Open vs. Laparoscopic Surgery for Rectal Prolapse

A Case-Controlled Study Assessing Short-Term Outcome

Matti V. Kairaluoma, M.D., Ph.D.,* Mikko T. Viljakka, M.D., Ph.D.,* Ilmo H. Kellokumpu, M.D., Ph.D.†

From the *Department of Gastroenterological Surgery, Central Hospital of Jyväskylä, Jyväskylä, Finland, and †Fourth Department of Surgery, Helsinki University Central Hospital, Helsinki, Finland

PURPOSE: This study was undertaken to evaluate the efficacy and safety of laparoscopic repair for rectal prolapse.

METHODS: A case-control study was undertaken. The case group consisted of a consecutive series of patients who underwent laparoscopic repair for rectal prolapse between February 1993 and June 2000. The control group underwent open prolapse repair between October 1987 and January 2000. RESULTS: There were 53 patients in each group. The groups were matched according to operation type, gender, and age. Median operative time was longer in the case group than in the control group (resection rectopexy 210 vs. 117 minutes, rectopexy 127.5 vs. 72 minutes, respectively). Median postoperative hospital stay was shorter in the case group than in the control group (resection 5 vs. 7 days, rectopexy 4.5 vs. 7 days, respectively). Median intraoperative bleeding was minor in the case group (resection rectopexy 35 vs. 300 ml, rectopexy 15 vs. 100 ml, respectively). Mortality (0 vs. 1 percent), complications (23 vs. 30 percent), late complications (4 vs. 13 percent), and the rate of recurrent prolapse (6 vs. 13 percent) did not differ significantly between the groups.

CONCLUSIONS: Laparoscopic repair for rectal prolapse is technically feasible and can be performed with mortality and morbidity rates comparable to those of the conventional technique. The main advantages of the laparoscopic approach appear to be a shorter hospital stay and lessened intraoperative blood loss. Recurrence rate is not increased in the short term. [Key words: Surgery; Rectal prolapse; Laparoscopy; Rectopexy]


O pen transabdominal repairs are now the most common surgical procedures for rectal prolapse.1–3 The main concerns of transabdominal procedures, which are usually reserved for good-risk patients, are that they are invasive, requiring a considerable postoperative hospital stay and a period of recuperation.

Laparoscopic rectopexy with posterior mesh fixation was introduced in 19924 and has since gained popularity because it is simple and easily accomplished.5–7 With the evolution of laparoscopic techniques, the feasibility of both laparoscopic-assisted resection rectopexy and laparoscopic suture or posterior mesh rectopexy has been demonstrated in several recent reports.8–13 The rationale for using a laparoscopic approach in prolapse surgery could be reduced pain, shortened hospital stay, and faster recovery to normal activity. No firm data, however, have shown that this hypothesis is correct. According to two retrospective studies,8,14 the laparoscopic approach appears to result in significantly better postoperative pulmonary function, earlier return of bowel function, lessened postoperative pain, shorter hospital stay, and better cosmesis than open surgery. The major disadvantage is the longer time needed to perform the procedure. The present study was undertaken to ascertain the efficacy and safety of the laparoscopic approach in the management of rectal prolapse.

METHODS

Case Group

Between February 1993 and June 2000, 56 patients with rectal prolapse underwent laparoscopic suture rectopexy (LRP; n = 29) or laparoscopic-assisted resection rectopexy (LRRP; n = 27). The outcome of this consecutive series was studied prospectively. All cases were performed by Dr. Kellokumpu or by a senior surgeon under his supervision. The first 36 operations were performed at the Fourth Department of Surgery, Helsinki University Central Hospital, and the last 20 operations at the Central Hospital of Jyväskylä. Indication for surgery was full-thickness rectal prolapse (n = 50) or circumferential intussusception (n = 6) confirmed by physical examination and defecography.
Preoperative studies included colonoscopy or double-contrast barium enema combined with proctosigmoidoscopy to rule out neoplastic disease. Colon transit study before and after surgery was performed in the first 36 patients according to the technique described by Arhan et al. and in the last 20 patients according to the technique described by Metcalf and colleagues. Patients were judged to be constipated if they had 2 or fewer bowel movements per week or strained for >25 percent of their defecation times. Constipation-related symptoms were assessed according to a detailed questionnaire. Symptoms attributed to impaired bowel action included infrequent defecation (≤2/week), use of laxatives and/or enemas, presence of hard stools, and absence of a normal urge to defecate. Symptoms attributed to difficult evacuation included excessive straining at defecation, a feeling of blockage, incompleteness of evacuation, and the need for digital evacuation. Anal manometry was performed only selectively because of preexisting data on the recovery of anal sphincter function after prolapse repair. Assessment of anal continence was based on a scale similar to that described by Browning and Parks and the Cleveland Clinic scale. Data collected also included age, gender, body mass index, American Society of Anesthesiologists physical status classification, duration of symptoms, number of previous operations, technique, intraoperative blood loss, operative time, length of bowel resected, length of hospital stay, return of bowel function, postoperative complications, and follow-up details.

In the first 36 operations, patients with delayed colonic transit, redundancy of the sigmoid colon, and/or diverticulosis were candidates for LRRP. LRP was indicated in other patients, including elderly patients with coexisting medical morbidity in whom a prolonged laparoscopic operation, with its adverse physiologic effects, would have been potentially harmful. The last 20 patients were enrolled in a prospective, randomized trial comparing the functional outcome after LRP and LRRP. For these patients, sealed envelopes were used to randomly determine whether the patient would have resection of the sigmoid colon. Technical details of the laparoscopic procedure have been presented elsewhere. After patients were matched according to operation type, gender, and age with patients in the control group, 53 patients remained as the case group (26 LRP, 27 LRRP).

Control Group

The control group was studied retrospectively by chart review. This study was based on a consecutive series of 56 patients who had a transabdominal rectal prolapse operation at the Central Hospital of Jyväskylä between October 1987 and September 1999. Rectal prolapse was confirmed by clinical investigation. Preoperative studies included colonoscopy or double-contrast barium enema combined with proctosigmoidoscopy to rule out neoplastic disease. Colonic transit studies were not performed. The operations were performed by three consultant staff surgeons. The method used varied according to the preference of the operating surgeon. Conventional (open) rectopexy with sigmoid resection (ORR) was performed in 30 patients, sutured rectopexy in 14, and modified Wells repair with mesh in 12 patients (ORP). The data were collected from hospital records. Because of the historical nature of the control group, data concerning functional outcome were not available in all patients. After patients were matched according to operation type, gender, and age with the case group, 53 patients remained as the control group (26 ORP, 27 ORR).

Statistical Analysis

The independent-sample t-test was used to measure possible differences between the groups. Nonparametric data were analyzed with the Mann-Whitney U test for discrete variables, and nonparametric paired data were analyzed by Wilcoxon’s paired signed-rank test. Chi-squared test and Fisher’s exact probability test were used for categorical data (SPSS for Windows 9.0.1, SPSS Inc., Chicago, IL). A P value of <0.05 was considered statistically significant.

RESULTS

Demographic data are presented in Table 1. The median follow-up was 12 (range, 12–48) months in the case group and 12 (range, 0–120) months in the control group. Age, gender, body mass index, American Society of Anesthesiologists grade, number of previous operations, and presence of solitary rectal ulcer, diverticular disease, incontinence, or constipation did not differ significantly between the groups. There were more childbirths in the control group (median, 2 vs. 1; P < 0.001). Twenty-nine percent of patients had undergone previous operations (23 per-