treatment but keep the possibility of surgery in constant review with a surgeon particularly interested and experienced in this field. I have been fortunate in having the tolerant and enthusiastic support of Professor Goligher at a combined medical and surgical follow-up clinic which we have run together in Leeds for the last five years, and in which the medical and surgical fortunes of our patients have been reviewed together.

Summary

Medical treatment of the colitic patient is described. The results of treatment and the relative merits and disadvantages of treatment with sulphasalazine and steroid compounds administered topically and systemically are detailed. Problems arising in the long-term medical treatment of colitis are touched upon, notably the risk of carcinomatous transformation, of distal extension in segmental colitis, and the physical retardation of the child affected by the disease.

Finally, an analysis of the outcome of surgery in patients who have received steroids has emphasized the importance of supportive therapy in the operative and post-operative period. It is also emphasized that the vicious nature of the acute fulminating attack of the disease makes early recourse to surgery necessary unless medical treatment proves immediately successful.

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"In other words, much of the work that is being done and the papers that are being published are done and published for the wrong reasons: because someone had too much money to spend; or because a government official had to dispose of all the appropriated funds within the fiscal year; or because someone forced someone else to work in an area not of his own choosing; or because someone found it easier to drift along on fellowships than to strike off on his own; or because a practitioner thought it would 'look good' if he did some research; or because an assistant professor needed 'to publish' to get a promotion; or because of a thousand other reasons irrelevant to the advancement of medical knowledge. Shoddy reasons for doing research tend to produce shoddy research. This Foundation has no desire to contribute to the publication explosion. At no time have we brought any pressure to bear on Markle Scholars to publish. On the contrary, we have told them repeatedly that we believe there are other ways of evaluating the accomplishment of a man than counting the number of his publications. . . . Scientific papers should be the main means of communication between scientist and scientist, and between scientist and practitioner, but they should not be used for advertising purposes." (*John and Mary R. Markle Foundation Annual Report, 1959-60. Report of the President, Mr. J. M. RUSSELL.*)

SURGICAL TREATMENT OF ULCERATIVE COLITIS*

BY

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In this short paper only two aspects of colitis surgery are considered, but they are two of the outstanding issues at the present time in the surgical management of this disease. The first is the vexed question of colectomy with ileo-rectal anastomosis, which continues to provoke much discussion; the second is the surgical care of acute phases of colitis, which still remains a major problem.

Colectomy with Ileo-rectal Anastomosis

By comparison with Aylett (1959), the chief protagonist of this operation, who apparently employs it almost routinely in the surgical treatment of ulcerative colitis, my indications for its use have been extremely restricted, so that of the 145 patients with colitis on whom I have operated during the past seven to eight years only 22, or some 14%, have been given ileo-rectal anastomoses (Table I). My experience also differs from

TABLE I.—Methods Used for Primary Excision in 145 Consecutive Operations for Colitis (1952-9 Inclusive)

Proctocolectomy + ileostomy	104	} 123
Colectomy + ileostomy	19	
Colectomy + temporary ileostomy, followed by secondary ileo-rectal anastomosis	4	} 22
Colectomy + primary ileo-rectal anastomosis	18	

Aylett's in that my results have been much less consistently favourable than his, and in trying to reach a decision about this operation it may be of value to examine the record of my few successes and failures.

In considering colectomy and ileo-rectal anastomosis for colitis I believe it is important to distinguish clearly between segmental or so-called right-sided forms of the disease on the one hand and ordinary, diffuse, or primarily left-sided colitis on the other.

Segmental or Right-sided Colitis

I used to have considerable doubts about the existence of genuine right-sided ulcerative colitis and thought that most cases alleged to have lesions of this kind were really examples of Crohn's disease, affecting the colon alone or in conjunction with an ileal lesion. However, as a result of my experiences in the last few years I am now convinced that there is a brand of colitis that is macroscopically and microscopically indistinguishable from ordinary ulcerative colitis, except that it originates in the more proximal part of the colon and spares the rectum and possibly the distal colon in the first instance (Watkinson, Thompson, and Goligher, 1960). Actually some 7-8% of the cases of colitis coming under my care at the present time turn out to be of this variety. Clearly if surgical treatment should become necessary in such cases there is no need to sacrifice the normal rectum, and operation can take the very rational and attractive form of a colectomy with ileo-rectal anastomosis.

In segmental colitis there is a tendency for the condition to spread distally. This places the physician under a special obligation to resort to surgery without too much delay if the lesion is not being satisfactorily

*Being a paper read in the discussion on Ulcerative Colitis at the meeting of the Association of Surgeons of Great Britain and Ireland in Birmingham on April 9, 1960.

controlled by medical treatment, otherwise the rectum may become implicated, rendering the case unsuitable for rectal preservation and anastomosis.

