Clinically based management of rectal prolapse

Comparison of the laparoscopic Wells procedure and laparoscopic resection with rectopexy


Department of Colorectal Surgery and the Minimally Invasive Surgery Center, Cleveland Clinic Foundation, 9500 Euclid Ave, Desk A-111, Cleveland, OH 44195, USA

Received: 10 January 2002/Accepted: 12 June 2002/Online publication: 4 October 2002

Abstract

Background: Laparoscopic repair of rectal prolapse offers the potential of lower recurrence rates for transabdominal repair coupled with the advantages of minimally invasive colorectal surgery. There have been no direct comparisons of the laparoscopic Wells procedure (LWP) and laparoscopic resection with rectopexy (LRR). This study is the first to make a direct comparison of outcomes from laparoscopic LRR and LWP repairs using a selected, symptom-based choice of operative procedure.

Methods: Consecutive patients presenting with complete rectal prolapse were evaluated by clinical history of the degree of constipation, diarrhea, or incontinence. Patients with a history of constipation or normal bowel habits with normal continence underwent LRR, whereas those with diarrhea or anal incontinence underwent LWP. The collected data included age, gender, operative time, length of hospital stay (LOS), operative blood loss, complications, and postoperative symptoms of constipation or diarrhea. Continence was scored using the Cleveland Clinic scoring system.

Results: Of the 24 patients, 11 underwent LRR and 13 had LWP. The patients in both groups were predominantly female (LRR, 9/1; LWP, 10/2). The LRR patients were significantly younger (48.6 vs 63.9 years \( p < 0.001 \)). Both operative time and LOS were significantly longer in the RR group (operative time, 128.5 ± 80.6 min vs 69.9 ± 13.4 min; LOS, 3.6 ± 3.1 days vs 2.2 ± 1.03 days). All patients in the LRR group had constipation preoperatively, and no patients were incontinent clinically. Preoperatively, 7 of the 13 patients in the LWP group had preoperative diarrhea, and 1 patient had clinical constipation. A five patients experienced clinical symptoms of fecal incontinence, manifested in different degrees. Postoperative complications occurred only in the LRR group (1 case of abdominal wall hematoma and 2 cases of prolonged ileus). During a mean follow-up period of 18.1 months, there were no recurrences; 10 of the 11 LRR patients had correction of constipation; and 4 of 5 of the incontinent LWP patients had improvement in their symptoms. Constipation developed in one LWP patient.

Conclusions: Clinical assessment of preoperative bowel function and continence allows accurate selection of the appropriate laparoscopic technique for repair of rectal prolapse without the added expense of anal physiologic testing. Although LRR may be associated greater morbidity than LWP, both procedures offer good functional outcome, with short LOS and low recurrence rates.

Keywords: Rectal prolapse — Laparoscopic rectopexy — Wells procedure

Rectal prolapse is a distressing condition that has long fascinated surgeons, as evidenced by the multitude of proposed operative approaches for its correction. In the patient with complete rectal prolapse, all layers of the rectal wall protrude through the anal sphincter complex [23]. In addition, approximately 75% of patients with rectal prolapse experience anal incontinence, and 25% to 50% of these patients will have significant constipation [18, 23, 25, 28]. Anal incontinence associated with rectal prolapse has been attributed to abnormal bowel motility and low resting anal pressure resulting from continuous rectoanal inhibition or pudendal neuropathy [14, 19, 26]. Conversely, Metcalf and Loening-Baveke [28] reported their belief that it is the increase in external anal sphincter electromyographic activity that causes outlet obstruction and constipation. Finally, Madoff [24] suggested that slow colonic transit time, a common finding with rectal prolapse, is the primary factor, and that it coincides with development of constipation. Because of the frequently contradictory results from anorectal and
colonic physiologic testing in this patient population, it is difficult to support the superiority of testing over clinical evaluation based on history and physical examination.

The sequential aims of surgical treatment of prolapse are to eradicate the external prolapsing of the rectum, improve continence, and improve bowel function. Optimally, the goal should be to restore normal anatomic configuration and improve the functional outcome. The potential advantage of abdominal procedures is fixation of the rectum in a more appropriate anatomic location without sacrifice of the compliant rectal reservoir. In addition, these approaches generally are considered superior because of the lower recurrence rates, improvement in symptoms, and better functional results [2, 11, 17, 31]. Perineal approaches that either eradicate the rectal ampulla with a coloanal anastomosis or plicate the prolapse are felt to be superior in older, high-risk patients because of less surgical trauma [12, 22]. It is clear, however, that these procedures typically are associated with higher recurrence rates [12, 22].

