

## Section of Surgery

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Meeting February 3 1971

### Ulcerative Colitis

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#### Ileorectal Anastomosis: Review 1952–1968

I have reported on many occasions the results of follow up of ulcerative colitis patients who have been treated at the Gordon Hospital, London, by total colectomy and ileorectal anastomosis. I have no reason, as the follow up continues, to recant on the claim that the vast majority, well over 80% of the total cases including operative deaths, are restored to normal life and health by this procedure or to alter my opinion that, save in a few cases, a permanent ileostomy is a quite unnecessary disability with which to burden a patient who requires surgical intervention for the cure of his or her disease.

Between 1952 and 1968, 369 proven cases of ulcerative colitis were operated on, of which 19 died in the immediate post-operative period. All but 13 of the remaining 350 patients have been seen by me and my associates at not more than six-monthly intervals. Of the 13 most live abroad, communicate with us regularly and visit our clinic when in the United Kingdom. Some are seen from time to time but default on regular

attendance. It is on the experience of this series that my remarks will be made.

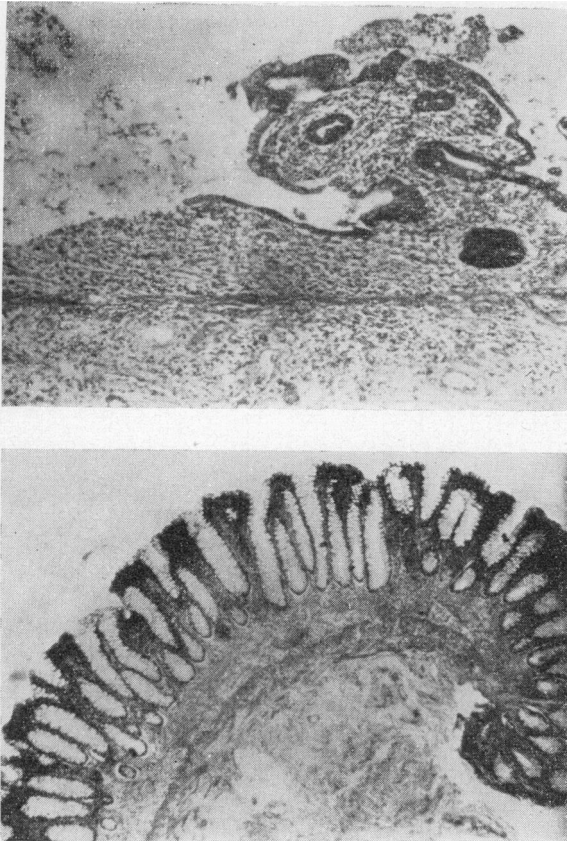
Table 1 summarizes the results. The operation was a failure in 24 patients, but these include 3 in whom a delayed ileorectal anastomosis proved impossible, the colectomy having been carried out elsewhere many months previously. The failures also include 7 patients who developed carcinoma in the rectal stump, of whom 3 survive after abdominoperineal excision. These patients and the means of avoiding this complication are referred to later. Other failures were associated with rectal stricture, extensive fistula formation, or incontinence as the result of sphincter damage in childbirth. Nevertheless with experience failures have become fewer and 309 patients have been returned to full health. All retain that health or, in a few cases, retained it until they died from causes unrelated to their old colitis. Seventeen patients have or had some limitations to a normal life: 2 suffered from cirrhosis of the liver from which they eventually died, another had a portocaval shunt, and others have bowel actions in excess of six in twenty-four hours; two of the latter will be referred to later. However, none of these patients wish or would have wished to have an ileostomy.

