectal urgency, pain, mucous discharge, constipation, and obstructed defecation (difficult evacuation, incomplete evacuation, or need for digitation). There are several validated questionnaires that can assist with a systematic assessment of bowel and pelvic floor symptoms (6-9). The prevalence of certain symptoms is variable with age. Older women with rectal prolapse are more likely to report pain and FI, while younger women are more likely to report obstructive defecation symptoms and prolapse only with defecation (10).

Evaluation and testing

Initial evaluation for rectal prolapse includes a detailed history and inventory of all associated symptoms and risk factors. Identification of the most bothersome symptom(s) to the patient is imperative as this can guide operative planning and facilitates expectation setting for post-operative outcomes. Establishing a baseline for the patient's stooling habits and dietary intake can highlight opportunities for medical optimization. Additionally, evaluation for coexisting anterior and middle compartment prolapse is necessary, as patients with clinical signs suggestive of multiorgan prolapse should be referred for multidisciplinary evaluation (11-13).

On a physical exam, prolapse may or may not be readily obvious or easily reproduced. If the prolapse is not visualized, additional exam maneuvers can be helpful including asking the patient to sit on the toilet and strain, using an enema or rectal balloon or examining the patient in the standing position. If unable to reproduce in the clinic, the patient may take a picture at the next occurrence at home. Additional exam findings include a patulous anal sphincter and a weak squeeze; as noted above, evaluation for bladder and vaginal prolapse is necessary as presence of multiorgan prolapse should be evaluated and treated.

The role of further testing and imaging is patient dependent. In patients with symptoms consistent with prolapse but without prolapse on exam, pelvic floor imaging and defecography (MRI or fluoroscopic) can be used to diagnose internal prolapse and evaluate for other anatomical defects such as a peritonealocele, enterocele, rectocele, or cystocele. Colonoscopies are typically indicated for patients with irregular bowel habits and for colorectal cancer screening.

If FI is a presenting complaint, anorectal manometry and pelvic floor imaging can be useful to provide objective measurement of sphincter function and anatomy. Management of current symptoms and optimization ahead of surgery is an important part of preoperative evaluation. For patients where constipation is a primary symptom, additional fiber and stool softeners can be used. For patients with FI, symptoms may be palliated by adjusting the diet to avoid foods that accelerate gastrointestinal transit time (e.g., caffeine) or cause stool to be more liquid (e.g., lactose). Additionally, skin breakdown can be managed and ideally avoided with use of barrier ointments and absorbent pads. Treatment of IBS should be addressed prior to considering prolapse repair and gastroenterology collaboration is part of an interdisciplinary model.

Pelvic floor physical therapy (PFPT) helps to retrain and strengthen the pelvic floor and improve defecatory behaviors (14). There is no medical evidence to guide the use of preoperative or postoperative PFPT in the setting of external rectal prolapse. It is our practice to get PFPT involved early for education and coaching. Access and insurance coverage for PFPT may be a rate limiting factor for PFPT nationally.

Operative approaches

Operative management is the only definitive therapy for rectal prolapse. Patients with rectal prolapse should be evaluated for surgery promptly, and if operative therapy is recommended and desired, it should be pursued. Untreated rectal prolapse, even when prolapse is only intermittent, leads to sphincter stretching, pudendal neuropathy, and FI (15). Moreover, the literature suggests that rates of recurrence after surgical repair are higher if prolapse has been present for over 4 years due to prolonged stress on the

pelvic floor (16,17). Unfortunately, many patients delay in seeking care for rectal prolapse reportedly due to shame and embarrassment, or because of a misperception that prolapse is a normal part of aging (18). In one study, younger patients had a higher rate of delayed care than older patients (10); this highlights an opportunity for patient and provider education to help normalize discussion of bowel habits and identify patients struggling with rectal prolapse as early as possible.