I have now treated eight such cases in the last six or seven years with uniformly excellent results. They have all had normal anal control, and after the initial phase of fairly severe post-operative diarrhoea has subsided they have not usually been troubled with more than three or four motions a day. None has so far developed any signs of disease in the rectal stump, though no fewer than five of them had their operation four and a half or more years ago. But despite these very satisfactory late results, and the very similar though much more extensive experiences of Crohn, Garlock, and Yarnis (1947), of the Mount Sinai Hospital, New York, I must enjoin some caution regarding the ultimate outcome after anastomotic operations for segmental colitis because of the somewhat unfavourable reports of Neuman, Bargen, and Judd (1954), of the Mayo Clinic, and of Manning, Warren, and Adi (1955), of the Massachusetts General Hospital. I suspect that the recurrences noted by these two groups of authors may have been partly due to the inclusion in their series of cases of examples of Crohn's disease of the colon, which naturally also often lends itself well to treatment by segmental colonic resection and ileo-rectal anastomosis. There is, of course, no reason to suppose that Crohn's disease loses its notorious predilection to recurrence because it happens to have transferred its habitat from the small intestine to the large.

Ordinary, Diffuse, Primarily Left-sided Colitis

For this form of colitis, which invariably involves the rectal mucosa, colectomy with ileo-rectal anastomosis inevitably means the retention and use of a diseased rectum, which, to say the least of it, seems highly illogical and indeed tantamount to an invitation to further trouble from recurrent inflammation or the development of carcinoma. The advocates of this type

that inflammatory changes often persist for a long time or indefinitely in the *unused* rectal stump remaining after ileostomy and subtotal colectomy. But the excellent results reported by Corbett (1953), Aylett (1953a, 1953b), and Dunlop (1954), for colectomy and ileo-rectal anastomosis certainly compelled attention, and some seven years ago I conceived it my duty to give this operation a limited trial in the treatment of diffuse colitis (Goligher, 1954).

The cases selected for it were those with relatively mild changes in the rectum and without abscesses, fistulae, or strictures. The technique of anastomosis was invariably that of a straightforward end-to-end union between the terminal ileum and the upper end of the rectum, without any form of side opening or defunctioning ileostomy (see Fig.). There were no operative deaths or serious surgical complications in the 12 cases treated in this way. In most of them the immediate convalescence was very similar to that after colectomy and ileo-rectal anastomosis for segmental colitis or familial polyposis, but in three patients intense continued diarrhoea due to persistent exacerbation of their residual proctitis necessitated conversion to ileostomy and excision of the rectum within 8 to 10 weeks of the operation (Table II).

TABLE II.—*Results of Colectomy with Ileo-rectal Anastomosis for Ulcerative Colitis (1953-9 Inclusive)*

Segmental colitis	8 cases
Excellent immediate and late results in all cases, including 5 done over 4½ years ago	
Diffuse colitis	12 "
Immediate results:	
Failures due to persistence of proctitis and requiring early conversion to ileostomy	3 "
Excellent initial results	9 "
Late results in these 9 cases:	
Failures due to recurrence of proctitis after a symptom-free interval (1 needing ileostomy, 2 responding partly to conservative treatment)	3 "
Continued good results (3 cases done over 5 years ago, 3 treated only in the last 18 months)	6 "

Nine patients, however, obtained good immediate results and left hospital grateful for their operation. Unfortunately three of them have had further trouble due to relapses of their proctitis, this occurring in two cases after completely symptom-free intervals of three and four years respectively after their colectomy. One of these patients has now been converted to ileostomy; the other two have responded to some extent to medical treatment, but their rectal mucosa remains inflamed, they have been in and out of hospital several times, and are still below par as regards general health. I have little doubt that they will eventually come again to operation, but they are desperately trying to avoid it.

That leaves six of the original 12 patients still well. Three of them have been done over five years and have an absolutely normal rectal mucosa on sigmoidoscopy. The other three were all operated on during the last 18 months; they are entirely satisfied with the outcome, but in two of them gross mucosal changes of an active proctitis are still evident sigmoidoscopically. So that, though half my cases of diffuse colitis submitted to ileo-rectal anastomosis are at present enjoying satisfactory results, it is not unlikely that further recurrences may render the final score even less favourable (see Table II).

But this is not the sum-total of my experiences of ileo-rectal anastomosis, for I have now started to see cases with unsatisfactory results after this operation, performed by other surgeons for diffuse colitis. I have

Diagrammatic drawing, showing the amount of rectum retained and the method of intraperitoneal end-to-end union employed in the treatment of colitis by colectomy and ileo-rectal anastomosis.

of operation, however, claim that once the affected colon has been removed the residual proctitis usually clears up spontaneously owing to the improvement in the patient's general health and for other reasons not so easy to understand. One might have felt disposed to doubt this assertion because of the common experience

had four such patients in the last 18 months with severe recurrent proctitis, three of whom have been given ileostomies; the fourth certainly needs this treatment, but so far has been unable to make up her mind to accept it.