Table 1 also shows the types of case treated. The high percentage of fulminating disease and

Table 1

Results of total colectomy with ileorectal anastomosis in a series of 369 cases of ulcerative colitis, 1952–1968. Percentages are approximate

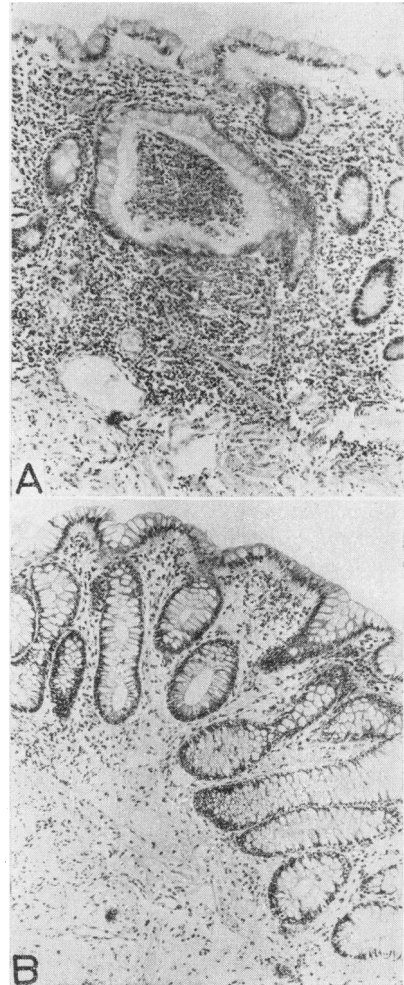
Type of ulcerative colitis	Total cases	Operative deaths	Returned to full health	Returned to limited health	Failures
Fulminating	55	8 (14.5%)	43 (78%)	2	2
Acute	150	7 (4.6%)	125 (83.3%)	8	10
Chronic	142	4 (3%)	125 (88%)	5	8
Delayed ileo-rectal anastomosis	22	0	16 (73%)	2	4
All types	369	19 (5.2%)	309 (83.7%)	17 (4.7%)	24 (6.5%)



**Fig 1** *Rectal biopsies, before (above) and after (below) total colectomy and ileorectal anastomosis*

the inevitable high mortality rate associated with surgical intervention in such cases will be noted. No series of cases should include those which are fulminating, as the patients should be referred for surgical treatment before this hazardous state has been allowed to develop. Unfortunately, medical treatment is still often persisted with for too long and with too much hope that the morrow will bring a recession of the disease.

One must now answer certain criticisms levelled against the concept of rectal preservation in the surgery of the disease. First, it is suggested that once the rectal mucosa is ulcerated it remains ulcerated and that the inflammatory changes never resolve. Thus Jones & Brooke (1966) state that 'Surgical cure can be achieved only if the whole of the large intestine is removed – and that includes the rectum'. Ileorectal anastomosis is only acceptable if this can be disproved, if it can be shown that the ulcerative changes are not irreversible and that after this operation re-epithelialization does occur in most cases so that physiological function of the rectum is restored.



**Fig 2** *A, pre- and B, post-operative biopsies showing continued ulceration in a diseased isolated rectum and its disappearance after ileorectal anastomosis*

Many pre- and post-operative biopsies have been taken proving this to be the case, for example Fig 1. It will be seen that following total colectomy and ileorectal anastomosis the villi have reformed, though slightly irregularly, crypt abscesses have disappeared and the submucosal infiltrate of white cells has absorbed.

This resolution takes place after ileorectal anastomosis. If the rectum remains isolated by an ileostomy to await resolution of the inflammatory changes, the mucosa lies covered by a constant layer of mucopus and, until this is cleared by the regular passage of intestinal content, full healing never occurs. Fig 2 shows similar biopsies from a patient who had had an ileostomy accompanying

colectomy for a fulminating episode of the disease for over a year. Crypt abscesses and white cell infiltration are still present in the initial biopsy but three months after ileorectal anastomosis these have disappeared and the appearances are near normal.

Those still doubting that resolution occurs suggest that the postoperative biopsies may have their origin in areas of mucosa which have escaped inflammatory change. This argument is refuted by examination of the specimens shown in Fig 3. Fig 3A shows the colon removed from a fulminating case, with gross inflammation and ulceration extending down to the line of section through the rectum. The ulceration quite clearly extended below the line of excision. Fig 3B shows the ileorectal anastomosis excised at post-mortem examination after the sudden death of the patient from a dissecting aneurysm of the aorta. There is complete absence of ulceration or inflammation of the rectum on either macroscopic or microscopic examination. In a further post-mortem specimen similar normality of the rectum was reported.