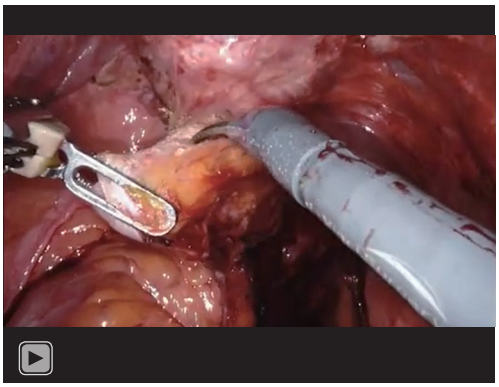
The operative approaches to rectal prolapse can be divided into perineal and abdominal operations, and each approach has its advantages and disadvantages. Historically, perineal approaches have been preferred for elderly and frail patients to avoid the risks of abdominal surgery albeit at the expense of potentially higher recurrence rates (19-23). The most common perineal approaches include the Delorme procedure (mucosal sleeve resection) and the Altemeier procedure (perineal proctosigmoidectomy). The perceived benefits of the perineal approach for elderly patients have been called into question based on more recent prospective and retrospective analyses (24-27). In one retrospective analysis of elderly high-risk patients undergoing rectal prolapse repair including open rectopexy, laparoscopic rectopexy, and perineal proctosigmoidectomy, there was no difference in morbidity between approaches, though another study suggests that elderly patients are more likely to be discharged to a skilled nursing facility after open abdominal operations (25,28). There is a growing consensus that age alone should not dictate the operative approach as many quite elderly women may be able to undergo an abdominal operation, particularly a minimally invasive operation. Instead, surgical decision making should be individualized for each patient with an appreciation for the patient's priorities, their "biological" rather than chronological age accounting for comorbidities, and individual symptoms (29).

Abdominal operations can be both open and minimally invasive, and generally involve either posterior suture rectopexy or ventral mesh rectopexy. Minimally invasive repair of rectal prolapse is associated with a shorter length of stay and an increased likelihood of discharge home than open abdominal operations (25,28). Mobilization of the rectum and fixation to the sacral ligament are common to rectopexy approaches, though the extent of mobilization and methods of fixation vary (22,30). During posterior rectopexy the rectum is mobilized posteriorly to the level of the levators and permanent sutures are used to elevate and fix the rectum to the sacral ligament (22). Laparoscopic ventral mesh rectopexy (LVMR), popularized by Andre D'Hoore, involves dissecting between the rectum and the vagina down to the perineal body and suturing mesh to the anterior rectum and suspending the mesh to the anterior longitudinal ligament along the sacrum (31,32). Theoretically, this avoids possible nerve injury associated with posterior dissection which may lead to better functional outcomes. Because of this potential benefit, LVMR has gained popularity and while randomized, long-term studies are limited, some evidence suggests that LVMR is indeed superior to laparoscopic posterior suture rectopexy in terms of functional outcomes and recurrence rates (33,34).

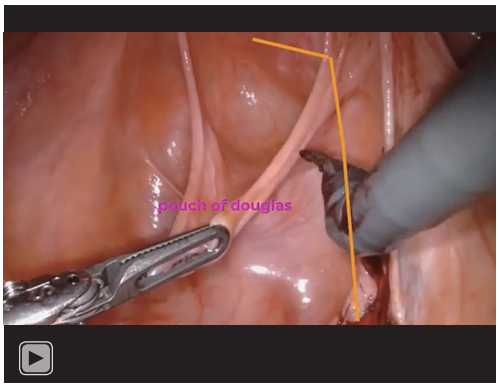
The learning curve of LVMR via proctored learning is estimated to be between 25 and 30 cases, as proctored learning facilitates safe, quick adoption; in a non-proctored setting, the learning curve is much longer (50–100 cases) (35,36). Robotic VMR (RVMR) has also become increasingly popular. A randomized trial comparing robotic versus laparoscopic VMR showed similar outcomes in both groups, consistent with earlier retrospective analyses of RVMR (37-39). RVMR is associated with a longer operative time and higher costs (37). However, potential benefits include improved surgeon ergonomics and improved technical ease, which may further reduce the learning curve for minimally invasive options as robotic surgery platforms become more common.

Sigmoid resection can be performed in addition to rectopexy (40-43). Approaches like the Frykman-Goldberg procedure (40) involved routine sigmoid resection with circumferential mobilization of the rectum and suture fixation. Current consensus guidelines support selective use of sigmoid resection in the setting of uncontrolled constipation or sigmoid pathology (17). Finally, there are many other procedures reported such as the Wells procedure (posterior mesh repair) (44) and the Ripstein procedure (a band of mesh wrapped around the rectum) (45), which are still selectively performed based on surgeon preference and training but will not be covered further in this review.

With such a wide range of approaches available for repair of rectal prolapse, a clear understanding of the patient's priorities and most bothersome symptoms is essential prior to determining the best approach for each individual patient. For elderly frail patients or those who have undergone many abdominal surgeries, the perineal procedures are a good option. On the other hand, suture rectopexy instead of ventral rectopexy might be a good option for a patient adverse to mesh, or for someone with chronic pelvic pain for whom the presence of mesh might



Video 1 Key principles of posterior suture rectopexy.



