



Restorative proctocolectomy without diverting ileostomy in children with ulcerative colitis

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Abstract

Purpose: The safety of performing a restorative proctocolectomy (RP) and J-pouch ileoanal anastomosis (IPAA) without diverting ileostomy for children with ulcerative colitis (UC) is a subject of extensive debate. Our goal was to examine pediatric outcomes of RP and IPAA without ileostomy.

Methods: We performed a single-institution review of UC patients who had RP and IPAA with (+Ostomy) or without (–Ostomy) diverting ileostomy from 2002 to 2010. Surgeon and patient preference determined ileostomy decision. The study included 50 patients (28 +Ostomy, 22 –Ostomy).

Results: Preoperative demographics were similar between 2 groups in age (13.5 ± 3.5 years –Ostomy, 14.3 ± 3 years +Ostomy), serum albumin (3.6 ± 0.7 –Ostomy, 3.6 ± 0.7 +Ostomy), body mass index (20.8 ± 6.9 –Ostomy, 21.3 ± 8.6 +Ostomy), and daily corticosteroid dose (22.4 ± 17.7 mg –Ostomy, 23.5 ± 13.7 mg +Ostomy). Operating time was less in –Ostomy with mean times of $6:22 \pm 2:04$ vs $9:07 \pm 2:57$. The –Ostomy group required fewer ileoanal anastomotic dilations per patient (0.4 ± 0.8 vs 1.4 ± 1.9). Functional outcomes were not significantly different regarding pouchitis episodes per patient (0.6 ± 1.1 –Ostomy, 0.6 ± 1.1 +Ostomy), daily bowel movements (5.5 ± 1.9 –Ostomy, 6.7 ± 4.0 +Ostomy), and daily postoperative loperamide dose (8.4 ± 4.3 mg –Ostomy, 6.8 ± 4.0 mg +Ostomy).

Conclusion: Short- and long-term outcomes can be equivalent in patients with and without diverting ileostomy, but questions remain regarding patient selection and quality of life impact.

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Surgical treatment for children with ulcerative colitis (UC) has evolved over the past 30 years from total abdominal colectomy with end ileostomy to a restorative proctocolectomy (RP) with ileal pouch-anal anastomosis (IPAA) and diverting ileostomy, followed by ileostomy takedown several months later [1,2]. This procedure is still routinely performed with a diverting ileostomy because of the potential complications of the IPAA, with an overriding concern about the consequences of pouch leak and failure

[3]. Several early studies in adults found unacceptable leak and sepsis rates in patients in whom ostomy was omitted, causing recommendations for diversion in all patients [4]. However, more recently, studies have presented data that RP and IPAA can be done without an ileostomy safely in select patients, leading the practice to be performed more freely [5,6]. Compared to the adult literature, there have been relatively few studies in the pediatric literature reporting on IPAA without diverting ileostomy, although children arguably stand to gain the most by avoiding multiple operations, multiple hospitalizations, and the stigma of an ostomy [7].

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The purpose of this study was to review our experience with RP and IPAA without ileostomy for children with UC, in an effort to gain a better understanding of patient characteristics, complications, and functional outcomes.

1. Methods

1.1. Study group

This was a single-institution retrospective review of all children up to 18 years of age with biopsy-proven UC who had a RP with J-pouch ileoanal anastomosis (IPAA) without a diverting ileostomy (–Ostomy) from 2002 to 2010. We chose an age-matched group of children with UC who had a RP and IPAA with diverting ileostomy (+Ostomy) during the same time period. Exclusion criteria included children with major congenital abnormalities and those who underwent major operations unrelated to UC during the study period. All operations were performed by experienced surgeons in the same practice group at a tertiary care university hospital. All surgeons operated on patients in both groups. Except for 3 patients who underwent an initial subtotal colectomy, all operations were performed in the manner of an endorectal mucosectomy with a double-stapled ileoanal anastomosis, as previously described by our group [8]. Surgeons made a preoperative decision for or against ileostomy based on patient health and patient/family preference. Thus, there was a purposeful selection bias of patients for the –Ostomy group, although there were no standard preoperative health criteria for choosing one approach or the other. However, an effort was made to wean immunosuppression in all cases. A final decision whether to omit an ostomy was determined by intraoperative factors, such as operative difficulty and results of an endoscopic pouch leak test. In collecting data, we examined demographics, operative information, early postoperative complications, late morbidity, and functional outcomes.

1.2. Statistical analysis

Statistical analysis was performed on SPSS version 17 software package (IBM, Chicago, Ill), and we used the independent-samples *t* test for equality of means and the Pearson χ^2 test. Significance was defined as $P < .05$.

2. Results

2.1. Demographics and preoperative data

A total of 50 children were included in this study. Demographic and preoperative data are included Table 1. The –Ostomy group was composed of 22 children, and

Table 1 Demographic and preoperative data

	–Ostomy	+Ostomy	<i>P</i>
n	22	28	
Male	12 (54.5%)	13 (46.4%)	>.05
Immunosuppression at time of surgery	17 (77.3%)	20 (71.4%)	>.05
	Mean \pm SD	Mean \pm SD	
Age at colectomy (y)	13.5 \pm 3.5	14.3 \pm 3.0	.43
Duration of disease (y)	2.2 \pm 1.8	1.9 \pm 1.7	.47
BMI (kg/m ²)	21.2 \pm 6.3	21.3 \pm 4.7	.79
Albumin (g/dL)	3.6 \pm 0.7	3.6 \pm 0.7	.93
Corticosteroid dose (mg/d)	22.4 \pm 17.7	23.5 \pm 13.7	.86

BMI indicates body mass index.

the +Ostomy group had a total of 28 patients. Age at colectomy, preoperative duration of disease, body mass index, and albumin levels were similar between the 2 groups. In the year before proctocolectomy, 36% ($n = 8$) of children in –Ostomy lost weight, and 25% ($n = 7$) of the +Ostomy group lost weight ($P > .05$). Most children in both groups were taking some form of immunosuppression at the time of surgery: 77.3% ($n = 17$) in –Ostomy and 71.4% ($n = 20$) in +Ostomy. Mean aggregate preoperative corticosteroid dose was similar between the 2 groups. Three children in –Ostomy had received infliximab less than 2 months before surgery, compared to one child in +Ostomy.

2.2. Operative data

Nearly all of the RPs were performed for medically refractory UC (92%). In the –Ostomy group, one patient had fulminant colitis. This patient experienced a superficial surgical site infection but no other operative complications. Another patient had a total abdominal colectomy with end ileostomy for colonic bleeding of unknown origin. An anastomosis was not performed at the initial operation because of preoperative indeterminate IBD pathology. Upon final pathologic determination of UC, ileostomy takedown with IPAA was performed without diverting ostomy. One child in the +Ostomy group had RP and IPAA for fulminant colitis, and one with bowel perforation had a subtotal colectomy with end ileostomy, followed by

Table 2 Operating time and length of stay

	–Ostomy	+Ostomy	<i>P</i>
	Mean \pm SD	Mean \pm SD	
Total operating time (hr:min)	6:22 \pm 2:04	9:07 \pm 2:57	.01 ^a
Total LOS (d)	14 \pm 8.9	17 \pm 8.6	.24

LOS indicates length of stay.

^a Indicates significance.

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