

Ileorectal Anastomosis for Ulcerative Colitis*

E. S. R. HUGHES, F.R.A.C.S., I. S. RUSSELL, F.R.A.C.S

From the Royal Melbourne Hospital, Melbourne, Australia

MOST SURGEONS favor proctocolectomy and permanent ileostomy for ulcerative colitis, but there have been favorable reports on ileorectal anastomosis by Devine,¹² Coates,¹⁰ Dunlop,^{13, 14} Aylett,²⁻⁷ Abel,¹ Corbett,¹¹ Turnbull,²⁸ Muir,²⁴ Mařatka and associates,²¹ and others.

A permanent ileostomy is no small price to pay for good health; patients, relatives and physicians may delay acceptance of this type of surgery because of understandable reluctance. Ileostomy patients require the services of a good organization to advise about and supply equipment. The ileostomy bag must be emptied three to five times a day, and often at night, and each time it is emptied, a visit to the toilet must be made. If the rectum is removed as a part of the surgical procedure on the colon, impotence may be a serious complication. In any case, perineal wounds heal slowly.

Two hundred thirty-four patients with ulcerative colitis have undergone colectomy performed by one of us (E.S.R.H.). Of these, 63 (27%) have had ileorectal anastomosis. The first patient underwent operation in December 1953, and the last in March 1966. This series of cases has been analyzed in an attempt to determine the answers to questions that are asked frequently.

What constitutes a successful result after ileorectal anastomosis?

Concerning this question, there is wide variation of opinion. To some surgeons, more than two bowel actions a day may not be acceptable as a reasonable alternative to ileostomy. In 1964, Foote and his

colleagues,¹⁵ discussing a patient who had undergone ileorectal anastomosis, in whom anal ulceration had developed, put it neatly as follows: "We worry about her but she is happy and will not consider giving up her rectum."

In our series of 48 patients, alive and well after a successful ileorectal anastomosis, all but two have five or fewer bowel actions a day; actually 25 have three or less, and one is constipated. All enjoy normal health and have returned to full social and economic activities. For most there has been a gain in weight, which sometimes was considerable. Urgency, precipitancy and poor control have not been observed in patients with successful results. The skin around the anal orifice has remained healthy, with the exception of an occasional perianal infection.

In what percentage of cases requiring surgery for ulcerative colitis can a successful result be expected after ileorectal anastomosis?

In our series, colectomy was performed on 234 patients and, of these, 48 (20%) have had a successful ileorectal anastomosis.

Early in this series, proctocolectomy was the procedure of choice and there was no thought of possible ileorectal anastomosis. At that time, we believed that only those patients with a normal or near-normal rectum should be considered for ileorectal anastomosis. We accepted the views of Naunton Morgan,²³ Brooke,^{8, 9} Watkinson, Thompson and Goligher,²⁹ and others, that, ". . . surgeons were on the lookout for suitable cases, but rarely found them."

At the other extreme, Aylett⁶ and Dunlop¹³ approach every patient with the inten-

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tion of performing an ileorectal anastomosis, and Mařatka and his colleagues²¹ appear to have the same idea.

Over the last five years we have shown much more enthusiasm for retaining the rectum for ileorectal anastomosis. It is these different and changing practices, without properly controlled conditions, that make it impossible to estimate the chances of a successful ileorectal anastomosis.

Is it possible to select patients in whom ileorectal anastomosis will be successful?

In our series, ten patients who had had an unsuccessful ileorectal anastomosis and required conversion to an ileostomy appeared to have suitable conditions for re-establishing continuity—the rectum was smooth and of good capacity and the sphincter was intact. The rectum is more likely to present such an appearance in Crohn's disease; some who criticize ileorectal anastomosis in the management of ulcerative colitis accept it in Crohn's disease.^{9, 19, 29} However, it is a perplexing fact that it is in the patients with Crohn's disease that we have encountered difficulties, as have others.²²

On the other hand, some of the successful cases in our series seemed certain to fail because the rectum was involved by active inflammatory changes or a variable degree of contraction. Aylett^{6, 7} has been quite emphatic that such cases can do very well; indeed, he rejects only those with grossly strictured rectums (however, even these have been accepted by his colleague, Lawrence Abel¹). Because of the cancer danger, Aylett² excludes those patients in whom the disease developed when they were young and who had total involvement of the colon.