Video 2 Key principles of ventral mesh rectopexy.

prompt perseveration on the notion that the mesh is contributing to the pain syndrome.

Operative technique

The key principles of the posterior and anterior abdominal rectopexy operations are similar regardless of whether the approach is laparoscopic, robotic, or open.

Posterior suture rectopexy (Video 1)

The principles of posterior rectopexy include the following:

(I) Exposure: clear the pelvis by retracting the small bowel and sigmoid cephalad and retracting the uterus up towards the abdominal wall.

(II) Identification of the proximal fixation point: open the peritoneum at the level of the sacral promontory.

(III) Dissection:

- (i) Dissect behind the rectum in the avascular total mesorectal excision plane down to the levators.
- (ii) Consider dividing or thinning the lateral rectal attachments on the right and/or left side. Division of the rectal ligaments is associated with decreased recurrence, but higher rates of post-operative constipation (17,22,26,46-48). This might be desired in a patient with substantial FI, but unwanted in a patient with severe constipation, and therefore this decision should be individualized for each patient.
- (iii) Dissect anterior to the rectum by opening the pouch of Douglas and exposing the anterior rectum to the vaginal cuff.

(IV) Fixation: anchor the mesorectum to the exposed periosteum/anterior longitudinal ligament of the sacrum with suture.

(V) Closure: close of the peritoneum.

In this dissection, there are several critical structures to be aware of including the ureters as they cross the pelvic sidewall and the hypogastric nerves at the level of the sacral promontory. The above highlights our approach, but there is substantial surgeon variability and poor standardization as it relates to the extent of rectal dissection, amount of tension placed on the rectum, the number of rectopexy sutures placed on the sacrum, and closure of the peritoneum.

Anterior ventral mesh rectopexy (Video 2)

The key steps in the anterior ventral mesh rectopexy include:

(I) Exposure: clear the pelvis by retracting the small bowel and sigmoid cephalad and retracting the uterus up towards the abdominal wall.

(II) Identification of the proximal fixation point: open the peritoneum at the level of the sacral promontory to visualize the anterior longitudinal ligament of the sacrum.

(III) Peritoneal flaps: create peritoneal flaps in a J-shape.

(IV) Dissection:

- (i) Dissect anteriorly along the rectum to the rectal vaginal septum using a sizer in the rectum to help guide the distal extent of dissection.
- (ii) Open the pouch of Douglas and excise

redundant pouch of Douglas.

(V) Fixation:
  (i) Fix the mesh to the anterior rectum with absorbable suture.
  (ii) Fix the mesh to the anterior longitudinal ligament of the sacrum by non-absorbable suture.

(VI) Closure: close the peritoneum to protect the abdominal visceral from the mesh.

Like the posterior rectopexy, the ureters must be identified and protected during dissection. Ventral mesh rectopexy avoids posterior rectal dissection and therefore, lowers the risk of injury to the hypogastric nerve plexus.

We favor opening the peritoneum over the sacrum, visualizing the anterior longitudinal ligament, and directly suturing to the ligament in order to further reduce risk of injury to the hypogastric nerves. Other methods of proximal fixation to the sacrum include using tacks, clips, staples, screws or glue (49-52); or suturing without clearing off the anterior longitudinal ligament.

One final variation in technique involves adding a posterior vaginal colporrhaphy to the ventral mesh rectopexy. The first technical description of the LVMR reported by D'Hoore describes suturing the posterior vaginal wall onto the rectopexy graft, and some surgeons routinely perform this (31,32). For those surgeons whom routine use of posterior colporrhaphy is not part of their practice, patients with anterior, apical, or posterior vaginal prolapse based on symptoms, clinical exam or imaging may be recommended to undergo a full evaluation with a female pelvic medicine and reconstructive surgery team and combined surgical repair.

The use of mesh or biological graft lacks strong evidence to support use of one over the other as there is limited long-term data, especially following repair with biological implants (53-61). The initial reports of LVMR used synthetic polypropylene mesh, and polypropylene mesh advocates question the durability of biologicals. Surgeons favoring biologicals consider long term mesh complications. Mesh complication rates are low overall at <2% (55). The series of patients with biological grafts are small and on net, show little difference between the two, although some recent analysis does a suggest potentially lower mesh erosion rate with biological grafts and higher cost (60). Specific patient populations that might prompt selection of a biological over a synthetic graft include young patients, women of reproductive age, and patients with a history of diabetes, smoking, prior pelvic radiation and inflammatory bowel disease (53).

