Rectal Preservation in Nonspecific Inflammatory Disease of the Colon


Sixty-three patients with chronic ulcerative colitis and 80 patients with Crohn's disease underwent abdominal colectomy and primary ileorectal or ileosigmoid anastomosis and were followed up for between five and 17 years. No patient developed carcinoma of the rectal stump. The interval proctectomy rate was similar in both groups (24 and 29%, respectively), the rate being influenced by age in the group with chronic ulcerative colitis. The young patients with ulcerative colitis required proctectomy more often than did the patients with onset later in life. The proctectomy rate was not influenced by the level of the anastomosis. In patients with normal or moderately diseased rectal mucosa, the preoperative condition of the rectum did not influence the proctectomy rate. Functional results were satisfactory in 55% of the patients with chronic ulcerative colitis who survived and in 35% of the patients with Crohn's disease who survived. Because of the non-curative nature of surgery for Crohn's disease, a conservative posture should be maintained, with preservation of normal or moderately diseased rectal segments. If sigmoidoscopic examination and biopsy are done periodically, abdominal colectomy and ileorectal or ileosigmoid anastomosis appears to be a viable option to proctocolectomy in selected patients with chronic ulcerative colitis.

Proctocolectomy has been generally accepted as the surgical procedure of choice for patients with ulcerative colitis or extensive Crohn's colitis. Rectal preservation has been championed by Aylett for a number of years and more recently by others. Authors favoring proctocolectomy cite an unacceptable risk for the development of cancer in the rectal stump, plus persistent rectal inflammation, as major points against rectal preservation. Reports of functional results after abdominal colectomy and ileorectal anastomosis in patients with nonspecific inflammatory disease of the colon have been variable.

A conflicting surgical literature prompted us to review our experience with rectal preservation in patients with these two colitides.

The aims of this review were threefold: 1) to determine the incidence of carcinoma of the rectal stump, 2) to assess the quality of life of patients with an intact anastomosis and 3) to identify factors influencing the success or failure of the operation.

Material and Methods

From 1961 through 1973, 1,635 patients underwent operation at our institution for ulcerative colitis or Crohn's disease. During this same interval, 143 patients underwent abdominal colectomy and primary ileorectal or ileosigmoid anastomosis for chronic ulcerative colitis or Crohn's colitis. These 143 patients comprise the subject material of this retrospective analysis.

Details of presentation, operation and status of the rectum before operation were determined. The current status of the patient was determined by review of recent clinical evaluations, questionnaires or telephone interviews. Histologic review of resected specimens was undertaken, and the lesions were reclassified according to current pathologic concepts. In 132 cases, material was available for review; in 11 cases, diagnosis was based on review of the clinical course of the disease and the pathologic diagnosis at operation.

Findings

On the basis of the histologic review of the resected specimens, 63 patients were classified as having chronic ulcerative colitis and 80 as having Crohn's colitis (Table 1). Indications for surgery were mainly intractability (44%) or suspicion/prophylaxis (33%) of cancer in the group with chronic ulcerative colitis, whereas in the group with Crohn's disease, intractability (38%), ob-
Construction (20%) and fistulization (20%) predominated. The rationale for retaining the rectum was difficult to identify, but among those reasons given were emergency procedures, a "healthy appearing" rectum or rectosigmoid at operation, difficulty in distinguishing ulcerative colitis from Crohn's colitis and patient refusal to undergo rectal excision. The reasons for selecting rectal preservation were rarely recorded and thus could not be analyzed.

All patients underwent preoperative proctoscopic examination. The rectum was normal in 54% of the patients with chronic ulcerative colitis and in 70% of patients with Crohn's disease. Moderate disease was present in 38% of the former and 19% of the latter. A minimal number of patients had severe rectal mucosal disease before operation.

