Complications Associated with Ileal Pouch-Anal Anastomosis

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Seventy-three patients underwent total colectomy, rectal mucosectomy, creation of J or S ileal reservoir, and ileal pouch-anal anastomosis from 1982 to 1989. Mean follow-up was 38 months, with a minimum of 3 months in 15 patients being followed long-term at another institution. Forty-eight (66%) patients had histologically proven ulcerative colitis and 25 (34%) patients had familial polyposis. Thirty-eight J reservoirs and 35 S reservoirs were constructed. There were no perioperative deaths. The failure rate (loss of pouch) was 3%. Thirty-six complications in 34 (47%) patients required surgery. Bowel obstruction was the most common postoperative complication (16%), followed by pouchitis (15%), and cuff infection (5%). Seventy-eight percent of the complications were associated with the J pouch. Average stool frequency at 1 year was 4 per 24-hour period. Other complications included postoperative pneumonia (1), peroneal nerve palsy (1), and temporary sexual dysfunction (1). Seven of 15 complications requiring surgical intervention occurred in the first 2 years of the study period, illustrating the learning curve associated with the procedure. Blood loss, transfusion requirements, and length of operation were not associated with higher complication rates. Use of the J pouch and experience of the individual surgeon affected morbidity.

In 1947, Ravitch and Sabiston [1] introduced the concept of mucosal proctectomy and ileal Anastomosis to allow anal continence after curative surgery (total proctocolectomy) for ulcerative colitis and familial polyposis. However, the severe infectious complications and high stool frequency associated with this procedure were not conducive to its widespread use. In 1978, Parks and Nicholls [2] introduced the proximal ileal reservoir which decreased stool frequency by increasing storage capacity. Staging the pouch procedure with diverting ileostomy provided such satisfactory results that the procedure is now the alternative of choice to permanent ileostomy. Subsequently, several reservoir designs have been introduced [3] and the number of procedures performed annually is increasing. Morbidity in most large series is from 30% to 50%.

The purpose of this study was to review the complications in 73 patients who underwent abdominal colectomy, mucosal proctectomy, and ileal pouch-anal anastomosis at Ochsner Foundation Hospital and to identify factors associated with morbidity.

Patients and Methods

Seventy-three patients underwent total colectomy, mucosal proctectomy, and ileal reservoir construction with diverting ileostomy from July, 1982 to August, 1989 at Ochsner Foundation Hospital. Thirty-three patients were male, with an age range of 14 years to 52 years (mean age 33 years) and 40 patients were female, with an age range of 17 years to 48 years (mean age 32 years). Forty-eight patients had histologically proven ulcerative colitis and 25 patients had familial polyposis. Patients were followed for an average of 38 months postoperatively. Thirty-eight patients underwent J pouch construction and 35 patients received an S pouch. S pouch design was used because of the training and personal preference of one of the authors (A.E.T.). The mean operative time for the first stage (pouch construction) was 5 hours for the J pouch and 5.6 hours for the S pouch. S pouches were constructed with a 2 cm efferent limb. There was no significant difference in operative time whether the pouch was handsewn or stapled. All patients received mechanical, oral, and parenteral antibiotic bowel preparation pre-operatively. Seventy-one patients underwent two-stage procedures, while 2 patients required three-stage procedures due to an unstable clinical presentation at the time of their initial surgery. All patients had a diverting ileostomy at the time of pouch formation: 66 patients received a loop ileostomy while a modified end ileostomy with distal limb mucus fistula was used in the remaining 7 patients. The time to ileostomy closure averaged 2.7 months for the J pouch and 3.0 months for the S pouch. At 12 month follow-up, 7 of 73 patients had relocated ileostomy while a modified end ileostomy with distal limb mucus fistula was used in the remaining 6 patients. The time to ileostomy closure averaged 2.7 months for the J pouch and 3.0 months for the S pouch. At 12 month follow-up, 7 of 73 patients had relocated ileostomy prior to undergoing ileostomy closure. Intestinal continuity was re-established no earlier than 6 weeks following pouch construction in any patient. The surgical techniques have been described in detail elsewhere [3-5].

