INDICATIONS FOR SURGICAL INTERVENTION IN ULCERATIVE COLITIS*

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UP TO FAIRLY RECENT YEARS nonspecific ulcerative colitis has been a serious disease about which we have known very little concerning the cause of its appearance, and nothing concerning specific factors which bring on the disease. It is a disease which we have been forced to manage almost entirely in a symptomatic way. Its nonsurgical treatment has been extremely vague, directed largely toward the avoidance of things which have been known to promote acute episodes of the disease, such as emotional upsets, infections, excessive physical efforts and allergic reactions. Our efforts in the fairly recent past in treating patients with this disease have been based upon the assumption that once they have it, little or nothing can be done to rid them completely of it. Such measures as have been employed have been directed almost entirely toward the complications which occur in the course of the disease.

Prior to the attainment of the gratifying surgical refinements developed in fairly recent years in the making of an ileostomy, in the management of it with adherent bags after operation and in removing such infected colons and rectums, we had accepted the position that almost anything in the way of delay, risks and complications was acceptable, based upon the fact that ileostomy in its making and management was such an undesirable misfortune that all of the hazards previously mentioned and shown in mortality figures (Table I) were worth accepting to avoid it entirely or to put it off for the longest possible period of time.

We have had the opportunity to deal with 770 patients with ulcerative colitis in the period when the above state of affairs was true, and through the recent years when this unhappy plight has changed quite completely and acceptably.

The unfortunate and frequently fatal complications occurring in patients with advanced stages of ulcerative colitis during the first era referred to were the result of the explainable delay in the performance of ileostomy and our inability to control the progress of the disease other than by this surgical measure (ileostomy). Internists understandably and properly delayed sending patients with ulcerative colitis to surgeons for ileostomy until such was the serious state of the patient from advanced (toxic) stages of the disease that the internists, family physicians, all members of the family and the surgical consultants were unanimous in their opinion that ileostomy, however repulsive it might be, was the sole available measure by which the patient's life could possibly be saved. It was evident then and is more so now that this approach to the problem made the surgical treatment of these cases by ileostomy and multiple stage colectomy unavoidably far from satisfactory. Many of these patients came or were sent for surgical management in such an acute stage of intoxication that the performance of the simplest type of ileostomy was followed by a fatality in many instances (18.6 per cent). Many of the patients were in advanced stages of hepatitis with multiple fistulas—rectal, vaginal and abdominal—and many were in such advanced stages of malnutrition (Fig. 1) that even the most

* Read before the Southern Surgical Association in Hollywood, Florida, December 6, 1950.

minor surgical procedures were undertaken only with an almost prohibitive mortality rate (Table I).

Not only were internists, gastro-enterologists and family phsicians reluctant to submit these patients to ileostomy because of the inability at that time to manage the resultant ileostomy with its liquid discharges, bad odor and skin irritations, but such were the complications of the ileostomy itself that even the surgeon employing it approached its performance with justifiable apprehensions. The effect of the discharge of ileal contents upon the surrounding skin, with no type of bag which could be cemented to the skin* to protect it then available, left the patient in constant discomfort from the skin erosions, ulcerations, burning and smarting, and the security of the ileostomy itself was jeopardized by the digestion of the abdominal wall about the ileostomy with its contents constantly bathing the surrounding skin. In this period few surgeons who had any considerable experience with this type of ileostomy failed to see such an ileostomy digested away from the abdominal wall, and retract into the abdomen, bringing about a fatal peritonitis.

Prolapse of the ileostomy was not an uncommon complication in everyone's hands, and not infrequently secondary operations were required to reduce large segments of ileum which had prolapsed through the eroded and inflamed abdominal wall.

The accuracy of the above statements is affirmed by the fact that of the first 145 ileostomies done in this clinic there were three understandable suicides, understandable because of the suffering from skin digestion, because of the exclusion of these three young people from acceptable lives and because of depression about a future unassociated with any possible satisfaction or happiness. As evidence that conditions in relation to ileostomy have changed the recent mortality figures are submitted (from January, 1947, to July, 1950, the mortality for 102 ileostomies was 2.0 per cent, Table I) and the fact that not only have there been no suicides in the patients with ileostomies in this latter group but an ileostomy club is now in the process of formation by one of our most enthusiastic patients. Its purposes are the exchanging of views as to the patients' complete satisfaction, their method of now managing their lives with an ileostomy and the aiding and encouraging of others who may require an ileostomy or who have recently had one.