**Technical Considerations**

The level of the anastomosis was defined by the peritoneal reflection—ileorectal below and ileosigmoid above. In the group with chronic ulcerative colitis, there were 32 ileosigmoid and 31 ileorectal anastomoses, whereas in the group with Crohn's disease, there were 41 and 39 anastomoses, respectively. In two of the 143 patients, a temporary, proximal diverting ileostomy was performed. In each, intestinal continuity was re-established. The vast majority of anastomoses were fashioned with a continuous inner row of absorbable sutures and an outer interrupted row of nonabsorbable sutures.

**Status of Bowel Function**

Because of the subjective nature of each patient's assessment of his result—some patients were satisfied with 10–15 bowel movements per day and would even tolerate occasional incontinence—an effort was made to objectively communicate the results of rectal preservation. To this end, criteria were established that, when applied alone or in combination, were sufficient to deem the outcome as unsatisfactory.

If the operative procedure failed, that is, if the patient underwent proctectomy, the initial result was considered to be unacceptable. In patients with an intact anastomosis, if any one or more of the following were noted, the result was classified as unsatisfactory: 1) greater than eight bowel movements per day, 2) systemic use of steroids, 3) severe perianal disease, 4) incontinence and 5) poor general health due to persistent symptoms.

With these criteria applied, the patients who were alive at follow-up were studied. Of patients who were not alive at follow-up, only one underwent proctectomy. No effort was made to characterize the antemortem bowel function of patients who were not alive at follow-up.

Of the 49 patients with ulcerative colitis who were alive at follow-up, 55% had an acceptable result (Table 2). The patients with Crohn's disease fared less well—only 35% had a satisfactory result. In neither group was a carcinoma of the retained rectum or rectosigmoid encountered.

The failure rate (proportion undergoing proctectomy) was similar for each group: 15 (24%) of 63 in the group with chronic ulcerative colitis and 23 (29%) of 80 in the group with Crohn's disease (Table 3). One patient with Crohn's disease had proctectomy prior to death. Analysis of patients with an intact anastomosis revealed that six (18%) of 33 in the group with chronic ulcerative colitis and 18 (43%) of 42 in the group with Crohn's disease had unacceptable results. These data

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**Table 1. Profile of 143 Patients With Nonspecific Inflammatory Disease of the Colon**

<table>
<thead>
<tr>
<th>Chronic Ulcerative Colitis</th>
<th>Crohn's Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total patients</td>
<td>63</td>
</tr>
<tr>
<td>Males</td>
<td>31</td>
</tr>
<tr>
<td>Females</td>
<td>32</td>
</tr>
<tr>
<td>Median age (yr)</td>
<td>39</td>
</tr>
<tr>
<td>Median duration of symptoms (yr)</td>
<td>8</td>
</tr>
<tr>
<td>Median duration of follow-up (yr)</td>
<td>8.4</td>
</tr>
<tr>
<td>Range of follow-up (yr)</td>
<td>5–17</td>
</tr>
<tr>
<td>Lost to follow-up</td>
<td>0</td>
</tr>
</tbody>
</table>

**Table 2. Results of Abdominal Colectomy and Primary Ileo Rectal or Ileosigmoidal Anastomosis for Nonspecific Inflammatory Disease of the Colon**

<table>
<thead>
<tr>
<th>Result</th>
<th>Chronic Ulcerative Colitis (49 pt)</th>
<th>Crohn's Disease (69 pt)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Per Cent*</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>27</td>
<td>55</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>22</td>
<td>45</td>
</tr>
<tr>
<td>Cancer of rectal stump</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

* Percentages based on number of patients alive at follow-up.
suggest that the likelihood of proctectomy after subtotal colectomy and anastomosis is equal for each group. However, the patient with Crohn’s disease whose rectum was in situ did not fare as well. The panalimentary nature of Crohn’s disease—a tendency to recur at any level of the gastrointestinal tract—as well as a predilection for perirectal complications are hazards for the patient with this condition. Crohn’s disease is not cured by operation; removal of the diseased bowel is a temporary measure to improve quality of life between recurrences.

