



# Redo perineal rectosigmoidectomy with posterior levatorplasty for recurrent rectal prolapse

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**Abstract:** Rectal prolapse is an uncommon condition mostly affecting the elderly and women populations. Surgical repair is the recommended treatment of choice for those patients who develop full thickness rectal prolapse. The two most common surgical approaches are trans abdominal and perineal. Recurrences of prolapse occur in 5–30% of patients and are higher for perineal approaches. An 83-year-old female with a history of previous Altemeier perineal proctectomy and posterior levatorplasty three years prior presented with recurrent rectal prolapse associated with chronic diarrhea, tenesmus, and mild incontinence. She underwent an uncomplicated redo Altemeier perineal proctosigmoidectomy and posterior levatorplasty. The patient recovered well and was prolapse free at one-year follow-up with significantly reduced associated symptoms. Redo perineal procedures are feasible, similar if not identical to primary resections, and are often easier to perform because the hernia sac is often easily identified. The same principles of perineal primary repair should be used in a redo perineal procedure.

**Keywords:** Altemeier procedure; recurrent rectal prolapse; perineal rectosigmoidectomy

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## Introduction

Rectal prolapse is an uncommon but disabling condition mostly affecting the elderly and women populations. Although surgical repair is the treatment of choice for those who have full thickness rectal prolapse, there is no definite consensus as to which procedure is most effective. The two most common approaches are trans abdominal and perineal (1). Studies have shown that recurrence rates in transabdominal surgeries are generally lower than perineal repairs; however, perineal procedures are better tolerated by older patients with multiple comorbidities because they can be performed without general anesthesia and result in fewer complications (2). The most commonly performed perineal procedure in North America is the Altemeier perineal rectosigmoidectomy. It was first introduced by Milkutz in 1899 in Europe and was further promoted by Altemeier in the United States at the University of Cincinnati (3,4).

Studies have shown most recurrent rectal prolapse present within three years of surgery (4). There is currently no prospective data showing the optimal surgical management for recurrent rectal prolapse. We present here a case of an 83-year-old female who underwent an Altemeier perineal proctosigmoidectomy and posterior levatorplasty for recurrent rectal prolapse after an Altemeier perineal proctectomy three years earlier.

## Patient selection and work up

An 83-year-old female with a past medical history of hypothyroidism, hypertension, splenic lymphoma, polyarthritis, osteoporosis and chronic anemia presented for evaluation of recurrent rectal prolapse associated with chronic diarrhea, mild fecal incontinence, and tenesmus. Patient had undergone an Altemeier perineal proctectomy



**Figure 1** Redo perineal rectosigmoidectomy with posterior levatorplasty (5).

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and posterior levatorplasty three years prior. She had been doing well postoperatively for two years until her rectal prolapse recurred. At the time she was seen, the patient was taking loperamide up to four times per day for her chronic diarrhea. She reported some alleviation of symptoms with medication but persistent discomfort. On physical exam the patient had approximately 5–8 cm of visible prolapsed rectum. There were no signs of ischemia or strangulation. Patient's surgical history included an appendectomy and left hip replacement. She underwent a preoperative colonoscopy for work up which showed mild diverticulosis in the sigmoid colon and inflammation in the rectum consistent with solitary rectal ulcer syndrome. Because of the patients' age, comorbidities, and history of prior perineal intervention for her rectal prolapse she was offered an Altemeier perineal proctosigmoidectomy and posterior levatorplasty. The procedure, risks, benefits, and surgical options were discussed with the patient and she consented for surgery.

### Pre-operative preparation

Prior to the procedure, preoperative workup was performed and the patient was cleared for surgery. Her ASA risk class was III. Mechanical bowel prep with oral antibiotics (neomycin and metronidazole) was given. Ertapenem was administered prior to the incision.

### Equipment Preference Card

- ❖ Fine tip-needle electro cautery.
- ❖ Allis clamp.
- ❖ Bipolar energy vessel sealer.

- ❖ 2-0 PDS, 2-0 and 3-0 Vicryl sutures.

### Procedure

The patient was brought to the operating room, general anesthesia was given and the patient was intubated. A Foley catheter was placed. The patient was placed in the prone jackknife position. The buttocks were taped and retracted for exposure. The perineum was then prepped with iodine solution and draped in usual sterile fashion. The prolapsed rectum was delivered and approximately 5–8 cm of rectum was found outside the anus. We made a circumferential incision at the junction of the previous anastomosis after identifying the suture line, between the colon and the distal anal canal using needle tip electrocautery. A full-thickness dissection of the bowel wall was carried circumferentially until the mesentery was identified. An anterior peritoneal hernia sac was entered. We were able to mobilize and bring out approximately 20 cm of rectosigmoid. The mesentery was carefully divided using the bipolar energy vessel sealer right next to the bowel. A posterior levatorplasty was performed using three interrupted stitches of 2-0 PDS through the posterior levators. The rectosigmoid was then divided and sent to pathology. A tension free coloanal anastomosis was then performed. The sigmoid end was anastomosed to the anus just proximal to the dentate line using 2-0 and 3-0 Vicryl full-thickness sutures circumferentially making sure there were no gaps. The sutures incorporated the proximal anal mucosa as well as the internal sphincter. Adequate hemostasis was achieved and a digital rectal exam was performed at the end demonstrating a patent anal canal (*Figure 1*).

