

Alimentary Tract

Feasibility of laparoscopic restorative proctocolectomy without diverting stoma

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ABSTRACT

Aim: Restorative proctocolectomy performed before the advent of laparoscopy had evolved to frequently omit a diverting stoma. Our aim was to assess the impact of a diverting stoma on postoperative outcomes following laparoscopic restorative proctocolectomy.

Method: Data on all patients undergoing a laparoscopic restorative proctocolectomy at our institution were prospectively collated in a database.

Results: Between November 2004 and February 2010, 71 patients (38 females) underwent laparoscopic restorative proctocolectomy. Indications included familial adenomatous polyposis ($n=34$), ulcerative colitis ($n=35$), indeterminate colitis ($n=1$) and Lynch syndrome ($n=1$). Laparoscopic restorative proctocolectomy was performed as a one-stage procedure in 49 patients, and after a sub-total colectomy in 22. Seven patients in each group underwent the formation of a diverting stoma. Nine patients required conversion to open surgery. Sixteen patients experienced at least one postoperative complication. The postoperative morbidity was 29% ($n=4/14$) and 21% ($n=12/21$) in patients with and without a stoma ($p=0.8$), and the rate of fistula was 21% and 5%, respectively ($p=0.08$). Seven percent of patients with a stoma and 16% without stoma had an intra-abdominal collection ($p=0.7$). Nine patients required reoperation. The reoperation rate was not influenced by the presence or absence of a diverting stoma.

Conclusion: Laparoscopic restorative proctocolectomy can be performed safely without a diverting stoma in selected patients.

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1. Introduction

Restorative proctocolectomy (RPC) [1], first described by Parks in 1978 [2], is the gold-standard surgical treatment for ulcerative colitis (UC) [3] and familial adenomatous polyposis (FAP) [4]. Experienced centres have reported acceptable rates of morbidity and mortality coupled with good functional results and quality of life [5,6].

Laparoscopy is associated with improved postoperative outcomes, shorter hospital stay, and an improved cosmetic result [7]. Wexner reported the first laparoscopic RPC in 1992 [8]. Subsequently, high volume centres have reported on the feasibility and the safety of this approach [9–12] and the number of laparoscopic RPCs performed worldwide is increasing yearly.

In order to minimize the risk of septic complications, a temporary diverting ileostomy was systematically performed in the phase of initial experience. However, the high rate of

complications associated with stoma formation is well documented and has to be considered. Before the era of laparoscopy, the number of RPCs performed without stoma diversion had increased significantly [13,14] and performing a diversion-free RPC by laparoscopy is now accepted to be safe in selected patients [15]. Significantly reduced length of stay and hospital cost in patients without a diverting stoma following RPC by laparoscopy when compared to those with a diverting stoma, has been reported [16].

In parallel with the rising number of laparoscopic RPCs being performed in expert centres, the rate of ileal diversion has risen to become almost systematic. In our institution, we systematically perform an endoanal mucosectomy with a hand-sewn pouch-anal anastomosis, whilst electing to maintain a consistent set of indications for stoma formation [17].

The aim of this study was to present our experience of the feasibility of laparoscopic RPC without a diverting stoma.

2. Patients and methods

Data of all patients who underwent a laparoscopic RPC from November 2004 to February 2010 in our institution were entered retrospectively in an anonymous database. To avoid any missing patients, every RPC is collated in a prospective list. Therefore, all

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Table 1
Patients' characteristics.

