

The Place of Fecal Diverting Procedures in the Surgical Treatment of Ulcerative Colitis *

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THE DEFINITIVE surgical treatment of ulcerative colitis requires the removal of the colon and, when indicated, the rectum as well. Ileostomy, or any other diverting procedure, is merely a step on the way toward the accomplishment of this end.

In the past two decades, extirpation of the colon has progressed from multiple-staged operations to the one-stage ileostomy and total colectomy. During the same period, postoperative mortality has declined from as high as 30 per cent^{1, 3} down to five per cent and lower.^{2, 4, 5} However, with the discovery that more and more could be accomplished at one sitting, zeal has sometimes outstripped judgment. We may be trying to fit all patients into the same operative procedure, instead of tailoring the operation to suit the patient.

Although technical progress doubtless has contributed to the improvement in mortality, we believe the conclusion that the institution of one-stage procedures is the principal cause, is erroneous. Other simultaneous advances are also clearly responsible:

1. The effective employment of antibiotics, for example, has spectacularly altered what was formerly a hopeless outcome of colonic perforation, whether it be spontaneous or operative.

2. Wider experience with maintaining electrolyte balance and blood volume has

substantially reduced the hazard of dissolution, caused by fluid and mineral loss.

3. The judicious use of the corticoids has often transformed the desperate condition of the patient dangerously ill with acute, fulminating, toxemic ulcerative colitis (once resulting in a high mortality rate, after any operative procedure) into a relatively quiescent state suitable even for an extensive total colonic resection.

4. Finally, increased knowledge concerning the management of the patient with ileostomy, sparked particularly by the ileostomy clubs,⁹ which have done much to dispel the horror of the stoma often shared by medical and lay persons alike, has led the doctor and the patient to choose operation earlier in the course, before a moribund and virtually hopeless state has been reached.

In a summary of experience at The Mount Sinai Hospital over a 15-year period (1937 to 1952), an average mortality of 10.4 per cent, after ileostomy, was reported.⁷ Staged procedures were performed exclusively (i.e., ileostomy, followed first by partial or subtotal colectomy and then by proctectomy). In the acute fulminating forms, the mortality after ileostomy was as high as 30 per cent. But if the last five years of this series (1947 to 1952) are considered separately, during which only staged procedures were still being done, the mortality rate drops to zero. Other clinics experienced similar declines, according to analysis of the reported statistics after ileostomy.^{6, 8, 13, 14}

* Submitted for publication May 6, 1959.

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Presented before the Surgical Section, The New York Academy of Medicine, November 19, 1958.

The introduction of one-stage ileostomy, total colectomy, and proctectomy^{10, 11, 12} has been one of the outstanding therapeutic triumphs. However, so much uncompromising emphasis has been placed on this procedure that in many instances a practitioner, or resident, has heard of no alternative. We have seen morbidity and mortality as a result of this lack of information. There are indications for lesser surgical procedures in the treatment of ulcerative colitis, which may be lifesaving.

The purpose of this paper is to present the indications for primary fecal diverting procedures as a stage in the eventual surgical eradication of the disease. The case histories were accumulated within a period of a year and a half.

Indications

1. Change in condition on the operating table. No matter what the plan before operation, if shock or deterioration in the patient's condition occurs at any time during the procedure, it is often wise to terminate the operation at the earliest feasible step. This may mean ileostomy alone.

Case 1, R. T.: A 19-year-old boy had a history of universal ulcerative colitis for six years. He had four admissions to The Mount Sinai Hospital for acute exacerbations which responded enough to corticoids each time to permit his returning home. However, on his last admission, May 22, 1957, little improvement was shown during the four-month stay, most of which was on the Psychiatric Service. He was transferred to the Surgical Service, where his blood volume was replenished with multiple transfusions.

Following the induction of anesthesia with sodium pentothal and nitrous oxide with oxygen, his blood pressure fell precipitously. Intravenous hydrocortisone had been started before induction. Additional doses and blood transfusion led to only slight improvement and the scheduled operation was cancelled. During the subsequent two weeks, corticoids were continued and several transfusions were administered.

On September 19, 1957, while in the operating room, once again his blood pressure declined sharply during the induction of anesthesia. This time an ileostomy alone was performed through a

small left paramedian incision. The proximal stoma was brought out through a circular stab wound in the right lower abdomen. The patient remained hypotensive for the remainder of the day despite blood transfusions and corticoids. The blood pressure finally gradually returned to normal.

The remainder of the course was smooth. The improvement in the patient's general appearance, appetite, nutrition, and psychic state was rapid. He was discharged 18 days after operation. While at home he gained 50 pounds and returned to normal activities. Eight months after the ileostomy, he was readmitted for extirpation of the colon and rectum, which was performed in one-stage, without incident. He has been well since.

2. Moribund state or extreme malnutrition. When the patient's nutrition, blood volume, or advanced toxic state makes operation seem hazardous, judgment may suggest a lesser, rather than a larger, operative maneuver. The spectacular improvement after ileostomy alone suggests that staging operations can sometimes achieve the same results as a one-stage procedure, if used properly.