Laparoscopic management of rectal prolapse was first introduced by Berman [4] in 1992. Laparoscopic access may provide a means of pairing the reduction in surgical stress associated with a perineal approach and the low recurrence rates achieved with abdominal repair of the prolapse. Even when a laparoscopic approach is selected, a choice must be made between a rectopexy with suture or artificial material and a sigmoid colectomy with or without rectopexy [9, 31]. There has been little discussion in the literature regarding criteria for selection of either approach. The purpose of this study was to assess the clinical outcome and functional results of a clinically based approach to the selection of either a laparoscopic posterior rectopexy using mesh (Wells procedure) or a laparoscopic sigmoid colectomy with suture rectopexy.

Patients and methods

A retrospective review of data from a prospectively accrued database of consecutive patients (March 1999 to April 2001) presenting to the Cleveland Clinic Department of Colorectal Surgery with rectal prolapse was performed. The patients were divided into two groups based on the basis of the laparoscopic procedure performed: Wells procedure (LWP) or resection with suture rectopexy (LRR). Data on recurrence and current functional status were updated by chart review and telephone survey. All the patients were assessed preoperatively by clinical examination, with particular attention focused on the degree of continence, constipation, or diarrheal symptoms. Assessment of anal incontinence was performed using the Cleveland Clinic scoring system [13]. The patients were judged to have constipation if they had two or fewer bowel movement per week or strained for more than 25% of their defecations. Confirmation of the prolapse was achieved by examination after a Fleets enema had been administered and the patient had strained on a commode. Digital rectal examination was performed to assess the degree of resting tone, and to identify any anal sphincter defects. Patients with normal bowel habits or constipation without symptoms of anal incontinence underwent <RR. Patients with symptoms of incontinence or preoperative diarrheal underwent LWP. The operative algorithm is shown in Fig. 1.

The data collected included age, gender, procedure, length of stay (LOS), complications, postoperative continence, postoperative incontinence, and prolapse recurrence. All data are presented as mean ± Standard deviation. Statistical analysis consisted Student’s t-test and Fisher’s exact test, as appropriate, with significance set at \( p \) values less than 0.05.

Operative techniques

All the patients underwent surgery in the modified lithotomy position, with Dan–Allen stirrups used to abduct the legs and limit hip flexion. All the patients had general anesthesia. An open approach was used to place the umbilical trocar (10 mm). Pneumoperitoneum was maintained at 12 mmHg throughout the operation. For LWP cases, a 5-mm trocar was placed in the right iliac fossa lateral to the rectus sheath, and a second 5-mm trocar was placed in the right iliac fossa lateral to the rectus sheath, and a second 5-mm trocar was placed in the same line just above the level of the umbilicus. For L-R cases, a 12-mm trocar was used in the right iliac fossa to allow introduction of the endoscopic linear stapler. In both procedures, a 5-mm trocar was placed in the left iliac fossa for the assistant.

In all cases, rectal mobilization was performed using a medial approach to identify the left ureter and allow entry to the retrorectal space. However, the marginal artery was preserved in all the patients. Only the posterior 60% of the rectum was mobilized down to the pelvic floor, preserving both the hypogastric sympathetic plexus and the lateral stalks. Limited mobilization of the left colon was performed, allowing for fixation of the colon to help support the repair of the prolapse.

In LWP cases, a 5 × 5-cm piece of polypropylene mesh (Atrium, Menlo Park, CA, USA) was inserted behind the mobilized rectum and fixed to the sacral promontory using the hernia stapler (EndoUniversal, United States Surgical Corporation, Norwalk, CT, USA). (Two or three polypropylene sutures) were placed on either side of the rectum to allow attachment of the mesh to the mesorectum at the side of the rectum and provide fixation. The pelvic peritoneum was not closed over the repair, and no drain was inserted.

In L-R cases, a similar approach was used for rectosigmoid mobilization. The rectosigmoid junction was divided using an endoscopic linear stapler across perinealized rectum. Only sigmoidal branch vessels were divided. The sigmoid colon was exteriorized via a 3- to 4-cm muscle splitting incision at the site of the left lower quadrant port. The sigmoid was divided extracorporeally, and the 28-mm PCEEA (Auto Suture, United States Surgical Corporation, Norwalk, CT, USA) anvil was inserted. The bowel was returned to the abdominal cavity, the fascia closed, and the pneumoperitoneum reestablished. The circular stapler was inserted transanally, and the anastomosis was completed.

The rectum then was fixed high onto the presacral fascia by 2 to 4 polypropylene sutures. The pelvic peritoneum was not closed, and no drains were inserted.

Postoperatively, all the patients were allowed full liquids with advancement to a general diet as tolerated. Discharge criteria included adequate oral analgesia, tolerance of three solid meals, and passage of flatus or stool.