Modifications to the ventral mesh rectopexy can include adding additional dissection such as posterior mobilization in addition to the mesh. The Orr-Longuye procedure involves posterior and anterior mobilization and using two strips of mesh on either side of the rectum for support (62,63).

Postoperative outcomes and complications after rectal prolapse repair

Morbidity and mortality

Overall morbidity and mortality for rectal prolapse surgery, both perineal and abdominal procedures, is low with a 30-day mortality rate between 0–2% even in elderly subgroups (25,64-67). Notably, in many retrospective reports, the mortality rate for perineal approaches is higher (~1–2%) than for abdominal approaches (~0–1%) (25,64-66), likely reflecting differences in patient selection. The overall complication rate following rectal prolapse repair is estimated to be around 10%, with slightly higher rates for open abdominal approaches compared to perineal and laparoscopic approaches (65,66).

For minimally invasive abdominal approaches, the overall complication rate is again around 10%, split between medical and surgical complications, and the rate of major complication is closer to 2–3% (55,68,69). There does not seem to be substantial difference in the short-term complication rate between LVMR and LPSR: Clavien-Dido grade II or higher complications have been reported at approximately 3% for both approaches in a randomized control trial comparing LVMR versus LPSR (34). The most common complications (major and minor) included postoperative pain, urinary retention, and port-site related issues (hematoma, infection, or hernia) (34,55).

Despite concerns regarding mesh-related complications after LVMR, the rates reported in the literature are low. A recent randomized control trial comparing LVMR to LPSR with a median follow-up of 6.1 years had a 0% mesh-related complication rate (33). Analyses of two different prospectively maintained registries of 2,203 and 919 patients respectively both reported complication rates around 2% at 3 years (55,68). In the larger of the series, the median time to complication of 23 months, and of these mesh complications, approximately half required intervention for a minor erosion (local excision of a stitch or piece of mesh) while another 40% required treatment for a major erosion (e.g., mesh

removal, colorectal resection and/or colostomy) (55). Studies of RVMR suggest similar complication rates as LVMR, though further studies with more patients and longer follow-up are needed (37,38).

Prolapse recurrence

The recurrence rate after abdominal and perineal operations varies in the literature (70). The PROSPER trial showed no significant difference in rates of recurrence between procedure type (27) and several meta-analyses have similarly suggested that there is no difference in recurrence rate between perineal and abdominal operations (26). These analyses may suggest that the difference in rates seen in retrospective analyses may reflect underlying differences in the patient population, or surgical technique in the case of single surgeon/center series (71). However, the PROSPER trial does not include patients undergoing ventral mesh rectopexy, and large, randomized studies that compare abdominal (including LVMR) and perineal operations are lacking. Additionally, there are relatively few studies with follow-up beyond two years.

In the published literature, the recurrence rate following perineal proctosigmoidectomy (Altemeier procedure) varies between 0–27% (27,71-74), and following the Delorme procedure, tends to be a bit higher between 10–31% (27,75-77). Recurrence rates are similar between laparoscopic and open abdominal approaches, and reported to be between 0–13%, with most studies reporting rates between 7–9% (16,26,33,68,78-82). There is one randomized trial with long-term follow up comparing LVMR versus LPSR; the ventral mesh approach had a recurrence rate of 8.8% versus 23.3% for the posterior suture approach at 6 years, perhaps suggesting better long term durability with the ventral approach (33). The addition of a sigmoid resection to the posterior suture rectopexy may lower the recurrence rate of the posterior suture rectopexy with reported rates between 2–5%, though there are few randomized trials to provide direct comparison (42,83). Recurrence rates after RVMR are similar to following LVMR between 0–12% (37-39). Recurrence rates are higher if the operation is for an already recurrent prolapse regardless of approach (84).

Functional outcomes (Table 1)

In general, most studies report improvement in quality-of-life following repair of rectal prolapse. Recent studies of minimally invasive approaches show that the vast majority of patients (60–90%) are satisfied with the outcome, experience improvement in quality of life, and would make the same choice again (35,39,84,85).

