

Alimentary tract and pancreas

Clinical impact of colectomy and ileorectal anastomosis in the management of Crohn's disease

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SUMMARY We report the outcome of 63 consecutive patients with Crohn's colitis treated by colectomy and ileorectal anastomosis between 1951-1981. There were no operative deaths. Serious postoperative complications occurred in 10 patients. The mean follow up since colectomy was 9.5 years. At 10 years the cumulative reoperation rate was 48% and the cumulative recurrence rate (based upon operative, radiological, and sigmoidoscopic evidence) was 64%. Ten patients have died during follow up. Two-thirds of the patients still under review have an intact ileorectal anastomosis. These results show that colectomy and ileorectal anastomosis is a useful operation in young patients with chronic ill health, diarrhoea, and anaemia in whom there is minimal anorectal disease. For suitable patients, the operation avoids the morbidity of a permanent stoma, pelvic dissection, and rectal excision. Recurrence developing in the ileum proximal to the anastomosis can often be resected and intestinal continuity preserved, whereas anorectal recurrence usually requires proctectomy.

Colectomy and ileorectal anastomosis plays a useful part in the management of certain patients with Crohn's disease.^{1,2} Many earlier reports of the prognosis of ileorectal anastomosis, however, are difficult to interpret, as they are based either on small numbers of patients with short periods of follow up or the results were expressed using crude recurrence rates, which failed to correct for the variable periods of follow up between patients.³⁻⁸ The limitations of crude recurrence rates are well recognised,⁹ so that cumulative recurrence rates which correct for this variation are now in common use.¹⁰ In an earlier study cumulative recurrence rates were based on reoperation for recurrent disease and radiological or histological evidence of recurrent disease.¹¹ A combined study¹² of the results from this unit and those in Leiden, reported recurrence rates based on reoperation rates for recurrent disease alone.

In this analysis of our own series we have calculated both cumulative recurrence and cumulative reoperation rates to determine both the impact of recurrent disease on prognosis and the place of ileorectal anastomosis for a selected group of patients with Crohn's colitis.

Methods

PATIENTS

Sixty three patients (28 men, 35 women) have been treated by colectomy and ileorectal anastomosis for Crohn's colitis between 1951 and 1981. Sixteen patients had a loop ileostomy to protect the anastomosis.

The mean age at colectomy was 30 years (range 18-66 years) after a mean interval of seven years from diagnosis (range two months to 29 years). The interval from diagnosis to surgical intervention was often short (mode one to two years). More than half the patients (n=34) were undergoing their first surgical procedure. Previous operations had been performed in 29 patients for whom the ileorectal anastomosis was their second (n=20), third (n=6) or fourth procedure (n=3).

We did not consider patients for this procedure with severe perianal disease or where the rectum was grossly abnormal (as assessed either by sigmoidoscopic or radiological examination). During a similar period (1944-1976) 90 patients had undergone panproctocolectomy for Crohn's colitis. Preoperative assessment has also recently included measurement of rectal capacity as those patients with a low capacity or hypersensitive rectum tend to have a poor prognosis.¹³

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The current status of all patients who are still alive was assessed to 31 December, 1981, either personally or by letter.

Recurrent disease cannot be evaluated on clinical grounds alone^{14 15} so that the cumulative recurrence rates have been calculated in two ways. The recurrence rates after colectomy and ileorectal anastomosis were calculated for (1) patients undergoing a resection for histologically proven recurrent disease (cumulative reoperation rate); (2) patients in group (1) together with those having radiological or sigmoidoscopic evidence of recurrent disease (cumulative recurrence rate).

The cumulative reoperation rates were only calculated for patients undergoing their first resection for histologically proven recurrent disease as the number of patients undergoing a second resection or developing recurrent disease after their first resection for recurrent disease was small.

The method for calculating cumulative recurrence rates and cumulative reoperation rates were described by Berkson and Gage¹⁶ and are well summarised by Greenstein and his colleagues.¹⁷

Results

In the majority of patients (n=51) the principal reason for operation was chronic ill health and persistent symptoms despite medical treatment. General malaise alone was the primary indication in 13, general malaise with diarrhoea and urgency in 31, and chronic ill health, diarrhoea, urgency and chronic anaemia in seven (including four with local abscesses). In 12 patients the indications for operation were uncommon, one patient had acute colitis, two toxic dilatation, five major intestinal haemorrhage, and one example each of malignancy of the colon, amyloidosis, erythema nodosum, and intestinal obstruction.

Well documented preoperative sigmoidoscopic assessment was available in 48 patients. The appearances were normal in 26. The changes in the remaining 22 included mucosal inflammatory change, oedema and contact bleeding, but in none was there evidence of a florid proctitis. Eight patients had mild or moderate perianal disease (usually skin tags or a chronic fissure, none had an active fistula, a cavitating ulcer or stenosis). Loop ileostomy was used in a similar proportion in both groups (nine in 26 with a normal rectum, and seven of 22 with mild proctitis) so that the ileostomy appears to have been used to protect the anastomosis and was not determined by the degree of rectal inflammatory change. Our policy of perioperative antimicrobial chemotherapy has evolved during the period of review, so that only 30 patients

in the long term study (48%) received antibiotic prophylaxis.

