

## PERINEAL PROCTOSIGMOIDECTOMY

### Case Report

MG is a 68 year old woman with a history of hypertension, hyperlipidemia, hypothyroidism and chronic mild anemia for correction of rectal prolapse. The patient began to have symptoms of discomfort and occasional pain in her perineal area in 1976. These symptoms fluctuated in intensity for 16 years, until she finally sought medical attention in 1992. During this period of time, the patient began to notice that with bowel movements, she would experience the lack of sensation of her stool passing. She has never experienced BRBPR. She is guaiac negative at presentation. She has never experienced extreme constipation nor has she had diarrhea. She has not noticed any changes in the quality or the caliber of the stool.

PSH: had abdominal resection and anastomosis in 1992 and failed Theirsch in 1996 and 2000 (eroded through 180 degrees, mesh removed which caused a massive prolapse)

FH: none available

SH: social drinker, no IVDU

MEDS: Lente insulin 45 U sub q qAM, Metformin 850 mg tid, Amlodipine po, ASA 81 mg po qd, Lipitor 80 mg po qd, Synthroid .150 mg po qd

VS: 37.2 C, 88, 20, 130/85

PE: CV: RRR, no r/m/c

Resp: CTA B/L

Abd: soft, nontender, positive bowel sounds, no masses

Ext: no clubbing, cyanosis, edema

Rectum: large fleshy mass protruding approximately 8 cm from the anus

### Description of surgical procedure - *Altemeier procedure*

Patient was given general anesthetic and was intubated at the beginning of the procedure. The patient was positioned in lithotomy and the perineum was exposed, revealing a large fleshy mass protruding approximately 8 cm from the anus.

Local anesthetic was administered and a Bovie was used to score the outer edge of the prolapsed colon. The bowel wall was divided in a circular fashion with a Metz scissors and Bovie. Once the outer layer of bowel had been divided, two techniques were used to free the rectum from its pelvic and abdominal attachments. Anteriorly, the bovie was used predominantly to divide the fat and mesentery. Posteriorly, hemostasis was achieved by using Kelly clamps to isolate a segment of mesentery before using Metz scissors to free the posterior mesentery. After the bowel had been freed proximal to the dentate line, the bowel was separated, leaving anal mucosa and a rectal segment. To prevent retraction of the bowel segment, sutures were placed in the rectum and were tethered to the anal mucosa at the 12:00 position. Once the rectum had been stabilized, a "LoneStar" device was used to gain visibility of the entire anal mucosa and the rectal stump. In

a segmental fashion, sutures were used to attach the rectum to the anal mucosa. Once all four quadrants had been approximated, the anchoring stitches were cut, and the rectal stump pulled the anal mucosa into the pelvis. The wound was dressed with 4X4 pads.

## RECTAL PROLAPSE

### History

Rectal prolapse is not a modern illness, and indeed, physicians have been keeping record of patients with rectal prolapse since 1500 BC. In 500 CE, graphic evidence of patients with rectal prolapse appeared when a Coptic mummy was discovered preserved in the state of having rectal prolapse. Classically, rectal prolapse has been associated with malnutrition and intestinal parasites, thus leaving its mark on many developing civilizations.

- Vesalius (1514 - 1564) developed three theories about the etiology of rectal prolapse
  - Inadequate support of the rectum by the anal sphincter muscles, either because of relaxation or paralysis (“humidity”)
  - Inadequate support from the levator ani
  - Attributed to lack of support from levators and sphincters
- Early surgical intervention
  - Salmon - introduced the therapy of dividing the sphincter to treat
  - Mikulicz (1888) - perineal amputation
  - Lockhart-Mummery (1910) - perineal incision between the anus and coccyx, dissected the rectum off the sacrum and packed with gauze, slowly withdraw over course of weeks to ensure fixation of rectum to sacrum
- Modern surgical intervention
  - Moschowitz (early 20th century) - abdominal approach revolutionized treatment
- Rectal prolapse: circumferential, full-thickness protrusion of the rectal wall through the anal orifice
- Mucosal prolapse: breaking down of the connective tissue between the submucosa of the rectum and the underlying muscle, reason for many hemorrhoidectomies every year
- Internal intussusception: intussusception of the middle or upper rectum that does not reach anal orifice, thought by some to be the first step toward full-blown rectal prolapse
- Solitary Rectal Ulcer Syndrome: distinct inflammatory conditions which may be caused by rectal prolapse

