Case Report

Management of Rectal Prolapse: A Report of Three Cases and Review of the Literature

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Key Words
Rectal prolapse;
Rectopexy;
Laparoscopic operation

In aged and constipated people, long-term straining with defecation may result in anorectal prolapse. Rectal prolapse is the protrusion of the rectum through the anus, and is associated with pelvic anatomical abnormalities. These patients may present with symptoms such as prolapsed anal tissue or a mass, anal mucoid secretions, or bleeding from the protruding tissue. Most patients are advised to have the prolapsed bowel surgically treated in order to correct this disorder, and alleviate any associated constipation or fecal incontinence. We encountered three cases of rectal prolapse that were surgically treated by a transabdominal or transperineal approach. We herein present these cases, and review the related literature emphasizing proper selection of a surgical approach. Laparoscopic techniques are now also available, and can be performed safely and reliably. Nevertheless, the choice of procedure should be individualized to the patient's condition.
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Rectal prolapse can sometimes be confused with prolapsing hemorrhoids. Patients with rectal prolapse typically have protruding concentric rings of everted rectum, which is different from prolapsed hemorrhoids. This disturbing anorectal condition can be worsened by faulty bowel habits and aging, and surgical repair is required for correction. Conditions associated with rectal prolapse include weakening of pelvic muscles and ligaments, loss of fixation of the rectum, and an abnormally deep Douglas pouch. Because rectal prolapse can be due to a number of different conditions, there are varied operations that have been reported to treat this disorder. The definitive treatment options are all surgical, and are comprised of either transperineal or transabdominal (including laparoscopic) approaches. Herein, we report three cases of rectal prolapse treated surgically. The first patient underwent a perineal Altemeier repair. The second and the third patients received a low anterior resection and pre-sacral rectopexy.

Case Reports

Case 1 was an 85-year-old female with a previous hysterectomy due to uterine prolapse. She presented with intermittent episodes of a rectal prolapsed mass after defecation for several years. Her medical co-morbidities included chronic obstructive pulmonary disease (COPD), atherosclerotic heart disease, senile dementia, and chronic constipation, and she had been confined to bed for more than 10 years.

Physical examination revealed a short segment of prolapsed bowel protruded through the anus (Fig. 1). Laboratory data revealed normal routine blood and biochemistry values. She was admitted with a diagnosis

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of complete rectal prolapse with mild ischemic mucosal changes, and underwent a perineal Altemeier repair. The procedure was performed successfully, her postoperative course was uneventful, and no recurrence in short-term follow-up has been noted.

Case 2 was a 65-year-old male who presented with a 1-year history of a rectal prolapsed mass after defecation. His history was only significant for chronic constipation for 10 years. He stated that initially a mass protruded during bowel movements, and retracted afterwards. Later, he had to manually replace the prolapsed mass. This time, he could not reduce the prolapsed rectum. He was thus admitted with a diagnosis of complete rectal prolapse and chronic constipation. Physical examination revealed a long segment of prolapsed bowel protruded through the anus (Fig. 2). Routine laboratory tests were normal. Initially, manual reduction of prolapsed rectum was performed and a Thiersch anal encircling suture was temporarily placed under spinal anesthesia. After 2 days of bowel preparation, he received a low anterior resection and pre-sacral rectopexy. The postoperative course was uneventful, and no recurrence has been noted in short-term follow-up.

Case 3 was a 30-year-old male who presented with a 1-year history of a rectal prolapsed mass with defection. He indicated he had to manually replace the rectum after completing defecation. His history was significant for mental retardation since childhood, and chronic constipation for 10 years. Physical examination revealed a long segment of prolapsed bowel protruding from the anus (Fig. 3). Laboratory testing revealed normal values. He received a low anterior resection and pre-sacral rectopexy. The postoperative course was uneventful, and no recurrence has been noted in short-term follow-up.