	Overall	Stoma (n = 14)	No stoma (n = 57)	p
Gender, M	33	10 (30.3%)	23 (69.7%)	0.0703
Age	28.4 ± 1.4	39.2 ± 3.9	25.7 ± 1.2	≤0.0001
Body Mass Index	22.7 ± 0.9	26.4 ± 3.2	21.8 ± 0.9	0.0592
ASA ^a				
1	39	2 (5.1%)	37 (94.9%)	
2	27	10 (37%)	17 (63%)	0.0023
3	4	1 (25%)	3 (75%)	
4	1	1 (100%)	0	
Aetiology				
Indeterminate colitis	1	0	1 (100%)	
Lynch	1	1 (100%)	0	0.0351
Polyposis	34	3 (8.82%)	31 (91.2%)	
UC	35	10 (28.6%)	25 (71.4%)	
Corticoids	27	7 (25.9%)	20 (74.1%)	0.3634
Previous abdominal surgery	24	7 (29.2%)	17 (70.8%)	0.2086
Previous STC ^b	22	7 (31.8%)	15 (68.2%)	0.1108
Conversion	9	5 (55.6%)	4 (44.4%)	0.0119
TME ^c	11	4 (36%)	7 (64%)	0.2093
Length of surgery	398.7 ± 8.8	411.4 ± 24.0	395.6 ± 9.3	0.4790
Transfusion	7	2 (28.6%)	5 (71.4%)	0.6180
Postoperative morbidity	16	4 (25%)	12 (75%)	0.7216
Abdominal sepsis	10	1 (10%)	9 (90%)	0.6743
Fistulae	6	3 (50%)	3 (50%)	0.0863
Reoperation	9	3 (33.3%)	6 (66.7%)	0.3663
Hospital stay	14.3 ± 0.7	13.9 ± 1.5	14.4 ± 0.8	0.7948

^a ASA: American Society of Anaesthesiology score.

^b STC: subtotal colectomy.

^c TME: total mesorectal excision.

patients who underwent laparoscopic RPC were included in the study.

2.1. Surgical technique

The procedure entails a 6-port technique (Fig. 1), a technique previously described by our group [17]. Rectal resection was performed either through a Pfannenstiel incision or laparoscopically, at the surgeon's discretion. After the fashioning of a stapled 18 cm ileal J-pouch a complete endoanal mucosectomy was performed and the anastomosis was handsewn. A decision on a diverting stoma was taken intraoperatively, based on specific patient characteristics

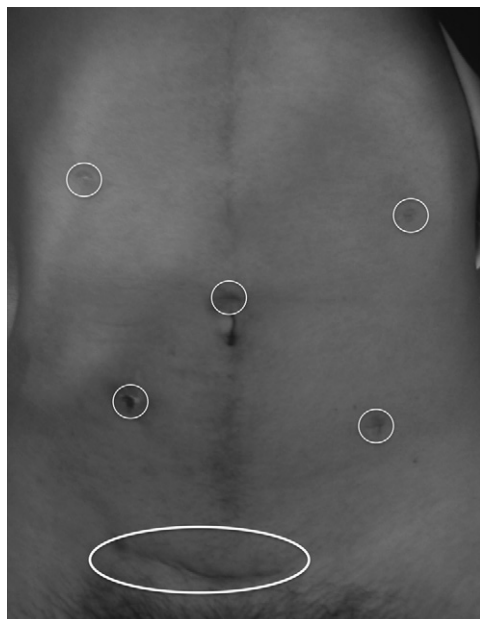


Fig. 1. The 6-ports placement and the one-month cosmetic result. One port is placed on the future line of the pfannenstiell incision.

(concurrent corticosteroid therapy, presence of other risk factors for anastomotic leak, pelvic infection, and presence of a fistula), whilst intraoperative technical details were also considered (difficulty of dissection, extent of blood loss, and degree of anastomotic tension).

The ileal stoma was closed within two months after an antero-grade contrast study via the efferent limb, confirming anastomotic integrity.

2.2. Postoperative management

Patients undergoing RPC in our institution are not enrolled in a fast track recovery programme. They receive antibioprohylaxis at the beginning of the procedure. Epidural anaesthesia is not offered to this patient cohort.

Long-term follow-up was based on a 1, 3, 6 and 12 months schedule. Following the first year patients were seen on a six-month basis.

2.3. Data and statistical analysis

Recorded data included all surgical and medical complications observed during the 90 postoperative days following RPC and closure of the diverting stoma.

Continuous variables were compared with the Mann–Whitney *U* test. Qualitative variables were compared with a contingency 2×2 table, using the chi-square test with the Fisher correction as appropriate. A *p* value less than 0.05 was considered statistically significant. Due to a lack of significant result on the univariate analysis no multivariate analysis was performed. Statistical analysis was performed using SPSS 16.0 (SPSS Inc., Chicago, IL).

3. Results

3.1. Patients' characteristics

Seventy-one patients (38 women, 53%) underwent laparoscopic RPC at our institution between November 2004 and February 2010.

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