Case 2, L. M.: A 15-year-old girl had a four-year history of universal ulcerative colitis, characterized by abdominal cramps, anorexia, weight loss, bloody diarrhea, arthralgias, rectal abscesses, and a rectovaginal fistula. Corticoids, at first moderately effective, later failed. On the children's psychiatric service she showed no improvement.

On admission to The Mount Sinai Hospital, February 8, 1958, she had the appearance of a concentration camp victim—emaciated, virtually bedridden, listless, stunted. She was prepared for operation with transfusions, corticoids, and fluids. Because of her nutritional status it was decided to stage the procedure, and accordingly, an ileostomy was done as a first step on March 10, 1958. The postoperative course was smooth.

The change in the patient's appearance and behavior in the ensuing weeks was striking. She became a mature, attractive, well-nourished girl. In the space of a few months, she was transformed from an invalided child to an attractive young woman. She attended school for the first time in over three years. At the next vacation period, total colectomy and proctectomy in one-stage is planned.

3. Severe distention of the colon. The high correlation in ulcerative colitis between severe colonic distention and per-

foration, has been established in recent years. Rather than risk the dissolution of the intestinal wall or the rupture of sealed-off perforation by operative handling, a surgical measure, which first relieves distention, may be in order. This may take the form of a transection ileostomy with intubation of the cecum through the distal limb, or an exteriorization cecostomy. Either endeavor can prevent the unavoidable drenching of the peritoneal cavity with feces, following the operative manipulation of a thinned out, distended colon.

Case 3, A. L.: A 31-year-old woman had a history of universal ulcerative colitis for six years. She was a known schizophrenic, but was compensated and had been working as a secretary. Three weeks prior to admission, she developed fever and increased diarrhea which became bloody. On admission, August 22, 1957, her abdomen was moderately distended without tenderness. Proctoscopy revealed hyperemia and friability without ulceration. A course of parenteral ACTH and antibiotics was started. The temperature rose to 103° F. and the abdominal distention became marked. Plain films of the abdomen revealed huge distention of the entire colon. The patient became disoriented and "toxic" in appearance. Her hemoglobin, 12 Gm. on admission, fell and required multiple transfusions in order to remain at 9.6 Gm., although there was no gross blood in the liquid stools. Bowel movements finally ceased altogether.

Eleven days after admission, she was taken to the operating room in desperately poor condition. Through a McBurney incision, the markedly distended cecum was exteriorized and intubated, with the evacuation of large amounts of gas and liquid stool. There was marked, rapid deferescence of the distention. Her general condition improved dramatically. By the fifth day after cecostomy her temperature had reached normal. The patient was oriented and asking for food, and she was comfortable. The cecostomy tube was removed and the stoma was opened more widely. A plastic appliance was cemented to the abdomen. The patient was ready for discharge two weeks after operation, but had to remain in the hospital until October 20, 1957 because of difficulty in her home conditions.

On readmission, March 5, 1958, sigmoidoscopy and biopsy revealed a normal rectum. On March 18, 1958, the colon was removed down to the mid-rectum and an ileoproctostomy performed. In

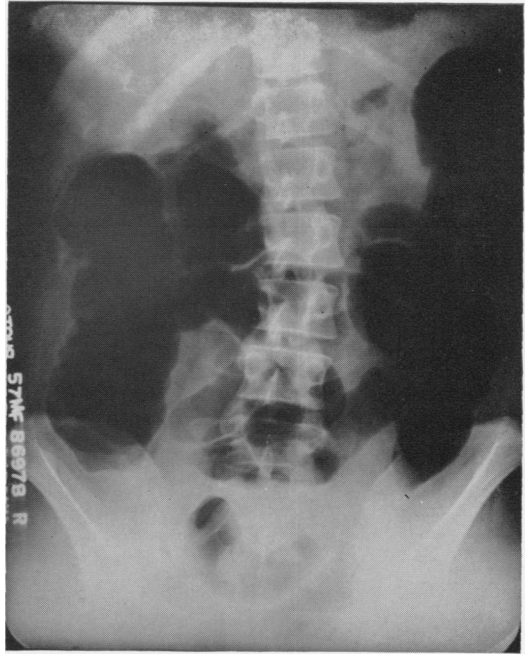


FIG. 1. Preoperative plain film in Case 3.

the eleven months since reanastomosis, she has had two to five semiformal bowel movements daily.

4. Obstruction. Acute intestinal obstruction resulting from the fibrosis produced by either ulcerative colitis or regional ileitis is uncommon. However, when the ileum or the colon does become completely obstructed, one can employ the same principle of diversion before resection, often used in the management of obstructions due to other causes.

Case 4, M. W.: A 31-year-old man had experienced numerous bouts of abdominal cramps and diarrhea for four years. On a previous admission to a veteran's hospital in 1954, x-ray examination by barium enema revealed universal ulcerative colitis. On May 23, 1956, at The Mount Sinai Hospital, x-ray studies showed ulcerative colitis and terminal regional ileitis. A duodenocolic fistula was also noted. Sigmoidoscopy showed hyperemia of the mucosa and purulent drainage.