Results

There were no operative deaths. There were 36 complications in 34 patients, resulting in a 47% overall complication rate (Table 1). The complication rate for the patients with chronic ulcerative colitis (29 of 48, 60%) was higher than that for the population with familial polyposis (7 of 25, 28%). The complications in 14 (19%) patients required surgical intervention.

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Bowel obstruction, the most frequent complication, occurred in 12 (16%) patients. Five patients with obstruction responded to medical management, including nasogastric suction, bowel rest, and intravenous fluid resuscitation. Seven patients with obstruction required operation. No differences were noted in the complication rates for the group undergoing loop ileostomy and the group undergoing modified end ileostomy. Two (3%) patients had pouch failures requiring excisional resection. The pouch in 1 patient was lost from ischemia and 1 patient developed recurring pouchitis resulting in uncontrollable diarrhea, weakness, and significant perianal excoriation. This pouch was removed at the patient's request.

Total complications were divided into J pouch and S pouch groups. Twenty-eight complications in 38 patients with J pouches included 11 complications which required surgery (Table 2). In 35 patients undergoing S pouch construction, 8 complications occurred and only 4 required operation (Table 3). Both failed pouches were of the J configuration.

Pouchitis occurred in 15% of patients. The presenting symptoms were watery stools of increased frequency, urgency, occasional hematochezia, tenesmus, and malaise. Only 1 patient failed to respond to a regimen of rehydration, bowel rest, and oral metronidazole, and in this patient the pouch was eventually removed. No patient operated on for familial polyposis developed pouchitis.

No pelvic or wound infections were seen. Four (5%) patients developed cuff infections. Three patients were treated successfully by surgical drainage and had no further sequelae, while the fourth patient spontaneously drained and was managed conservatively with oral antibiotics. One patient with an S pouch developed a perirectal fistula 16 months postoperatively and was treated by incision and drainage with seton placement. Another patient with an S pouch developed an ischiorectal abscess which was incised and drained 2 years postoperatively. Both patients recovered uneventfully and have had no other problems to date.

At 1 year follow-up, the average stool frequency was 4 per 24-hour period. No patient reported daytime incontinence and only 15 (21%) patients experienced occasional nocturnal leakage more than 12 months after ileostomy closure.

Two patients developed pneumonia postoperatively which responded to antibiotic therapy. One patient experienced a dramatic decrease in libido which improved after psychiatric intervention. One patient developed a peroneal nerve palsy which resolved 2 months postoperatively. This may have been due to poor patient positioning or inadequate leg padding during surgery.

There was no correlation between intra-operative blood loss, transfusion requirements, or length of surgery and the incidence of complications described above. Of the 15 patients with complications requiring re-operation, 7 (47%) patients were treated during our first 2 years of the study period. The percentage of complications decreased as we became more experienced with this surgical procedure.

Discussion

In the 12 years since the technical aspects were refined by Parks and coworkers [4] and by Utsunomiya and associates [5], ileal pouch-anal anastomosis has become the treatment of choice after curative resection for ulcerative colitis and familial polyposis. Overall long-term results are very good in most large series published and patient acceptance is uniformly high, >90% in most surveys. However, problems can occur which may be related to lack of experience of the surgeon with the technical aspects of this procedure.

Our 47% complication rate compares favorably with other large series in the literature (Table 4) [6-11]. The incidence of bowel obstruction varies from 9% to 17% in the 5 other series and pelvic sepsis is reported from 5% to 24%. In our experience, re-operation for obstruction and cuff abscess was required in 10 patients (3 cuff abscesses, 7 obstructions) as well as 2 patients who developed perianal fistulas; 50% of these occurred during our first 2 years of experience with ileal pouch-anal anastomosis (Fig. 1).

Pouchitis was seen in 15% of patients in our series, but only in patients with ulcerative colitis, not in any patient with familial polyposis. This supports the conclusion of Lohmuller and colleagues [12] that pouchitis may be a manifestation of inflammatory bowel disease persisting postoperatively.

Our figures for stool frequency and continence compare favorably with those of Wexner and coworkers [13] in their review of 180 patients undergoing ileal pouch-anal anastomosis. Pescatori and associates [10], in a review of 84 procedures, reported a 3% rate of pouch failure, a 10% re-operation rate for bowel obstruction, and a 14% rate of pouchitis. However, Pescatori's review noted no difference between the J pouch and