These facts are in conflict with the contention that the inflammatory changes in the rectum fail to resolve after ileorectal anastomosis, as suggested also by Baker (1970) in his review of the St Mark's Hospital series, in which he reports a 46% failure rate.

I think that this apparent discrepancy between the two viewpoints is due to the fact that in the series considered by Baker the anastomotic line between ileum and rectum was never protected during the period of union by a defunctioning ileostomy. Even amongst our own cases pro-

tected by an ileostomy, leakage from the site of anastomosis, proved by barium enema studies three weeks after operation, occurs in about 20% of patients. Unprotected, with intestinal content pouring over the anastomosis within a few days of its formation, the dehiscence rate must inevitably be high and is probably of the nature of the 46% noted by Baker. At best, once intestinal content escapes through the anastomosis, chronic infection results, the rectum never heals and the operation proves a failure. At worst such a leakage can cause death. A leak at the anastomotic site will always heal provided there is a defunctioning ileostomy. It may take three or four months, but the ileostomy must never be closed until subsequent barium enema examination has shown that healing is complete.

The presence of multiple pseudopolyps is similarly not a contraindication to the procedure. With the resolution of inflammatory change in the remaining rectum they form part of the process of re-epithelialization and disappear.

It is said that if the rectum is retained the systemic complications of the disease continue. This is not my experience; on the contrary, they resolve in most cases. Multiple pyodermic eruptions, carbuncular formations or iridocyclitis all heal within a few weeks of operation. I do not think the procedure cures associated rheumatoid-

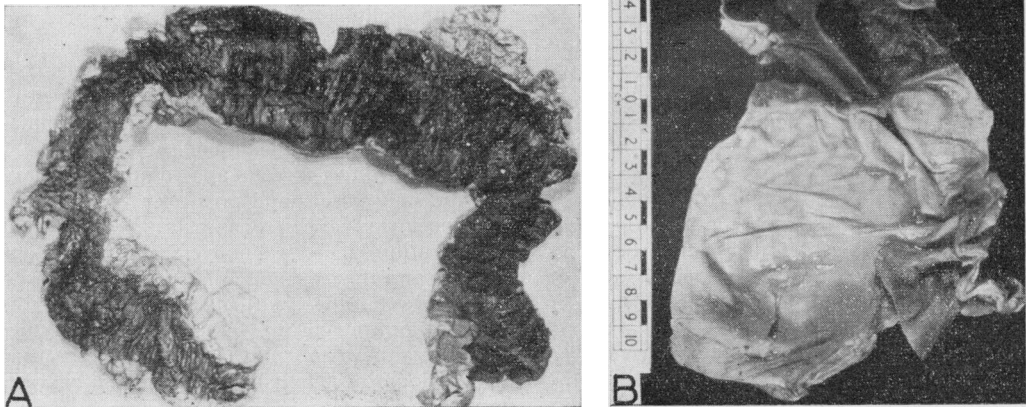


Fig 3 A, colon removed from fulminating case showing gross inflammation and ulceration extending into the rectum. B, post-mortem appearance of ileorectal anastomosis in same patient 33 months later. The rectum is normal

type arthritis in every case, but I believe that it arrests its progress, and in some cases the complication resolves completely.

Cirrhosis of the liver is a well-known complication of ulcerative colitis. Minor degrees of liver dysfunction subside following ileorectal anastomosis and in 2 cases severe lesions associated with cirrhosis have resolved. At operation on one patient sixteen years ago the liver was enlarged and cirrhotic and the serum alkaline phosphatase 145 units. She had marked ascites. She now has no dietary restrictions, the liver is not palpable and the alkaline phosphatase is normal. This recession does not always occur and liver failure has caused the death of 3 patients, one in the immediate postoperative period. A further patient was subjected to a porto-caval shunt and he remains fit and well.