Comment

I would be the first to admit that a really successful ileo-rectal anastomosis for colitis is one of the most gratifying achievements in surgery. But my experience, like that of Muir (1960) and of Ault (1960), suggests that the prospects of securing lasting success with this operation are quite precarious, and that all too often the establishment of an ileo-rectal anastomosis in this disease simply means storing up trouble for the future. In my survey I have been concerned with the inflammatory sequels, but carcinomatous change in the retained rectal stump if it is diseased is certainly another potential hazard, as Slaney and Brooke (1959) have re-emphasized. Because of these considerations I no longer advise this operation to patients with colitis, except when the rectum is absolutely normal, as in cases with segmental lesions. In cases with diffuse colitis the only occasion on which I would now reluctantly consent to employ ileo-rectal anastomosis would be when the rectal changes were relatively slight and colectomy was strongly indicated but the patient absolutely refused to accept an ileostomy or was deemed mentally incapable of managing such an artificial anus.

Surgical Management of Acute Phases of Colitis

In this connexion I think the striking thing is how much less satisfactory are the results of emergency operation than are those of interval surgery. I reckon that elective proctocolectomy should now carry little more risk than that of gastrectomy for uncomplicated peptic ulcer, with an operative mortality of 2 or 3%. By contrast the mortality of emergency operation still remains high, at least in my hands, as Table III

TABLE III.—*Operative Mortality of Primary Colectomy or Proctocolectomy for Ulcerative Colitis (1952-9 Inclusive)*

Operation	No. of Cases	Deaths		Causes of Death
		No.	%	
Interval	104	3	2.9	{ ? Adrenal failure 2 cases Pulm. embolism 1 case
Emergency (including 12 with open or sealed perforation)	41	12	29.3	{ Shock 4 cases Sepsis 4 .. Unexplained 2 .. Pneumonia 1 case ? Adrenal failure 1 ..
Total	145	15	10.3	

shows. This is particularly disappointing because throughout the period covered by these statistics the policy in force was exclusively one of primary excision, and it had been hoped that the advantages of immediately ridding the patient of his septic colon would have been specially evident in these acutely ill toxic cases. My results indeed are quite a contrast to those of Ripstein (1960), who has reported a group of 45 patients with acute forms of colitis treated by emergency colectomy, with only two deaths. Of course a great deal depends on what are called acute cases. I cannot say that all my 41 cases treated by urgent operation were actually moribund, but they were all gravely ill, many were certainly *in extremis*, and in no fewer than 12 of them perforation of the colon had already occurred. When dealing with cases of this kind it is difficult to avoid a considerable operative mortality.

Choice of Operation

In the application of primary excision to these emergency cases I have used complete proctocolectomy whenever possible and reserved subtotal colectomy without rectal excision for the really desperate cases (see Table IV). This explains the much higher mortality with the latter operation. A question that did arise in connexion with these specially poor-risk patients was whether it might not occasionally have been better to

TABLE IV.—*Operative Mortality According to Type of Primary Excision Employed in 41 Emergency Operations for Ulcerative Colitis (1952-9 Inclusive)*

Type of Operation	No. of Cases Treated	No. of Deaths
Proctocolectomy + ileostomy ..	24	5
Colectomy + ...	15	7
.. + ileo-rectal anastomosis ..	2	0
All methods	41	12 (29.3%)

abandon entirely the principle of primary excision and to accept simple ileostomy, with its recognized therapeutic limitations, as the most that these moribund cases could reasonably have been expected to sustain. Unfortunately, open perforation of the colon was often present, forcing one to proceed to colectomy, but in at least four or five cases ileostomy alone would seem to have been a feasible alternative, and might possibly have avoided some of the deaths from operative shock that occurred after radical surgery.

I would not like to give the impression that I have been discouraged from further recommending primary excision in the treatment of acute phases of colitis. On the contrary, I am most impressed by the dramatic recoveries and smooth, rapid convalescence so often achieved by this operation, which I believe is sound in principle, provided that the patient can stand it. But I must recognize that it is more than some patients can sustain. I am sure that the mortality cannot fail to be very high in these particularly ill patients whatever is done, but it may be that simple ileostomy will occasionally secure a reprieve from death when radical operation would be lethal. A special indication for this procedure might be the presence of a sealed perforation, for one effect of colectomy, despite technical manoeuvres to avoid it, is that it usually re-opens the perforation and causes considerable peritoneal contamination. Anyway, my policy for the future would be to retain primary excision as the main emergency operation but to be prepared to use ileostomy alone as an exceptional alternative.

