Total Colectomy and Ileorectal Anastomosis for Ulcerative Colitis

C.V. Mann, M.Ch., F.R.C.S.

The London Hospital and St. Mark's Hospital, London, United Kingdom

The pros and cons of total colectomy and ileorectal anastomosis for ulcerative colitis are discussed based on the author's experience and on the collective results with this operation at St. Mark's Hospital, London, over a 20-year period. Its chief merits are that it is easy to perform, carries a low operative mortality and morbidity, and, when it works well, usually affords excellent anorectal function. It has 2 main disadvantages: in a proportion of cases it proves unable to control the disease because of continuous or recurrent activity of the residual proctitis, and occasionally a carcinoma may develop in the rectal stump. But patients who have failed with it can easily be salvaged, as a rule, by proceeding to a proctectomy and ileoanal anastomosis (or ileostomy). As for the risk of cancer arising in the rectum, fortunately, this can now be largely contained by regular follow-up attendances, at which rectal biopsies are taken to look for evidence of the premalignant change of severe epithelial dysplasia, a precaution that is absolutely essential after this operation.

Important points in the technique of ileorectal anastomosis are emphasized, and the suitability of the operation for colitis in various clinical settings is examined.

When considering the application of a surgical technique to a disease such as ulcerative colitis, it would be easy to forget that surgery is not a precise instrument that can be used according to defined rules. Like every human, a surgeon is not an island, and his work is conducted within a context of extreme complexity and variability; circumstances can force decisions—operations that from a purely scientific viewpoint should be done are often discarded in favor of others that can be done.

Compared with colorectal cancer, ulcerative (total) colitis is an uncommon disease affecting approximately 1:2,000 people in Western countries [1]. In the United Kingdom, there are annually 17,000 colorectal deaths from cancer, of which only a tiny fraction arises from colitis: this colitis cancer mortality arises from extensive chronic disease, which is the group of most interest to surgeons. Although ulcerative colitis is relatively uncommon, it is not rare and most abdominal surgeons working in developed countries can expect to see cases that they must treat; it is impossible to foresee a situation in which all cases of ulcerative colitis could be treated in special referral centers.

This article is written with the surgeon in mind who is working in a community hospital, without the benefits of a large supporting staff or above-average facilities. Certain assumptions must be made for the sake of clarity: that excellent histopathological assessment of biopsy material is available, that well-trained ward staff are available, and that the laboratory and operating room facilities are sufficient for safe abdominal surgery. A cooperative anesthetic colleague of high skill is mandatory. Some of these assumptions may prove illusory in practice, and in their absence, a flexible surgical response is required if disaster is to be avoided.

Background

Ulcerative colitis is defined as total or near-total involvement of the large bowel and rectum. Although limited colitis confined to the rectum or distal colon is frequently seen, it rarely calls for surgical intervention and it is not associated with the risks that accompany ulcerative colitis. In particular, severe hemorrhage, toxic megacolon, and cancerous change are exceedingly uncommon in limited colitis and are not usually considered within a surgical context in such patients.

Patients with ulcerative colitis can present to the surgeon for the following reasons.

1. Work or social environments inappropriate for the disease: Many patients live or work in places where frequent supervision is impossible or treatments are either not available or are impractical to use, e.g., steroid enemas. School children or university students can be severely handicapped in these ways. Military personnel can be difficult to manage by intensive medical treatment, especially in isolated or primitive environments. Third World countries frequently lack social or pharmacological facilities essential for medical therapy.

2. Persistent ill health resistant to medical management: Many patients find that they are unable to compete adequately in their daily lives owing to the frequent need for treatment; even in remission, many feel under par.

3. Inability to tolerate medical therapy and/or development of drug sensitivity: High-dose steroid regimens can cause serious side effects, especially if continued for long periods, so that even if the patient can be controlled by such means, treatment must be terminated. A large number of patients develop a true allergy to some drugs, e.g., asulphapyridine or azathioprine, and require surgical intervention instead.

4. Complications dependent on the inflammatory changes in

Reprint requests: Mr. C.V. Mann, M.Ch., F.R.C.S., Consultant Surgeon, The London Hospital, Whitechapel, London E1 1BB, United Kingdom.
the epithelium. These can be chronic problems arising from long-standing disease, e.g., anemia, vitamin deficiencies, protein loss, or acute complications such as hemorrhage, toxic megacolon, and perforation.

5. Precancerous and malignant epithelial changes: This can be a single-site occurrence, but is frequently multiple. Many of these cancers are highly invasive.