Mortality

The operative mortality rates were acceptable: 3.2% (two patients) for the group with chronic ulcerative colitis and 1.3% (one patient) for the group with Crohn’s disease. These rates compare favorably with previous reports.3,11-12 At follow-up, 86% of the patients with Crohn’s disease were alive whereas only 78% of the patients with chronic ulcerative colitis were alive. This can be at least partially explained by the fact that 1) the median age of the patients with chronic ulcerative colitis was approximately a decade greater than that of the patients with Crohn’s disease, and 2) five patients with chronic ulcerative colitis had advanced (Dukes’ grade C) colonic carcinoma at the time of the initial operation.

There were three operative deaths: two patients with chronic ulcerative colitis died, one of sepsis and the other of pulmonary abscess, and one patient with Crohn’s disease died of pneumonia. There were 12 late deaths in the group with chronic ulcerative colitis, seven of which were disease related. Of the 11 late deaths in the group with Crohn’s disease, two were disease related.

Factors Influencing Outcome

In an effort to determine the factors that influenced the success or failure of the operation, the relationship of the proctectomy rate to various preoperative parameters was analyzed.

In the group with chronic ulcerative colitis, the mean age of patients requiring proctectomy was 29 years, while the mean age of those in whom the rectum was retained was 43 years. This difference was statistically significant (p < 0.01). Proctectomy rate was not influenced by age in the group with Crohn’s disease.

The proctectomy rate for both groups of patients was not influenced by the level of the anastomosis. In chronic ulcerative colitis, the rate for ileosigmoidostomy was 25%, while the rate for ileorectostomy was 23%. In Crohn’s disease, the rate for ileosigmoidostomy was 32%, whereas the rate for ileorectostomy was 26%. Likewise, in neither disease group did the preoperative condition of the rectum influence the rate of proctectomy in patients with a normal or moderately diseased rectum. In chronic ulcerative colitis, the rate was 26% for those with normal rectal mucosa and 21% for those with moderate rectal disease, whereas in Crohn’s disease, the rate was 27% and 40%, respectively. There were too few patients with severe disease for analysis.

Steroid Use

Topical or systemic steroid use in those patients with an intact anastomosis was analyzed. Steroid use was more prevalent in the patients with Crohn’s disease (18%) than in the patients with chronic ulcerative colitis (6%), thus reflecting the tendency of Crohn’s disease to recur with continued bowel symptoms.

Postoperative Proctoscopic Examination

Of patients at risk for the development of cancer (those with the rectum in situ) approximately two-thirds returned for proctoscopic examination, the remainder being followed up by their local physician. To date, carcinoma of the rectal stump has not developed in any of the patients. The severity of the mucosal disease on reexamination reflected the distribution of mucosal disease seen preoperatively. Some of the patients had acceptable bowel function in spite of continuing moderate or severe rectal mucosal disease.

Discussion

The proctectomy rate was similar for both chronic ulcerative colitis and Crohn’s disease (24 and 29%, respectively). Reported proctectomy rates have varied from 7 to 78%.3,6 This number likely is the most objective measure of the efficacy of the operation, because analysis of a patient’s functional result is subjective.

As noted by previous investigators, the preoperative condition of the rectum did not influence subsequent rectal removal.3,20 Our results are consistent with these reports in patients who had normal or moderate disease of the rectum before operation. It must be emphasized that there were too few patients with severe disease for meaningful analysis. Additionally, the level of the anastomosis did not seem to be an influencing factor. The main goal was to remove sufficient bowel to render the entire retained segment accessible proctoscopically. As observed by Adson et al.1 in an earlier report, younger patients with chronic ulcerative colitis were more likely to undergo interval proctectomy. Unfortunately, it is this group in whom body image and
social considerations of ileostomy are often paramount to the patient.