It is sometimes suggested that ileorectal anastomosis is little better than anal ileostomy, that the frequency of bowel actions is excessive and that perianal excoriation is an inevitable result. This is not true. Amongst our patients are soldiers who have rejoined their units, sailors who have returned to sea, a prominent actor, an international violinist, an Olympic trial horseman, a deep sea diver, barristers, doctors and a coal miner. It would be impossible for these people to carry out their trades and professions if such were the case. The 83% of patients who have returned to completely normal health – and excluding those who died following operation this constitutes 88% of the survivors – are troubled not at all by any increase in the number of bowel actions. Many patients have their bowels moved two to three times a day, without any medication, and those with up to six actions find this no inconvenience as urgency does not affect them. In a survey carried out by Jagelman *et al.* (1969), nearly 80% of the patients questioned reported bowel actions of five or less in the twenty-four hours.

I would warn against the conversion of an ileorectal anastomosis to an ileostomy on account of excessive bowel action. This was carried out in one patient for that reason, with the result that the ileostomy poured out up to 5 litres of liquid fluid in the twenty-four hours. He suffered from calcium and magnesium deficiencies only controlled by regular injections. The ileostomy was abandoned and continuity re-established; although he now has his bowels opened seven or eight times in twenty-four hours he no longer suffers from electrolyte deficiencies. In a second case an ileostomy and colectomy had been carried out elsewhere. Again the fluid from the ileostomy was uncontrollable and the patient suffered gross excoriation of the skin of the abdomen as well as electrolyte upsets. Following ileorectal anastomosis her bowels are now opened nine or ten

times in twenty-four hours, but she is in good health and farms and rides every day in Kenya. Research should be done on the time of transit of the intestinal content through the intestines. Barium studies show that in some patients the barium reaches the ileorectal anastomosis within fifteen minutes whereas in others it may take two hours.

With regard to sexuality, none of our male patients has become impotent following ileorectal anastomosis, in contrast to the frequency of this distressing complication following panproctocolectomy. The incidence of conception amongst the females and the confinements that follow are as normal as in the general population.

One must now consider the final criticism advanced against ileorectal anastomosis, which concerns the possibility of the development of cancer in the remaining rectum. Before considering cases in which this complication has occurred one must comment briefly on the cancer problem in ulcerative colitis in general, as both are related. First, 6 of the 369 cases in this series had unrecognized cancer of the colon when they were referred for surgery. Secondly, during the period under review, 1952–1968, a further 22 patients were referred for surgical intervention, all of whom had inoperable or incurable cancer of which the primary source was a carcinoma of the colon or rectum complicating ulcerative colitis. The youngest of these was aged 25. These and the 6 mentioned before, a total of 28 patients, had been under physician supervision for many years. A study of their case histories reveals that in spite of treatment they were never cured of the disease; they were never in first-class health, were repeatedly slightly anaemic and had all had numerous relapses of colitis.

In my experience it can in no case be said that a cancer has developed in a patient who has been truly cured of ulcerative colitis. My contention is that, if the colitis is cured, if mucosal regeneration is complete so that the ulcers are healed, and if associated inflammatory reaction has subsided, there is no danger of malignant change developing. If the ulceration and its attendant inflammatory processes persist then there is danger.

With regard to ileorectal anastomosis, I believe that the sample pre- and post-operative biopsies and specimens shown demonstrate clearly that the operation is curative in a very high percentage of cases and that all inflammation resolves. I do not believe that these patients are at risk. It is the few in whom the chronic inflammation continues who are; they are probably best treated by abdominoperineal excision with formation of a permanent ileostomy, particularly if diffuse stricturing of the rectal segment, not benign fibrosis associated with the incision of a fistula, is present. If this is not possible the closest frequent

surveillance of the patient must be observed and biopsies removed for examination at regular intervals.