Although this list of surgical indications is not exhaustive, it draws attention to the fact that certain types of surgery are definitely contraindicated in particular situations. It would not be the best choice to submit a young child to an ileoanal pouch (with its need for frequent and unpleasant follow-up interventions) as a first procedure, and it would be unwise to use an ileorectal restorative procedure for the patient in whom the indication for colectomy had been precancerous or a cancerous change in the rectal and/or colonic epithelium. Some patients come to surgical treatment as a result of ectopic manifestations, e.g., cirrhotic liver disease, joint arthroses, ankylosing spondylitis. It is the author’s experience that these persist if the rectum is conserved, and that an ileorectal anastomosis should not be used in the treatment of such cases. Nor should a patient with a severely diseased rectum (grade III–IV changes) be chosen for an ileorectal anastomosis.

Total Colectomy and Ileorectal Anastomosis for the Standard Case

The most frequently referred patient for surgical treatment is a young adult who suffers from chronic invalidism despite proper medical care. Many such patients are at the peak of their socioeconomic requirements. Fifty percent of such patients are males [2].

A total colectomy and ileorectal anastomosis is an excellent choice of treatment for such cases for the following reasons.

1. It is a very safe operation: In a series studied at St. Mark’s Hospital, only 2 of 87 patients died postoperatively and both of these were emergency cases. For proctocolectomy, the mortality rate is 4% in expert hands [3], and can rise as high as 25% in emergency cases.

2. It eliminates some, and reduces all, of the risks directly related to the inflammatory changes of the colon: e.g., hemorrhage, toxic megacolon, and perforation.

3. It does not require a large supporting cast of nurses and resident doctors: Both proctocolectomy and ileoanal pouch procedures require much greater on-site medical and nursing attention.

4. It totally avoids all postoperative risk of sexual dysfunction: Although, with proper technique, this risk can be greatly reduced from operations requiring a deep pelvic dissection, it cannot be totally eliminated, especially in patients over 40 years of age.

5. It does not require the use of highly sophisticated surgical techniques: Both of the pouch operations (Kock and ileoanal) require lengthy training and great experience, and are usually performed in specialist colorectal centers.

6. With careful selection and attention to surgical detail, a good result is likely: This is discussed in more detail later.

7. If unsuccessful, it does not preclude resorting to further surgery by either proctocolectomy and ileostomy or one of the pouch procedures: This is also possible if precancerous or cancerous changes develop in the preserved rectal stump.

8. The risk of cancerous change in the rectum can be contained: This is discussed in more detail later, but is less than 10% overall.

In the standard elective case, the 2 main objectives leveled against the use of total colectomy and ileorectal anastomosis concern the retained rectum, which is both the seat of continuing proctitis and the site of potential cancerous change. With the first, there are associated functional problems, and with the second, there are implications for follow-up to keep the risk within acceptable limits [4].

The Retained Rectum

Functional Problems

A normal rectum acts as a reservoir for feces and reduces the number of times defecation is necessary. The smaller the rectal capacity, the less effective reservoir function becomes. It is, therefore, necessary to keep the entire rectum if an ileorectal hook-up is not to be followed by an unacceptable frequency of defecation [5, 6]. There is no difficulty in justifying this if the rectum is minimally or moderately inflamed, but sometimes as a result of chronic inflammation, the rectum becomes narrowed and rigid and may have strictured areas. If the rectal wall is stiff and lacks compliance, I regard it as unsuitable for use in an ileorectal anastomosis. Since it has been learned that the whole rectum must be preserved and that the organ itself must be of good capacity, the need to carry out a second-stage rectal excision because of persistent diarrhea, which used to be common (Table 1), has been almost eliminated at St. Mark’s Hospital.

Because the retained rectum continues to suffer from proctitis, it is essential to continue with antiinflammatory treatments after the operation. These are usually simple and consist of asulphapyridine (1.0 g every 8 hours) combined with an antidiarrheal agent such as codeine phosphate (30 mg every 8 hours) or loperamide (4 mg every 6 hours). Occasionally, hydrocortisone enemas are needed as well. But as the ileum adapts, the bowel frequency diminishes spontaneously and, in some cases, the inflammatory changes in the rectal mucosa subside and virtually disappear. In my last 23 cases of colectomy and ileorectal anastomosis, no patient has needed a subsequent proctectomy for reasons of tenesmus or bowel frequency.

Cancer Risks

There is an acknowledged risk of cancer developing in the rectal stump after ileorectal anastomosis [7–9]; however, this risk may