Obstructed defecation and constipation are common complaints for many patients with rectal prolapse. Patients who undergo a posterior dissection (without sigmoid resection) are at risk of worsened or new onset constipation and obstructed defecation syndrome (ODS), likely related to injury to the autonomic innervation of the rectum during the posterior dissection (17,31). Analyses suggest that about 50% of patients with ODS will have exacerbation of constipation following posterior dissection, and of people without constipation, the rate of new onset constipation is between 15–18% (86). The addition of a sigmoid resection to the posterior suture rectopexy significantly improves rates of constipation exacerbation and reduces rates of new onset constipation, but at the expense of a pelvic anastomosis (26,42,87). Therefore, laparoscopic ventral mesh rectopexy is a key alternative for patients with constipation and ODS (17,33,38,68,84,88). In a randomized study of LVMR versus LPSR, postoperative measures of ODS (Patient Assessment of Constipation-Quality of Life score, Patient Assessment of Constipation-Symptom score, ODS score, and Cleveland Clinic Constipation Score) all significantly favored the LVMR at 6-year follow up (33).

FI symptoms tend to improve for many patients after perineal, anterior abdominal, and posterior abdominal approaches (17,26). Recent analyses of minimally invasive ventral mesh rectopexy suggest that at least half of patients will experience symptomatic improvement as measured by the Cleveland Clinic Incontinence Score (33,38,39,68,84,88,89). The rate of new onset FI is low (between 1–3%) (88). Sigmoid resection can make FI worse and therefore, is generally not performed when FI is a key presenting symptom (17,26).

Additional symptoms related to rectal prolapse include sexual dysfunction and related symptoms including dyspareunia. Studies that have assessed these symptoms (38) as well as other studies that report general measures of quality of life demonstrate improvement with repair of rectal prolapse for many patients (37-39,89).

Multi-compartment prolapse

Multi-compartment pelvic organ prolapse is prevalent in women, and if identified during evaluation for rectal prolapse, should prompt multidisciplinary evaluation (11). Surgical repair is the only definitive treatment for multi-

Table 1 Functional outcomes after minimally invasive repair of rectal prolapse

Author	Date	Type	N	Procedure	Median FU (mos)	Recurrence rate	Tools	Findings
Hidaka *et al.* (33)	2019	RCT	37 *vs.* 38	LVMR *vs.* LPSR	73	9% *vs.* 23%	PAC-SYM[†], PAC-QoL[‡], CCCS[§], CCIS[¶]	Constipation related metrics all favored LVMR over LPSR; both groups experienced improved in CCIS scores though the difference between them was non-significant
Wilson *et al.* (78)	2011	Pros. Obs.	72	LPSR	48	9%	CCIS	CCIS score reduced by 53% post-operatively
Consten *et al.* (68)	2015	Pros. Obs.	919	LVMR	34	7%	Browing and Parks grading for FI; Rome II criteria for constipation	Improvement in majority of patients with constipation and/or fecal incontinence following repair with low rate of *de novo* symptoms
Formijne Jonkers *et al.* (50)	2013	Retro. Coh.	245	LVMR	30*	3%	CCIS, CCCS	Improvement in majority of patients with ODS and/or fecal incontinence preoperatively
Emile *et al.* (85)	2017	RCT	25	LVMR	18*	8%	CCIS, CCCS, FIQL[#], GIQLI**	Improvement in most of patients with ODS and/or fecal incontinence preoperatively; global improvement in QoL
Fu and Stevenson (16)	2017	Retro. Coh.	231	LVMR	47	12%	CCIS	Improvement in CCIS scoring postoperatively, with majority of patients satisfied and reporting complete improvement in their primary symptom
Mantoo *et al.* (38)	2013	Retro. Coh.	74 *vs.* 44	LVMR *vs.* RVMR	16*	8% *vs.* 7%	ODS[††], CCIS, non-validated sexual activity questionnaire	Improvement following LVMR and RVMR in both CCIS and ODS scores, though improvement in ODS was significantly greater with RVMR; improvement in sexual function questionnaire in both groups
Mäkelä-Kaikkonen *et al.* (37)	2019	RCT	14 *vs.* 16	LVMR *vs.* RVMR	24	8% *vs.* 0%	15-D HrQoL[‡‡], PFDI-20[§§], PFIQ-7[¶¶], CCIS, ODS	Substantial improvement in ODS symptoms with better results following RVMR (though different not significant); no significant improvement in FI. High patient satisfaction at 24 mos in both groups, though overall HRQoL scores return to baseline at 24 mos, likely reflecting underlying health state
Postillon *et al.* (39)	2020	Retro. Coh.	96	RVMR	31	13%	Kess Score and Wexner Score	Improvement in both constipation and fecal incontinence following repair with low rate of new onset constipation; majority of patients were satisfied