Discussion

Rectal prolapse is an uncommon anorectal disease. In the United States, the overall incidence of rectal prolapse is approximately 4.2 per 1,000 people.[1] The incidence of the disorder increases to 10 per 1,000 among patients older than 65 years. Most patients with rectal prolapse are women, with a female to

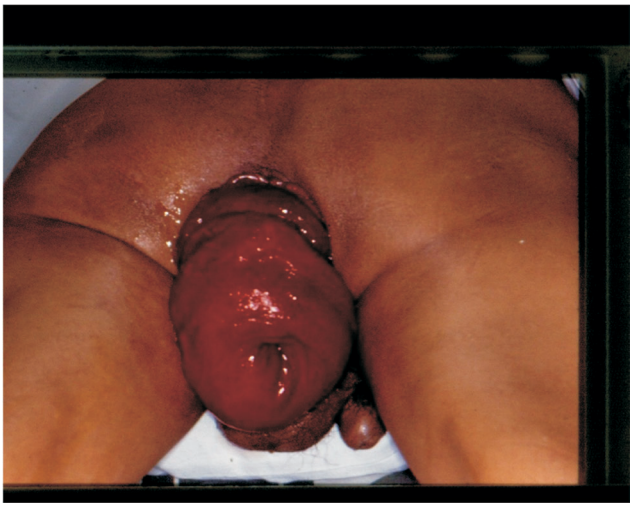

Fig. 2. Rectal prolapse in 65 y/o male.

Fig. 1. Rectal prolapse in 85 y/o female.

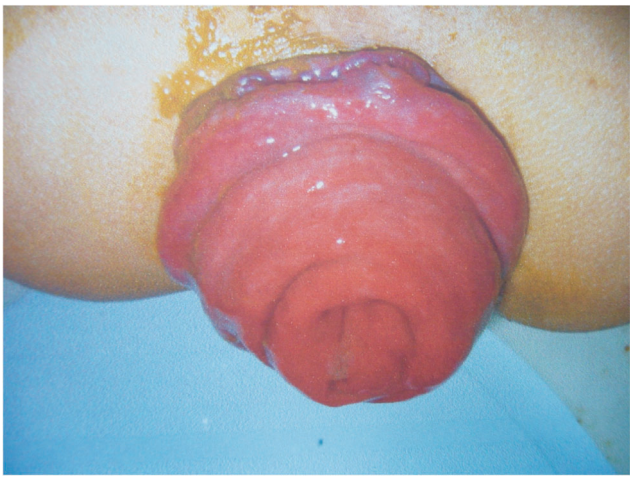

Fig. 3. Rectal prolapse in 30 y/o male.

male ratio of 6:1. Complete rectal prolapse is defined as full-thickness protrusion of the rectum through the anus. Rectal procidentia means complete rectal prolapse, and the term is used when the rectum literally turns "inside out" beyond the anus. Early in the development of a prolapsed rectum, incomplete (or partial) rectal prolapse can occur in which the rectum protrudes during bowel movements and retracts afterwards. The protrusion may become more frequent, and occur when the patient sneezes or coughs. Eventually, the protruding rectum may persist and need to be replaced manually.

Anatomically, rectal prolapse is caused by weakening of the ligaments and muscles that hold the rectum in place. In most people, the anal sphincter is weak. Rectal prolapse is often associated with the advanced age, long-term constipation, long-term straining during defecation, long-term diarrhea, pregnancy and childbirth, previous anal surgery, cystic fibrosis, COPD, and sphincter paralysis. Reviews of the condition have pointed out several possible etiologies including a defect of the pelvic floor, redundant rectosigmoid colon, and deep Douglas pouch. A sliding hernia or a circumferential intussusception that develop in the anorectum are also mentioned as pathogenic mechanisms.

Patients with rectal prolapse often complain of symptoms such as prolapsed anal tissue or mass, anal mucoid secretions, or bleeding from the protruding tissue. Other conditions such as fecal incontinence and loss of the urge to defecate have also been described. The definitive treatment of rectal prolapse is surgical. Surgical treatment of rectal prolapse can involve a variety of methods,[2,3] including resection of redundant colonic or rectal walls, repair of the pelvic defect, and fixation of the rectal wall to presacral fascia (rectopexy). The different surgical approaches are described below.

The transabdominal procedures, posterior rectopexy and resection with posterior rectopexy, offer better functional results.[4] The recurrence rate associated with transabdominal procedures is lower than those seen with transperineal procedures. Currently, the latter are indicated for elderly patients with a considerable surgical risk. For younger patients and older patients with less surgical risk factors, transabdominal procedures are preferred. Therefore, resection of the sigmoid with rectopexy, or anterior and posterior rectopexy, are the most widely performed procedures.