Steroid Therapy in Relation to Surgery

Lastly, a few words about steroid therapy in these urgent cases. Do steroids prejudice the prospects of subsequent surgical treatment as has often been alleged? In order to try to answer that question my 41 emergency operation cases have been divided into two groups according to whether they had received steroid therapy or not, and the results examined (Table V).

A difference that is immediately apparent between the two groups is the much greater incidence of perforation in the patients who had steroids, there being 11 perforations in 28 cases with steroids, but only 1 in 13 without. Fortunately, perforation is not necessarily a fatal complication, and in fact 8 of my 12 perforation cases survived, and the overall mortality in the steroid-treated

group, despite its larger number of perforations, was roughly the same as in the group not receiving steroids. But naturally perforation, by leading to infection, is apt to complicate and prolong the convalescence enormously. I think that the apparent impairment of wound-healing and the high incidence of serious sepsis noted in the patients having steroids is to be attributed to this circumstance rather than to any specific interference with tissue vitality and resistance to infection. Certainly in my cases undergoing *interval* proctocolectomy there has been no noticeable difference in the incidence of wound complications whether steroids were given or not (see Table VI).

TABLE V.—*Emergency Colectomy or Proctocolectomy for Ulcerative Colitis (1952-9 Inclusive)*

	Cases Treated	Cases with Perforation			Operative Deaths	Severe Wound Sepsis or Delay of Wound Healing	Post-operative Hypotensive Collapse
		Total	Open	Sealed			
Steroids given	28	11	4	7	8	14	1
Steroids not given	13	1	0	1	4	4	0
All cases	41	12	4	8	12 (29.3%)	18	1

TABLE VI.—*Interval Colectomy or Proctocolectomy for Colitis (1952-9 Inclusive)*

	Cases Treated	Operative Deaths	Severe Wound Sepsis or Delay of Wound-healing	Post-operative Hypertensive Collapse
Steroids given	39	0	2	2
Steroids not given	65	3	1	2
All cases	104	3 (2.9%)	3	4

Our experiences with perforations certainly conflict with the findings of the first Medical Research Council trial (Truelove and Witts, 1954, 1955). They make it difficult to resist the conclusion that steroid administration in some way predisposes to this complication—either by a direct deleterious effect on the bowel wall or, as I believe is more probable, by prolonging the course of conservative treatment and thereby extending the period at which the patient is a risk. It is clear that the physician assumes a very serious responsibility when he essays remission with steroid therapy in these very urgent cases, and I consider that such attempts by him are only justifiable if he accepts a very definite time-limit to his efforts and, failing clear signs of improvement within 10 days, is prepared to invoke surgical aid without further heart-searching or delay.

Summary

This paper is concerned with two aspects of the surgical treatment of ulcerative colitis.

The value of colectomy and ileo-rectal anastomosis has been appraised. While excellent results have been obtained in patients with segmental colitis without rectal involvement, the results in diffuse forms of the disease have been disappointing and have failed in half the cases in which the operation was attempted. The use of the operation in diffuse colitis, therefore, is not recommended, and is only reluctantly undertaken at the patient's request where rectal involvement is slight or the patient seems mentally incapable of accepting or managing an ileostomy.

The results of the surgical treatment of the acute phases of colitis are reported in 41 patients with

fulminating primary attacks or exacerbations of the disease. Here operative mortality was ten times greater than in patients with chronic or milder disease owing largely to the high frequency of pre-operative perforation, which occurred in nearly a third of these patients. The role of steroid therapy in relation to these results is discussed. It is felt that unless early improvement follows medical treatment in this type of case emergency surgery should not be delayed. Primary colectomy-ileostomy is still regarded as the operation of choice, though use of simple ileostomy in particularly ill patients might reduce the operative mortality.

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ULCERATIVE COLITIS PROVOKED BY MILK

BY

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The aetiology of ulcerative colitis remains obscure. Infective, allergic, nutritional, and psychosomatic theories have been advanced, but there is no general agreement that any one of these is an adequate explanation. One result is that medical treatment has been forced to develop on the basis of trial and error. The lack of universal efficacy of our present medical measures is apparent from the fact that total colectomy is necessary in some patients. The need to find specific factors in the causation of the disease is obvious.

Present Study

During the last few years a group of patients with ulcerative colitis has been recognized in whom removal of milk (and protein milk-products such as cheese) from the diet has been followed by marked improvement in the clinical course of the disease. In several of these patients milk has been reintroduced into the diet, and in every instance this has been followed by a frank attack of ulcerative colitis. The object of the present article is to describe these observations and to discuss their implications.