Is ileorectal anastomosis best performed as a one-stage or a two-stage procedure? Should special technical details be followed?

If the patient is in satisfactory condition

and the rectum is suitable for anastomosis, a one-stage operation appears to be the procedure of choice. There have been 29 one-stage operations in our series. Of these, there was one death from pulmonary embolism and, in two other patients, there was leakage at the anastomosis, but the holes were closed quickly. Aylett⁶ records a one-in-four incidence of leakage and favors a proximal ileostomy to protect the anastomosis, as does Dunlop.¹³ Their experience is not comparable to ours, however, because they perform ileorectal anastomosis on nearly all patients, whereas we have been more selective.

In 33 instances, the operation was done in two stages; in one other patient, the operation was performed in three stages. One patient had a colostomy, six an ileostomy, and 27 an ileostomy and colectomy as the first stage. There were several reasons for choosing a staged procedure; namely, poor general condition, uncertainty about the rectum, and subsequent enthusiasm to retain the rectum and attempt to perform an ileorectal anastomosis. Although the operation was much more complicated than the one-stage procedure, there was only one death (the first in the series, caused by sepsis secondary to anastomotic disruption).

In the early cases, we removed about 15 cm. of terminal ileum and performed a side-of-ileum-to-end-of-rectum anastomosis, as favored by Turnbull.²⁸ Now the entire ileum is preserved and its expanding end is anastomosed to the end of the rectum. The entire terminal ileum is retained for two reasons: to secure firmer, less frequent motions, and to permit an easier anastomosis.

The inferior mesenteric vessels have been divided and the anastomosis completed within 5 cm. of the peritoneal reflection of the pouch of Douglas. This is about the level recommended by Aylett⁵ and Turnbull,²⁸ but is possibly higher than the level selected by Dunlop.¹³ Anastomosis can be done at this level without lifting the rectum

off the anterior aspect of the sacrum and the upper surface of the levator ani. It is believed that omitting this mobilization may lower the incidence of impotence. This limited dissection is advantageous if the ileorectal anastomosis fails because removal of the rectum is easier. No difficulty has been encountered in suturing the inflamed rectum.

A tube is placed in the rectum before operation to allow exudate and feces to escape during mobilization of the bowel. If the dissection has been clean, hemostasis good, and contamination minimal, no drainage tube is used in the pelvis. If the wound is properly protected, no postoperative antibiotic agents are required. Usually convalescence is uneventful.

Do any special postoperative complications occur?

Aylett⁵ reports a high incidence of obstruction of the small bowel; 19 of 213 patients required surgery to relieve it. One patient in our series required operation for obstruction five weeks after one-stage ileorectal anastomosis and, in another, obstruction developed a few days after a cesarean section 12 years after anastomosis (staged). Occasional patients have had bouts of obstruction, but they have recovered without operation.

Do patients require constipating drugs after ileorectal anastomosis?

Our patients are discharged from the hospital with instructions to take codeine phosphate, 30 mg., three times daily and at night. Pro-banthine®, 15 mg., three times daily, sometimes proved intolerable for the patient, causing dryness of the mouth, abdominal distention and slow micturition. Some have required salazopyrin subsequently. Aylett⁵ discharges his patients with instructions to take drugs such as poldine, propantheline, phenoxymethyl penicillin and sulfonamides.

Most of our patients take codeine phos-

phate regularly at first, soon lessen the dosage, and then take it occasionally as required. Patients who do well after operation settle down quickly and, by the time they leave the hospital, the number of bowel actions has decreased considerably.

Dietetic restrictions are not required. This plan is supported by the work of Kramer, Kearney and Ingelfinger,¹⁷ who studied the effects of specific foods and water loading on the ileal discharge. Only prune juice and cooked cabbage consistently increased the net weight of the ileal effluent.

Does the rectum return to normal after ileorectal anastomosis?

Although Aylett³⁻⁵ has found that the rectum returns to normal after ileorectal anastomosis, others have not had a similar experience.²⁴ In some of our patients there was remarkable recovery, but inflammation, exacerbations and remissions have persisted in most of them.

After an excellent period of 12 months after operation, one patient suffered a severe exacerbation which ultimately required removal of the rectum. In two of our patients, rectovaginal fistulas developed some time after ileorectal anastomosis. Both Foote and associates¹⁵ and Dunlop¹⁴ encountered similar experiences.