### Post-operative management

Following the procedure, the patient was admitted to the surgical floor for monitoring. She was started on a clear liquid diet and advanced as tolerated. She began passing flatus on postoperative day one and was having bowel movements by day two. Patient was given oral pain medications. Her Foley was removed on post-operative day one, however, she had urinary retention and the Foley was replaced. On postoperative day two a void trial was again done and she was able to urinate independently. She was discharged home without complications. Final pathology was consistent with rectal prolapse. At one year follow up there was no evidence of recurrent prolapse.

### Role of team members

Colorectal team involving an attending and a 5<sup>th</sup> year surgical resident performed the entire procedure.

#### Tips and tricks

- ❖ If parts of the bowel wall demonstrate signs of ischemia during resection they should be trimmed.
- ❖ One of the differences between a primary and a redo Altemeier repair is that the hernia sac is easily encountered in the redo procedure. Because of this, a redo Altemeier may be considered a simpler procedure.
- ❖ The vascular supply to the bowel is transected as close to the bowel wall as possible. Suture ligation or vessel sealing devices can be used for this purpose. The latter provides safe and faster vascular control. This is beneficial for patients in whom we wish to reduce operative time.
- ❖ Posterior levatorplasty allows for reconstitution of the anorectal angle to be more or less in a physiologic angle of ninety degrees. We use stronger sutures like 0 PDS or prolene for the levatorplasty.
- ❖ The bowel should be trimmed just proximal to the vascular demarcation point in preparation for the hand sewn anastomosis.
- ❖ The hand sewn coloanal anastomosis is created with 2-0 and 3-0 Vicryl sutures.
- ❖ In some cases, one or two sutures could be used for anterior levatorplasty depending on the amount of rectal hiatus stretch.
- ❖ When performing the levatorplasty we aim to allowing at least one finger to fit easily in the reconstructed anal canal.

## Discussion

Rectal prolapse, also called rectal procidentia, is an uncommon condition that mostly affects the elderly. It is predominantly seen in women. The rectum is approximately 12 to 15 cm in length and lacks appendices epiploicae and teniae coli. It sits in the curve of the sacrum, adherent to presacral tissues and considered to be mostly outside of the peritoneal cavity. The peritoneal reflection is estimated to be 5 to 7.5 cm from the anal verge in women, and 7 to 9 cm in men (6).

Rectal prolapse can be classified in the following way:

- (I) Type I: mucosal prolapse of 1–3 cm associated with prolapsed hemorrhoids;
- (II) Type II: intussusception of all the layers of the

rectum and rectosigmoid through the rectum and anal canal without associated cul-de-sac sliding hernia;

- (III) Type III: true or complete prolapse with cul-de-sac sliding hernia (3).

Surgical repair is the treatment of choice for patients with full thickness rectal prolapse and symptomatic patients. Although several approaches exist for the repair, there is currently no consensus as to which procedure is the most effective in regards to risk, bowel function, and recurrence (1). The two main approaches to rectal prolapse are transabdominal and perineal.

The transabdominal approach can be divided into transabdominal rectopexy with or without concomitant sigmoidectomy, the non-resection procedure with or without usage of mesh. The two most common perineal repairs are the perineal rectosigmoidectomy (Altemeier procedure) and the perineal mucosal stripping with muscular plication of rectal prolapse (Delorme procedure). The Altemeier procedure is usually performed in patients with a rectal prolapse larger than 3 to 4 cm, as in the patient described above. When comparing the transabdominal and perineal approaches it is important to note that recurrence rates after an abdominal repair are generally lower than the latter. The perineal procedures, however, are better tolerated in the elderly and patients with multiple comorbidities because they can be performed without general anesthesia and result in fewer complications (2). They are also commonly performed in patients who have had previous pelvic surgery, pelvic radiation therapy, failed transabdominal repair, and in younger males to minimize the risk of erectile dysfunction by injuring the autonomic nerve structures.

There is currently no clear evidence or data to determine the best surgical approach for recurrent rectal prolapse. Most recurrent rectal prolapse present within three years after the initial surgery, as it did in the patient described in this case (6). The primary purpose of surgical management for recurrent rectal prolapse is to repair the prolapse with the hope of alleviating disabling symptoms such as fecal incontinence, bleeding and tenesmus. It is important to note that resectional procedures may result in an ischemic segment of bowel between two anastomoses, unless the previous anastomoses is resected with the specimen. Two anastomoses can be created only when the superior hemorrhoidal artery is kept intact during the first resection, otherwise an Altemeier procedure following the sigmoidectomy may result in ischemic bowel segment. Non-resectional procedures have been suggested in the management of recurrent rectal prolapse if a resectional

procedure was performed initially and failed (7).

## Conclusions

Redo perineal (Altemeier) rectal prolapse repair is feasible, similar, if not identical, to primary resection, and is often easier to perform because the hernia sac is easily identified. The same principles as in perineal primary repair should be used in a redo perineal procedure.

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