Serious postoperative complications occurred in 10 patients (16%) and include abdominal abscess (n=7) and anastomotic leak (n=3). Other complications were partial wound dehiscence (n=2) and deep vein thrombosis (n=1). There were no operative deaths. Of the seven patients developing intra-abdominal abscess, four were having emergency colectomy for bleeding or severe colitis and were receiving corticosteroids. One of these patients also had a preoperative fistula. Two of the three patients who had anastomotic breakdown subsequently required reoperation with end ileostomy and mucous fistula. The overall mean postoperative hospital stay was 20 days (range 8-60 days).

There were 10 late deaths. Three patients died from malignancy of the gastrointestinal tract (adenocarcinoma of the sigmoid colon within one year of operation, adenocarcinoma in a perirectal fistulous track after 23 years, and a squamous cell carcinoma of the pharynx after 11 years). Four patients died of unrelated causes (uraemia, haematemesis from gastric ulcer, amyotriptyline overdose and amyloidosis). There were three late deaths after a further resection for recurrent disease (two deaths from massive pulmonary emboli, and one was early in the series from severe electrolyte imbalance), at intervals of 10, 14 and 12 years respectively after their colectomy and ileorectal anastomosis (Table).

RECURRENCE RATES

In those patients who developed recurrent disease the mean interval from colectomy and ileorectal anastomosis to identification of recurrent disease was 4.6 years (range 0.5 to 15 years).

(a) Crude recurrence rates

The crude recurrence rate at 10 years without correction for variation in length of follow up between patients was 54%.

(b) Cumulative recurrence rates

The cumulative recurrence rates based on reoperation for recurrent disease together with sigmoidoscopic and radiological evidence of recurrence are shown in Fig. 1. The cumulative recurrence rates increased with time and reached 64% at 10 years.

(c) Crude reoperation rates

The crude reoperation rates at 10 years without correction for variation of length of follow up between patients was 38%.

Table Schematic summary of outcome after colectomy and ileorectal anastomosis for Crohn's disease

	Data for calculating cumulative reoperation and recurrence rates	Subsequent outcome	Current status	
			Well	Symptomatic
Colectomy and IRA (63) Cancer deaths (3) Misc deaths (4) (56)	No recurrence	(25) → (25)	23	2
	Recurrence treated conservatively	(7) → (12) ↑ Recurrent disease (5)	10	2
	Resection for recurrent disease	(24) → (21) ↑ (3) Late deaths	14	2

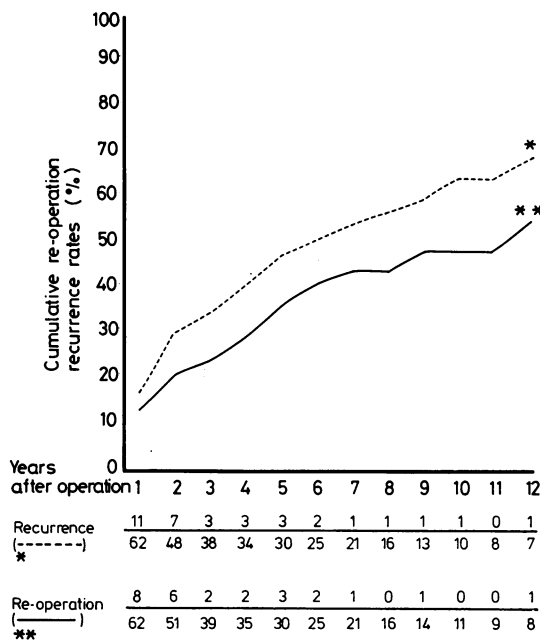


Fig. 1 Cumulative recurrence rates (.....) and cumulative reoperation rates (——) after colectomy and ileorectal anastomosis for Crohn's disease. (Number of patients experiencing a recurrence or reoperation compared with number of patients under review in each year is shown below graph.)

(d) Cumulative reoperation rates

The cumulative reoperation rates are shown in Fig. 1. The cumulative reoperation rate at 10 years was 48%.

The surgical procedures among the 24 patients who underwent a further resection for recurrent disease included ileal resection (n=6), ileostomy alone (n=3), proctectomy and ileostomy (n=14) and proctectomy and ileal resection (n=1). Patients who underwent surgical procedures for minor perianal disease were excluded. Two patients have required a second resection for recurrent disease and a further five patients have recurrent disease which is being managed conservatively.

CUMULATIVE REOPERATION RATES IN RELATION TO AGE AT COLECTOMY AND DURATION OF DISEASE (Fig. 2)

The cumulative reoperation rates have been calculated for patients who were less than 30 years old at the time of their colectomy and ileorectal anastomosis. The reoperation rates in the younger patients did not differ from the overall reoperation rates.

The cumulative reoperation rate was higher in patients undergoing colectomy and ileorectal anastomosis within five years of the diagnosis of their Crohn's disease than in the group as a whole.