When is it apparent that an ileorectal anastomosis has failed?

All surgeons admit that they have encountered failures with this operation. Aylett⁷ had 14 failures that required ileostomy in a total of 283 patients surviving the operation. Muir²⁴ had two failures in 15 cases; Turnbull,²⁸ one in 13 and, in our series, there have been ten in 60 patients surviving surgery.

In our series, four of 29 patients required conversion to an ileostomy after one-stage ileorectal anastomosis. They made a good recovery from the initial operation, but frequent bowel actions marred their convalescence and ileostomy was required, two,

four, seven, and nine months, respectively, after the ileorectal anastomosis. In one of these patients a deep fissure developed.

Six of the 33 patients who underwent two-stage ileorectal anastomosis required reversion to ileostomy. Two were distressed from the outset because of extensive ulceration of the rectal stump. The other four made a good recovery from the operation but, in one, an annular zone of granulation tissue developed at the anorectal junction and a rectovaginal fistula appeared in its center. In another, the entire rectum contracted. In two, persistent diarrhea was debilitating. Very reluctantly, these four patients underwent an ileostomy one year and one month, two years and eight months, three years and four months, and five years and six months, respectively, after ileorectal anastomosis.

If the ileorectal anastomosis fails, is subsequent surgery difficult?

A second surgical procedure is always more difficult than the original operation. Dissection of the ileorectal anastomotic site is tedious but, above and below this level, the tissues are reasonably clear. The ileostomy may be awkward to construct because of thickening of the walls of the terminal portion of the ileum.

In seven of ten failures in our series, the rectum was removed at the time the ileostomy was established. In the other three cases, the ileostomy was constructed without removing the rectum but, in one of these, it was excised subsequently. In two young men, surgery has been postponed because of the fear that a difficult dissection might cause impotence.

Is there danger of carcinoma developing in the rectal stump?

There is no doubt that carcinoma can develop in the rectal stump. Slaney and Brooke,²⁷ Russell and Hughes,²⁶ and others have reported such cases. MacDougall²⁰

reviewed 237 cases, after colectomy, at the Gordon Hospital, including Aylett's patients, and noted that, in five, carcinoma had developed—65 times the expected incidence in a population free of colitis.

Carcinoma appears to be a rare complication in Crohn's disease and in distal colitis and proctitis.²⁰ Rosenqvist and associates²⁵ observed that carcinoma did not appear to develop in the lower portion of the rectum; a statistical survey by Langman¹⁸ revealed that the rectum is much less frequently involved in colitis. In the two patients in whom carcinoma developed after ileorectal anastomosis, which we reported in 1961,²⁶ and in a third whom we have seen since then at the Royal Melbourne Hospital, the anastomosis was ileosigmoidal rather than ileorectal; in each the rectal tumor was situated well above the anal orifice as in the case reported and illustrated by Hudson and Todd.¹⁶

We appreciate the danger that exists, but wonder if it is as great as we have feared. Ulcerative colitis has been a predisposing cause in less than 1% of all rectal carcinomas treated by one of us, but has been present in 4% of patients who had colonic carcinoma. If it is argued that the rectal stump must be removed in this disease, then equally strong pressure must be brought to bear on all patients with long-standing total colitis to undergo proctocolectomy even though free of symptoms.

If the rectum is strictured, it should be removed because the stenosis may be caused by a carcinoma. If total colitis develops at a youthful age, it might be desirable to perform proctocolectomy and establish a permanent ileostomy at the outset.

Summary and Conclusions

Opinions of authorities differ concerning what constitutes a successful result after ileorectal anastomosis. No controlled studies have been undertaken to provide an accurate estimate of the percentage of patients

with ulcerative colitis who can anticipate a successful ileorectal anastomosis. It seems impossible to predict which patients will have successful results and which will not. One-stage and two-stage operations seem equally satisfactory. No special postoperative complications occurred in our series. Some patients require constipating drugs after ileorectal anastomosis. As a rule, the rectum does not return to normal after ileorectal anastomosis. Most of our failures have occurred during the first 12 months after operation. Re-intervention can be difficult. The danger that cancer will involve the rectal stump may not be as great as we have feared.

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