*, mean follow up; [†], Patient Assessment of Constipation-Symptoms questionnaire; [‡], Patient Assessment of Constipation-Quality of Life questionnaire; [§], Cleveland Clinic Constipation Score; [¶], Cleveland Clinic Incontinence Score; [#], Fecal Incontinence Quality of Life Scale; **, Gastrointestinal Quality of Life Index; [††], Obstructed Defecation Syndrome Score; [‡‡], 15-D Health Related Quality of Life Score; [§§], Pelvic Floor Distress Inventory-20; [¶¶], Pelvic Floor Impact Questionnaire.

compartment prolapse. Combined repair is feasible and safe, and provides the best opportunity for comprehensive symptomatic improvement (12,13,90). Similar to surgical approaches for rectal prolapse alone, multi-compartment prolapse can be managed via a transvaginal and perineal approach or via an abdominal approach, with minimally invasive operations offering robust outcomes and a favorable post-operative recovery (91). There are limited reports in the literature on outcomes, particularly long-term outcomes, following combined repair, but existing reports suggest outcomes are similar to those following single compartment repair operations (12,13,90,92). This highlights the importance of identifying patients with multi-compartment prolapse preoperatively, so that they can be referred to a multidisciplinary center for evaluation.

Rectal prolapse in men

Rectal prolapse in men is much less common than in women and is estimated to represent 1 in every 10 rectal prolapse cases (1). Men tend to be younger and healthier at the time of surgery than women undergoing repair of rectal prolapse (67). Men with rectal prolapse similarly experience symptoms of FI and ODS which can improve with surgical repair. Importantly, during surgical repair, injury to the pelvic autonomic plexus can lead to sexual dysfunction in men. Because of this, the perineal approach was historically preferred as this approach avoids any dissection around the pelvic plexus (22,93). but this can be technically challenging and an abdominal approach is preferred for younger men. Laparoscopic ventral mesh rectopexy represents a key alternative given the minimal posterior dissection required. Though there are limited reports and some concern about a higher rate of recurrence in men (94), overall evidence suggests that LVMR, in the hands of an experienced surgeon, is safe and effective for male rectal prolapse (95).

Recurrent rectal prolapse

Management of recurrent rectal prolapse can be challenging. There are no definitive guidelines regarding the procedure of choice for recurrent rectal prolapse likely because of the wide variety of surgical approaches taken at the first operation and a lack of long-term follow-up data for most approaches (96). Several technical factors have been associated with recurrence including inadequate mobilization of the rectum in abdominal approaches (97) and mesh detachment from the sacrum or the rectum in LVMR (16). Patient related factors including increasing age (which may reflect poorer tissue integrity) or severe incontinence (which may reflect a chronically weakened pelvic floor (16).

Prior to repair for recurrent rectal prolapse, patients should undergo complete clinical evaluation similar to evaluation at the initial presentation of rectal prolapse. No one operative approach is clearly superior for managing recurrent rectal prolapse (96). Non-randomized studies of patients undergoing repair of recurrent rectal prolapse suggest that when feasible, abdominal operations (posterior suture rectopexy or ventral mesh rectopexy) provide robust results with re-recurrence rates that are similar to when an abdominal approach is chosen for an initial repair (98). However, for patients where an abdominal approach is not possible (extensive adhesions or too frail to undergo an abdominal operation), a perineal approach is a good alternative with acceptable re-recurrence rates (99,100). Finally, for patients who have had prior resection repairs, consideration of the vascular supply to the bowel is necessary as a repeat resection procedure (e.g., an Altemeier following a resection rectopexy) can potentially result in a poorly vascularized segment of bowel between the old and new anastomoses (100). Inclusion of the old anastomosis in the resection specimen can circumvent this concern (100).

Conclusions

Surgery can lead to substantial improvements in quality of life for patients suffering from rectal prolapse. Tailoring the operative approach to the patient's comorbidities, symptom pattern, and priorities is critical in the management of these patients. Minimally invasive approaches, particularly the laparoscopic/robotic ventral mesh rectopexy have many benefits over perineal, open abdominal, and posterior abdominal approaches including a low complication rate, a reasonable recovery, a low recurrence rate, and a robust improvement in symptoms for both patients with FI and ODS.

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Footnote

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