He was readmitted on February 12, 1958, with symptoms of acute small intestinal obstruction, confirmed by plain films of the abdomen. A long intestinal tube was successfully passed and relieved some, but not all, of the distention. Tem-

perature, which was 103° F. on admission, remained elevated. On March 4, 1958, he was explored through a left paramedian abdominal incision. An obstruction in the terminal foot of the ileum was found as well as evidence of diffuse ulcerative colitis down to the sigmoid. The ileum was transected a foot above the ileal disease. Both ends were brought out through separate stab incisions. Profuse bleeding through the proximal ileostomy stoma developed four days later and stopped spontaneously in 24 hours. He was discharged three weeks after operation.

Several episodes of mild prolapse of the ileostomy occurred in the ensuing months. On November 17, 1958, he was readmitted. Sigmoidoscopy and biopsy showed a normal rectum. On January 6, 1959, through a long left paramedian incision, the duodenocolic fistula was excised, the distal ileum was removed, and a subtotal colectomy down to the lower sigmoid was performed, with ileosigmoidostomy. Biopsies on both sides of the anastomosis revealed normal mucosa. Follow up studies are too recent to be significant.

5. Internal fistula. When an internal fistula is present between the intestinal tract and another viscus (e.g., the urinary bladder), particularly if active infection or inflammation involves the organs communicating, preliminary fecal diversion, such as ileostomy, often leads to subsidence of the active process and even to obliteration of the fistula. The subsequent colectomy is made simpler and, if the fistula is still open, the successful operative closure is made more secure.

Case 5, N. R.: A 25-year-old woman had intermittent bouts of cramps and bloody diarrhea for seven years, requiring 14 admissions to various hospitals. For nine months she had dysuria, frequency and the passage of purulent urine. The urinary symptoms grew worse and fecal liquid began to be passed by urethra. Barium enema and small bowel roentgen studies showed the presence of diffuse ulcerative colitis and regional ileitis of the terminal two feet of ileum, with an ileovesical fistula.

She was admitted to The Mount Sinai Hospital, May 1, 1957, for definitive surgery. On exploration through a left lower paramedian incision, a large inflammatory mass was found, involving the terminal ileum and bladder. The roentgen findings of diffuse ulcerative colitis and regional ileitis were confirmed. Ileostomy was performed, tran-

secting the ileum approximately six inches proximal to the highest point of gross disease. Biopsy of this portion was reported on frozen section to be normal. The distal end was closed and returned to the peritoneal cavity. The proximal end was brought out as a stoma in the right lower abdomen.

The postoperative course was uneventful. Urinary symptoms ceased a few days after removing the indwelling bladder catheter. The urine became progressively clearer. Three weeks after ileostomy, there was only 1 to 3 white cells, per high power field, in a catheterized specimen of urine.

The patient has regained her lost weight and normal hemoglobin has been restored. She became pregnant, against advice, three months after operation. On May 1, 1958, one year after the ileostomy, she was delivered of a full term male child without difficulty. There have been no symptoms referable to the colon. Scant, whitish, pasty, material is passed, per rectum, every few days. She is to be admitted to the hospital for colectomy soon.

Discussion

At the present time, we have available a number of operative technics from which we can make a choice to fit the particular requirements of each patient as well as the philosophic attitude of each surgeon:

1. **Total colectomy and ileostomy.** This is a highly satisfactory operation, accomplishing the removal of all the diseased parts in one procedure and also avoiding possible later difficulties related to the retained colon or rectal stump. Two requirements we believe are necessary: The rectal disease must be beyond possible salvage in the future and the patient's condition must remain good throughout the operative procedure. For acute massive hemorrhage when the precise site of bleeding is not known, total colectomy is the only logical procedure.

2. **Subtotal colectomy and ileostomy.** This procedure can be used when the rectum is mildly involved and estimated to be of possible future use. It is also indicated in acute fulminating ulcerative colitis, when the patient's condition does not warrant total extirpation, or when change in his

state during the operation makes proceeding with proctectomy too hazardous.

3. **Ileostomy as a first stage.** Ileostomy alone, as a first step, can be lifesaving and gratifyingly successful in the presence of sudden deterioration of the patient's condition on the operating table, moribund state before operation, advanced colonic distention, acute intestinal obstruction or internal fistula.

4. **Other procedures.** This category is included to prevent smugness in thinking that the ultimate has been reached in the operative treatment of ulcerative colitis. For example, the use, in Case 3, of cecostomy, a long-abandoned procedure in ulcerative colitis, was suited to the particular circumstances presented. Although other surgical methods, such as vagotomy and pelvic neurectomy, have so far not fulfilled their early promise, different approaches to the problem will not be stimulated if preconceived notions prompt a particular clinic or surgeon to advocate one particular operative procedure for all patients.

Summary and Conclusions

1. The indications for staged procedures in the surgical management of ulcerative colitis are: sudden change in the patient's condition at operation; moribund state before operation; advanced colonic distention; acute intestinal obstruction; and enterovesical fistula.

2. The choice of operative procedure in ulcerative colitis should depend on the general state and the complications of the disease, rather than on a preformed concept that all patients should be treated by the same method.

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