Only one patient had an early clinical leak that required a diverting ileostomy; continuity was later restored. All anastomoses were primary, and only two protecting ileostomies were performed. However, most of the patients had normal or moderately diseased rectal segments. Primary anastomosis in the presence of mild rectal inflammation is safe and only rarely requires a diverting ileostomy.

The quality of life was deemed acceptable in a significant proportion (55%) of the patients with chronic ulcerative colitis who survived, whereas satisfactory results were noted in a minority (35%) of the patients with Crohn's disease who survived. Functional results have varied, thus making comparison difficult. Many of our patients were satisfied with their result in spite of a label of unacceptable by our criteria. The converse was only rarely observed.

Cancer of the rectal stump is the most feared complication of rectal preservation in the patient with chronic ulcerative colitis (a 6% rate in collected series). Although no patient in our present series had cancer of the stump, an earlier report from our institution noted such an occurrence.

The concept of "precancer," as reported by Morson and Pang, has been updated by outlining a program for the selection of patients with chronic ulcerative colitis who are at high risk for the development of colonic carcinoma. In seven patients with severe dysplasia, four had carcinoma at operation and all lesions were early ones (Dukes' A). In 196 patients without dysplasia, no carcinoma was detected in 941 patient-years of follow-up. Preliminary data obtained prospectively on a small number of patients by Nugent and associates support the concept of "precancer." This concept, pending further investigation, may find application in more precise identification of the cancer risk in patients with chronic ulcerative colitis in whom colectomy with rectal preservation has been undertaken.

A substantial number of patients with chronic ulcerative colitis do very well after subtotal colectomy and primary anastomosis. To submit all patients who have chronic ulcerative colitis to panproctocolectomy would be denying these patients the possibility of retaining normal intestinal continuity and rectosphincteric function. Those in whom the operation fails reach the same end point—namely, permanent ileostomy—but do so in a staged manner. Interval proctectomy is technically more difficult because of obliteration of tissue planes, and the patient who has had one unsuccessful procedure will be reluctant to undergo additional procedures. The former is certainly true; however, the informed patient who is well aware of the rationale, contingencies, and potential benefit of rectal preservation likely will be willing to submit to additional surgery as required.

The functional result of patients with Crohn's disease was inferior to that of the patients with chronic ulcerative colitis. Surgery in this setting is a temporizing measure, since the recurrence rate for this entity is high and recurrence leads to repeated operations. Therefore, a conservative approach with preservation of normal or minimally involved rectal segments would seem to be appropriate, with rectal expiration being reserved for patients who have severe rectal or perianal disease.

Patients undergoing abdominal colectomy and anastomosis have a decreased risk of the development of carcinoma proportional to the amount of colon resected. Additionally, their remaining rectal mucosa is easily accessible to the ordinary sigmoidoscope, thus facilitating the taking of biopsy specimens and thereby enhancing the chances of early detection of the presence of carcinoma.

The substantial number of satisfactory results, coupled with the accessibility of the rectal mucosa to visualization and biopsy, implies that abdominal colectomy and ileorectal or ileosigmoid anastomosis is a viable option to total proctocolectomy in selected patients with chronic ulcerative colitis.

We continue to be interested in histologically dysplastic changes that might be harbingers of developing malignancy. These dysplastic changes are very difficult to interpret, and, as yet, our pathologists have not been able to rely on these criteria with any degree of confidence.

Conclusions

The present study revealed that 1) carcinoma of the rectal stump did not occur in any of the patients; 2) the proctectomy rates after abdominal colectomy and anastomosis for patients with chronic ulcerative colitis and for patients with Crohn's disease were similar (24% and 29%, respectively); 3) the quality of life was satisfactory in 55% of patients with chronic ulcerative colitis and in 35% of patients with Crohn's disease; 4) patients with the onset of chronic ulcerative colitis at an early age required proctectomy more often than those in whom the disease started later in life; 5) the level of the anastomosis did not influence the proctectomy rate; and 6) the presence of moderate rectal mucosal disease did not increase the proctectomy rate.

References