CURRENT STATUS

The mean interval since colectomy and ileorectal anastomosis was 9.5 years (range two months to 29.3 years). Of the 53 patients who are still alive after their colectomy and ileorectal anastomosis, 25 have no evidence of recurrent disease. Of the 12 with

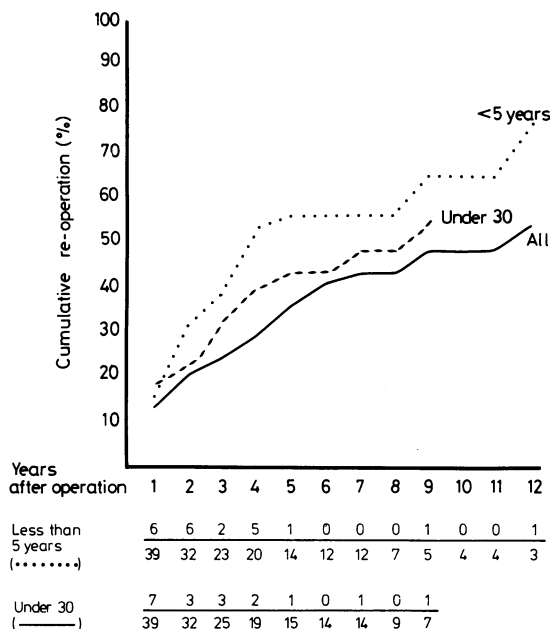


Fig. 2 Cumulative reoperation rates after colectomy and ileorectal anastomosis for Crohn's disease for patients undergoing surgery within five years of diagnosis (.....), less than 30 years of age at time of surgery (—) and for whole group (—). (Number of patients undergoing reoperation compared with number of patients under review in each year is shown below graph.)

recurrent disease (usually at or immediately proximal to the anastomosis), 10 are asymptomatic. Of the 16 who have had a resection for recurrent disease only two are symptomatic. Thirty five of the 53 surviving patients (66%) still have a functioning ileorectal anastomosis.

Discussion

Patients usually undergo colectomy and ileorectal anastomosis for persistent symptoms where there is apparent rectal sparing on contrast enema examination and where there is no evidence of florid perianal disease. Minor sigmoidoscopic changes in the rectum or inactive perianal disease should not preclude a successful outcome. Only half of all our patients requiring operation for colonic Crohn's disease, however, were thought suitable for colectomy and ileorectal anastomosis. Measurements of rectal function preoperatively might make it easier to identify patients likely to benefit from this operation.¹³ In experienced hands colectomy and ileorectal anastomosis can be undertaken with a

low morbidity, particularly now that the problem of postoperative sepsis can be minimised by perioperative antimicrobial therapy. In this series there were seven patients who developed a postoperative intra-abdominal abscess but nearly all had major precipitating factors, the most common was urgent colectomy for either bleeding or severe colitis.

Colectomy and ileorectal anastomosis has been effective in restoring chronically ill patients with Crohn's disease to good health. The operation is particularly valuable in young patients so that they can complete training programmes and enjoy a period of comparatively good health without the disadvantage of a permanent stoma.

Ileorectal anastomosis is associated with a much shorter period of convalescence than proctocolectomy. Proctectomy is associated with significant morbidity and perineal healing is a common long term problem. In young patients ileorectal anastomosis is certainly more attractive than proctectomy as there is a lower frequency of sexual disturbance as a consequence of avoiding pelvic dissection. Furthermore, the absence of a stoma is a considerable psychological advantage as well. Our results indicate the operation is safe and that, using the selection criteria outlined, two thirds of our patients still under review have a functioning anastomosis after a mean follow up period of 9.5 years. Even so, patients are always warned that a stoma may be needed in the future and that recurrent disease is a feature of the disorder.

The use of cumulative recurrence rates corrects both for the variable length of follow up between patients and enables effective interseries comparison to be made. In our first study¹¹ we calculated cumulative recurrence rates based on operation and radiological recurrence rates. In the combined series from Birmingham and Leiden¹² we calculated cumulative reoperation rates alone. In this study we confined the data to our own series and calculated both the cumulative, recurrence, and cumulative reoperation rates. The cumulative recurrence rate at 10 years in this series after colectomy and ileorectal anastomosis was 64% and the cumulative reoperation rate 48%. For comparison, the cumulative recurrence rates at 10 years after an initial resection for distal ileal disease in this hospital was 40% and the cumulative reoperation rate was 35%.¹⁸

The incidence of recurrent disease has probably received undue attention, and although high, does not mean that ileorectal anastomosis has little place in the management of Crohn's disease. On the contrary, the operation has a useful place in restoring the chronically ill patient to good health. Recurrent disease usually occurs at or around the

anastomosis and is associated with obstructive symptoms and episodes of diarrhoea. If these symptoms persist then a further local ileal resection is often feasible without removing more than 1–2 cm of rectum, hence intestinal continuity is often restored provided the rectum and anal canal remain healthy.

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