### Classification: Altemeier

- Type I: mucosal prolapse
- Type II: intussusception with a cul-de-sac hernia
- Type III: full-thickness prolapse with a sliding cul-de-sac hernia

### Causes

- Moschowitz - proposed theory that rectal prolapse was a sliding hernia which developed in patients with deep cul-de-sac (Pouch of Douglas), presence of redundant

- sigmoid at time of defecation or straining would cause herniation
- Progression from intussusception and perineal descent are two other theories

### **Presentation**

- onset of symptoms gradual, often initially presenting with reducible prolapse
- patient could complain of constipation or straining (30-67% of patients)
- incomplete evacuation or tenesmus
- eventually, loss of control of stool (50-75%) from chronic stretching of the sphincters and pudendum nerves, can lead to mucosal ulceration and bleeding

### **Incidence**

- most patients are women over the age of 60 (females 6X more likely than males)
- parity has not been proven to be a factor

### **Associated with:**

- urologic problems: bladder stones, phimosis, urethral stricture, BPH
- bulimia nervosa, trauma, progressive systemic sclerosis, cystic fibrosis (children)

### **Evaluation**

- complete H&P, ask about associated factors
- screening evaluation of colon with endoscopy or barium enema for adults with risk factors, such as diverticulitis
- test pelvic floor and colon transit with cinedefography (Wallden 1952), anorectal manometry

### **Nonoperative treatment**

- has only been proven to offer temporary or symptomatic relief
- injection of sclerosing agents into the retrorectal and perirectal space in children
- Transindolor - battery powered “sphincter stimulator” that could improve tone
- Biofeedback

### **Surgical Treatment**

Although correction of constipation and various perineal support devices may provide some relief for patients with rectal prolapse, surgery is the mainstay of therapy. Because of the varied proposed etiologies for this disorder, it is not surprising that there are over 50 different operations to repair rectal prolapse. In general, surgery for rectal prolapse is performed by either a transabdominal or a perineal approach.

- Transabdominal procedures
  - Obliteration of the Pouch of Douglas (Duval 1910)
  - Levator plication (Goligher 1958)
  - Presacral Rectopexy - horizontal persevering sutures between the posterior 1/3 of the rectum, mesorectum, and presacral fascia
  - Teflon sling - secure mobilized rectum to sacrum by a Teflon mesh sling
  - generally associated with the lowest recurrence rates

- have the potential for greatest morbidity
- usually selected for younger patients who can tolerate more extensive surgery and who may benefit from a more durable procedure

Common transabdominal approaches are 1) anterior resection, 2) rectopexy, and 3) anterior resections with rectopexy.

- Anterior resection involves removal of the redundant rectosigmoid and may allow fixation of the rectum to the sacrum by formation of adhesions.
  - Recurrence rates for anterior resection range from 7.3% to 8.9%.
  - Serious postoperative complications are uncommon and include anastomotic leak, small bowel obstruction, ureteral injury, and pelvic bleeding.
- Rectopexy re-establishes fixation of the rectum to the sacrum and may be performed with direct suturing or with Teflon, Marlex, or Vicryl mesh.
  - Recurrence rates after rectopexy are low, ranging from 3.7% to 9.6%.
  - Postoperative complications to this approach include mesh infection, rectal stricture, and rare intervertebral infections. In a recent series examining 112 patients undergoing Ripstein rectopexy, in which the rectum is fixed to the sacrum with mesh, severe complications included 1 large bowel obstruction, 1 lethal fecaloma, and 2 rectovaginal fistulas caused by mesh erosion.
- Combining rectosigmoid resection with rectopexy has been reported to result in the lowest recurrence rates, with only 2 of 102 patients experiencing recurrent prolapse in one series. Of the abdominal approaches for rectal prolapse repair, combined rectosigmoid resection and rectopexy seems to be the preferred procedure in patients with rectal prolapse associated with constipation. In one prospective study comparing surgical techniques, only 22% of patients who underwent combined rectosigmoid resection and rectopexy reported constipation postoperatively compared with 88% who underwent rectopexy alone.
- Recently, several series have documented successful laparoscopic repair of rectal prolapse by rectopexy, either alone or with rectosigmoid resection. This approach has great potential to decrease the length of hospital stay and frequency of postoperative adhesions and associated small bowel obstructions. Although this approach appears to be safe, more long-term outcome data are needed to determine the efficacy of laparoscopic repairs for rectal prolapse.
- Perineal approaches for repair of rectal prolapse are best suited for debilitated and elderly patients.
  - Anal Encirclement Procedure (Thiersch 1891) - silver wire encircles anus, causes fibrosis which would provide support to pelvic floor, now modified to include polypropylene mesh, simply for palliation as it does nothing to improve muscle tone
  - Graciloplasty (Atri 1980)- transposition of gracilis originally used for repair for rectovaginal fistula