Transperineal procedures, Delorme's procedure[5] and perianal rectosigmoid resection, performed under spinal anesthesia, are another option. However, evidence indicates that the procedures are associated with higher recurrence and incontinence rates. In very old and high-risk patients, Delorme's procedure with mucosal sleeve resection is preferred, and often used for short segment or small prolapse. Perineal rectosigmoidectomy (Altemeier repair) is another safe and effective approach for elderly patients who have significant comorbidities. The Thiersch procedure involves placing subcutaneous, perianal encircling sutures. It creates a temporary mechanical barrier to keep the prolapsing rectum reduced inside the anus, in order to prepare for definite surgery.

Laparoscopic surgery offers another and possibly better option due to its minimally invasive nature. Laparoscopic techniques have been standardized, and represent a much less traumatic surgical option for the treatment of rectal prolapse. Elderly patients treated with a minimal invasive approach gain particular benefit from reduced surgical trauma, less postoperative pain, and early mobilization, thus contributing to less postoperative morbidity. Current laparoscopic surgical techniques include suture rectopexy, stapled rectopexy, posterior mesh rectopexy with artificial materials, and resection of the sigmoid colon with colorectal anastomosis with or without rectopexy.

From our review of the literature,[6,7] laparoscopic repair of rectal prolapse was found to be associated with better outcomes, including shorter hospital stay, low morbidity, and a similar recurrence rate as an open abdominal approach. It should be the preferred method for patients who do not have any comorbid conditions. Advanced age alone is not a contraindication to a laparoscopic approach. Carpelan-Holmstrom et al.[8] presented their experience of the management of 75 patients with rectal prolapse, in which 65 patients were treated laparoscopically, with a 6% conversion rate. They reported success rates of 84% and 92% for rectopexy and resection rectopexy, respectively, with no mortality and only minor morbidity, and considerable improvement of fecal continence.

There were two cases of prolapse recurrence. The authors concluded that the laparoscopic approach provides a shortened hospital stay and is well tolerated by elderly patients. Byrne et al.[9] treated 126 of 321 patients with rectal prolapse with laparoscopic surgery, and reported acceptable outcomes with a recurrence rate of 6.9% at 5 years, and 10.8% at 10 years. They concluded that laparoscopic rectopexy provides reliable long-term results for the treatment of rectal prolapse, including low recurrence rates and acceptable functional outcomes.

Prolapse recurrence after surgery occurs in small portion of patients. Pikarsky et al.[10] presented their experience of 27 patients operated on for recurrent prolapse. These recurrent cases were from 115 patients who received surgical correction of rectal prolapse. Their overall success rate for surgical correction of recurrent rectal prolapse was 85.2%, which was similar to the success rate for the treatment of primary rectal prolapse. Despite the availability of different surgical techniques, recurrent rectal prolapse requires more careful selection of the most suitable surgical approach.

Conclusion

Surgery remains the definite treatment for complete rectal prolapse. Transabdominal procedures seem to be associated with better outcomes than transperineal repairs. Although the cases presented herein were managed with an open surgical approach, laparoscopic treatment of complete rectal prolapse can be successfully performed by trained laparoscopic surgeons. Laparoscopic procedures are associated with similar success rates as other methods, and have the advantages of shorter hospital stay and decreased pain. Nevertheless, the choice of procedure should be based on each patient's individual condition.

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病例報告

直腸脫垂的處置：三病例報告及文獻回顧

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年老便秘病患因長期解便過度用力，可能導致肛門直腸脫垂。直腸脫垂是脫垂的直腸滑出肛門外的疾病，合併有骨盆內部的結構異常。直腸脫垂的症狀包括脫垂出肛門外的直腸組織，和肛門排放黏液出血或大便失禁。多數病人需接受手術治療，修復直腸及減輕大便失禁及排便異常。

我們經歷三例直腸脫垂手術的病人。他們接受經會陰或腹部修復手術。我們在此報告並回顧文獻，強調選擇最適當的手術及治療。經腹部乙狀結腸切除及固定直腸骶骨是較常選擇的手術。腹腔鏡手術則提供另一個安全及有效的治療，優點是較小的切口和住院時間縮短。我們認為手術方式的選擇，應取決於病人的狀況和脫垂的程度。

關鍵詞　直腸脫垂、直腸固定手術、腹腔鏡手術。