Seven patients developed cancer following ileorectal anastomosis. In retrospect 3 were unsuitable for the operation, one because of his youth and long-standing disease, one because preoperative biopsies suggested premalignant change and the third because of a strictured rectum. She, however, refused ileostomy. A further patient was not known to have had a carcinoma but section of the excised strictured rectum revealed this change. Two cases defaulted from follow up, one because an ileostomy was suggested, until a carcinoma had developed. In the final case the rectum failed to heal but excision was too long delayed.

I believe that the incidence of cancer as a complication of ileorectal anastomosis can be minimized or even eliminated if the suggested precautions are followed. Ileorectal anastomosis must not be condemned because it fails to cure every case or because cancer has developed in some, any more than medical therapy should be abandoned on the grounds that it, too, has a very considerable failure rate, not only in curing the patient but also in the prevention of carcinoma. Both procedures must be critically re-appraised if within a year or two they have failed to cure the disease.

Finally, in support of my contention of the value of ileorectal anastomosis, here is an extract from a letter received from the mother of a young schoolgirl, who describes the result of this operation on her daughter far better than I can. She writes: 'We are seeing in her a metamorphosis and in a sense a reversion to what she was three years ago; a metamorphosis into a healthy and attractive girl, able to go to parties and be gay and have fun, and also to be out on a toboggan up and down an exhausting slope on a hazardous Norwegian jet-propelled tea tray – and arriving back black and blue but triumphant. And at the same time she is cheerfully and entirely voluntarily and without worry undertaking catching up with a backlog of A level work of pretty daunting proportions. All this in some ten weeks, after 3 years of constant illness and disability.'

In conclusion, I think we have achieved considerable success in this procedure. I use the word we, not in any sense royally, but because every patient has been the concern not only of myself but of a team, indeed a succession of teams, of very devoted and skilled house surgeons, registrars and nursing staff.

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### Medical Management of Ulcerative Colitis

The medical management of ulcerative colitis has changed little in the last fifteen years. The essentials are in the textbooks. Twenty-five years ago someone reported the astounding figure of 400 successful treatments for ulcerative colitis recorded in the literature; but rarely have other clinicians been able to substantiate the claims of the initiators. The classic example was Bargaen's diplococcal serum. Between 1920 and 1923 at the Mayo Clinic the mortality rate for ulcerative colitis was 17%, but between 1924 and 1926 the rate in patients treated by Bargaen's serum fell to the never bettered figure of 3.5% (Bargaen 1929). Clinicians clamoured for the serum, but were disappointed by its failure; Bargaen was the therapeutic agent, not his serum. The following extract shows his compassion for, and paternal solicitude in dealing with, these difficult patients, in my opinion, the reason for his success:

'The value of mental hygiene in cases of chronic ulcerative colitis cannot be over impressed. A physician caring for these toilet-stricken patients spends much time in encouraging them. Rest in bed should be abandoned early. Fresh air, sunshine, and mental diversion are valuable assets in treatment. It is important to encourage the patient to eat.'

Since then, we have run the gamut from pig's runners to Salazopyrin and corticosteroid enemas and, while both the latter may have some intrinsic value, results are better when they are personally administered by their strongest advocates than by less enthusiastic clinicians. Not long ago a physician who has made strong claims for one such remedy went on a year's sabbatical leave. I have heard that enough of his patients relapsed in his absence, although still on treatment, to convince some sceptics in his department that their chief was himself a stronger therapeutic agent than his prescriptions and one which they could not at once replace.

The real and uncontroversial medical advances have been the replacement of purgation by feeding the patient; blood transfusion; measurement and replacement of electrolytes; corticosteroids and especially ACTH; and milk-free diets in a few patients with chronic disease. Antibiotics, Salazopyrin and immunosuppressives are unproven; Salazopyrin is often a sensitizer and has been less effective in my hands than a judicious use of corticosteroids. Personally I am against anything which increases these already very gut-conscious patients' introspection. Low-residue diets do this and also attract dangerous aggression from the cook, while retention enemas

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