- Perineal Rectopexy - (Lockhart 1910) posterior perineal incision made, rectum mobilized, mesh attached to sacrum and sides of rectum
- Advantages to perineal approach
  - short operative time
  - may be performed under spinal anesthesia, and avoid the morbidities of an abdominal incision and pelvic dissection.
  - patient outcomes are similar, and the perineal approach is less invasive and associated with a shorter hospital stay
  - complication rate for perineal repairs is extremely low, with a 1.5% frequency of anastomotic leak, bleeding, or stricture

The more commonly performed operations include the Altemeier procedure (perineal proctosigmoidectomy), Delorme procedure, and anal encirclement procedures.

The *Altemeier procedure* consists of a full-thickness resection of the rectal prolapse performed through an incision made transrectally 1 to 2 cm above the dentate line. The resection may include the rectum as well as the sigmoid colon if there is redundancy of the sigmoid. Repair of levator muscle diastasis may be performed by plicating the muscles with nonabsorbable sutures and this maneuver has been associated with improved continence. Recurrence rates vary from 3% to 50% in the literature.

- Advantages to Altemeier procedure
  - may be performed in young and healthy patients as well as frail and elderly patients because of its low morbidity
  - In young women who wish to avoid the potential hazard of infertility as a result of adhesion formation, the Altemeier procedure may be warranted even though it is associated with a higher recurrence rate than abdominal procedures
  - in young men, the risk of autonomic reservation and impotence associated with pelvic surgery may be avoided by a perineal repair.
  - the Altemeier procedure is also the procedure of choice when the prolapsed rectum is incarcerated and gangrenous.

The *Delorme procedure* also is performed via a transversal approach. Unlike the Altemeier procedure, resection in a Delorme procedure involves only the mucosa of the rectal prolapse. After the mucosa is removed, the prolapsed muscular layers are placated with sutures. This procedure is best suited for mucosal prolapse in a debilitated patient.

- Recurrence rates have been variable, ranging from 3% to 38%
- However, in series reporting low recurrence rates, functional results have been acceptable. In a recent series of 33 patients, overall results were good to excellent in 76% of patients, with alleviation of constipation in 89% and of rectal bleeding in 79% of cases.

For the frail and debilitated patient, anal encirclement (synonymous with the *Thiersch procedure*) is the procedure of choice. The goal is to prevent the rectum from prolapsing through the anus by

encircling the anus with a prosthesis to narrow it. The operation does not involve resection of the prolapse and may be performed under local anesthesia. The technique involves making two incisions around the anus and tunneling a mesh circumferentially around the anus to narrow it. Although simple with little surgical trauma, the procedure is associated with significant complications, including mesh breakage, mesh erosion into the rectum, and rectal stenosis. *Approximately 25% of patients ultimately require reoperation for one or more of these complications.*

**Feldman: Sleisenger & Fortran's Gastrointestinal and Liver Disease, 7<sup>th</sup> ed.**

One study finds that in comparing two well-matched groups (age, procedure, sex) to compare the rate of postoperative incontinence, EMG findings, manometry, length of stay, anastomotic complications or leaks, wound infection, or recurrence rate in patients having primary rectal prolapse surgery and those having surgery for recurrence of rectal prolapse, there was no statistical difference in the two groups. Overall success rate for recurrent rectal prolapse was 85.2%. The study concludes that in both primary and recurrent rectal prolapse, the surgical options should be determined regardless of the scenario.

Pikarsky, Alon J. et al. Recurrent Rectal Prolapse: What is the Next Good Option. Disease of Colon and Rectum. September 2000.

Another study comparing laparoscopic rectopexy versus abdominal rectopexy for rectal prolapse (*Solomon et al. British Journal of Surgery 2000*) found that 75% of all clinical pathway objectives of early recovery were achieved in the laparoscopic group compared to 37% in the open group. ( $p < 0.01$ )

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