

Laparoscopic Ultralow Anterior Resection with Colonic J-pouch-Anal Anastomosis

MULTIMEDIA ARTICLE

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PURPOSE: Optimal treatment of mid to distal rectal cancers includes total mesorectal excision for oncologic clearance and, where reanastomosis is feasible, a colonic J-pouch-anal anastomosis improves bowel function. There is recent interest in performing an ultralow anterior resection laparoscopically.¹⁻³ A technique is described that includes specimen extraction through the eventual routine defunctioning colostomy or ileostomy site.

METHODS: Consecutive unselected patients who underwent laparoscopic ultralow anterior resection were recruited. Patients with adenocarcinoma underwent preoperative endorectal ultrasound to individualize for neoadjuvant chemoradiotherapy, based on local extent and lymph nodes seen. The operative procedures were as shown in the video. Posterior dissection along the “total mesorectal excision plane” included incision of Waldeyer’s fascia. Bowel continuity was restored by an intracorporeal double-cross stapled colonic J-pouch-anal anastomosis, but where not possible a coloplasty with pull-through handsewn coloanal anastomosis was performed.

RESULTS: Laparoscopic ultralow anterior resection was performed on 55 patients (35 men; median age, 63 (range, 33–90) years) from March 2004 to October 2006. The median body mass index was 26.3 (19–38); 14 patients (25 percent) had a body mass index >30. Ten patients (18 percent) had an American Society of Anesthesiologists’ classification of III. The indications were adenocarcinoma (n=51), squamous-cell carcinoma of rectum (n=1), dermoid tumor of mesorectum (n=1), large villous adenoma (n=1), and carcinoid with local lymph node metastases (n=1). The adenocarcinomas were a median distance of 6 (3–12) cm from the anal verge. Neoadjuvant radiotherapy was given in 12 patients (24 percent) who had preoperative endoanal ultrasound findings of tumor extension beyond the muscularis propria and chemoradiotherapy in 7 (14 percent) of these patients where the tumor was more bulky and fixed. Laparoscopic ultralow anterior resection was completed at a median 180 (90–405) minutes, with 53.5 (2–2250) ml of blood loss, and the specimen was extracted

through a 4.5 (3.5–11) cm wound. The latter included three cases (5 percent) that were converted. Significant adhesiolysis was required in 29 patients (52.7 percent) because of previous operations. The histologic grading of the adenocarcinoma patients were: Stage I, n=14; Stage II, n=23; Stage III, n=11; Stage IV, n=3. Of those who underwent curative resection (Stages I–III), the distal resection margin was 2.9±0.7 cm (mean±standard error) and the radial resection margins were at least 2 mm in all patients. The level of the coloanal anastomosis was a median 3.5 (0–4.5) cm from the anal verge; a coloanal pull-through anastomosis was required in one patient who had a distal cancer. The ileostomies functioned and patients tolerated free fluids at a median of two (1–9) days, and the median postoperative hospital stay was seven (3–22) days. At a median follow-up of 14 (2–33) months, none of the adenocarcinoma patients who had undergone curative resection had recurrences. Four patients (8 percent) had postoperative complications that required operative/invasive intervention (anastomotic leak n=1, proximal bowel ischemia n=1, port site hernia n=1, pelvic collection n=1). Four other patients had smaller pelvic collections that resolved with antibiotics; pelvic collections were associated with advanced stage of cancer (P=0.047). Discharge was delayed by acute gastric distension in 11 patients; the latter was associated with poorer American Society of Anesthesiologists’ risk classification (P=0.035). Erectile dysfunction occurred in ten men, and this was associated with adjuvant chemoradiotherapy (P=0.042). One patient (2 percent) had persistent urinary retention that required catheterization at latest follow-up. The ileostomy had been closed in 50 patients, and at last follow-up, the median stool frequency was two (1–8) bowel movements per day.

CONCLUSIONS: Laparoscopic ultralow anterior resection could be offered routinely and completed safely in Western populations, where obesity and adhesions from previous abdominal surgery is common. A laparoscopic technique readily allowed visual identification of the autonomic nerves in the abdomen over the aorta, which could then be followed down into the pelvis. If the pelvis was deep, inversion of the 30° laparoscope in the “upside down” position facilitated incision of Waldeyer’s fascia. This brought the rectum proximally and anteriorly, aiding with the laparoscopic stapler transection of the distal rectum, especially if the cancer was distal, the patient was obese, and the pelvis was narrow. Extraction of the specimen at the

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eventual defunctioning stoma site reduced the incisions required. Preoperative chemoradiotherapy may have a role in postoperative male sexual dysfunction. Further randomized, controlled studies that include assessing five-year cancer survival/recurrence, pelvic nerve dysfunction, and bowel function are needed before laparoscopic ultralow anterior resection becomes widely accepted.

KEY WORDS: Colorectal disease; Laparoscopic surgery; Rectal cancer; Total mesorectal excision.

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