TABLE I.—*Data on Operations for Ulcerative Colitis.*

	Number	Mortality, Per Cent
Total cases treated surgically	308	
Ileostomy cases	247	
Partial colectomy	60	
Total colectomy	179	
To 1947		
Total cases treated surgically	166	22.3
Ileostomy cases	142	18.6
Procedure mortality for the 166 cases	...	11.8
From January 1947 to July 1950		
Total cases treated surgically	142	4.2
Ileostomy cases	102	2.0
Ileostomy with right colectomy—cases	26	11.5
Procedure mortality for the 142 cases	...	2.3

TABLE II.—*ACTH in Ulcerative Colitis.*

	Number
Total number of patients	28
No apparent benefit	7
Immediate benefit—left hospital improved	21
Still in remission (follow-up less than 4 months in nearly all)	13
Recurrence	8

* There are now obtainable a number of ileostomy bags which are cemented to the skin and we do not wish to promote any one over the other. It would be a grave injustice, however, not to remind all patients requiring surgical intervention and all surgeons doing ileostomies how much they and we are indebted to Mr. H. W. Rutzen who, with an ileostomy himself, was a pioneer in developing the idea of the fitted ileostomy bag with a collar cemented to the skin.

To anyone who has not lived over the years of management of cases of ulcerative colitis in its various active and quiescent stages, all of this semi-reminiscent background may seem irrelevant and unnecessary. It is extremely important, however, to record these facts as we discuss the indications for surgical intervention in ulcerative colitis today because the changes in the management of this disease, especially from a surgical point of view but also in no inconsiderable way from a medical point of view, have entirely overcome most of the factors which brought about these depressing states have been entirely overcome. It is now possible, at least in an encouraging number of patients treated with ACTH, to interrupt acutely progressing stages of this disease and to bring about a remission during which ileostomy and colectomy can be accomplished (Table II) if they are indicated rather than having to undertake the first step in the surgical treatment (ileostomy) of complications of this disease during a period when its performance formerly resulted in such a high mortality. The mortality of ileostomy itself merely as a technical procedure should be practically zero, leaving the operative mortality limited almost solely to the stage of the disease in which it is done.

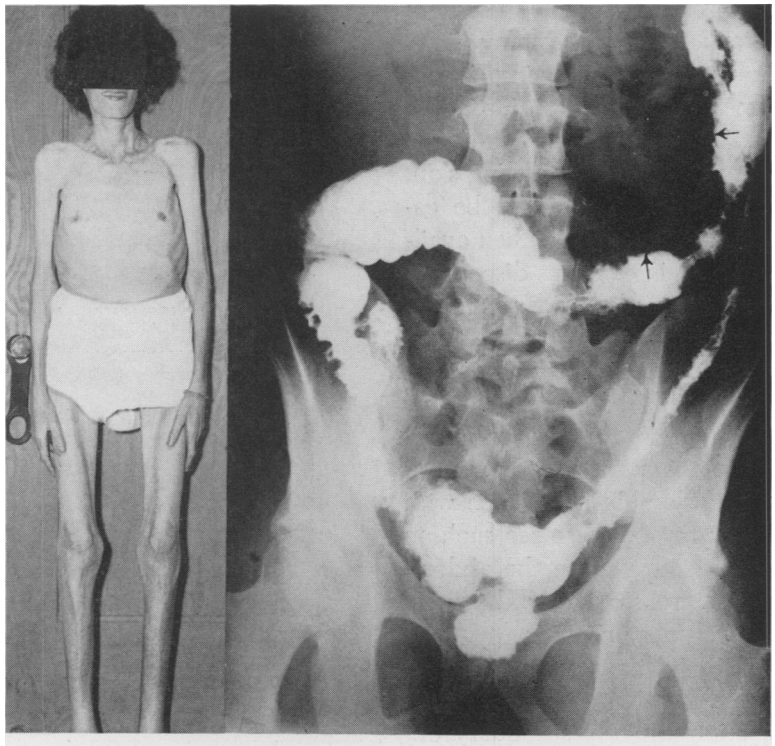


FIG. 1 FIG. 2

FIG. 1.—This photograph of a patient with severe ulcerative colitis illustrates well the degree of emaciation which can occur and also explains the hazards of surgical procedures in patients in this advanced state of the disease.

FIG. 2.—This roentgenogram shows fuzziness of the haustrations in the earlier stages of ulcerative colitis, as indicated particularly at the points where the arrows are placed.

Not only are we better able to manage

these patients from the point of view of medical care but we have now refined the performance of ileostomy and its management postoperatively so that not some but all of the above-mentioned unhappy complications such as skin erosion, prolapse and retraction of the ileostomy no longer occur. In comparing the surgical management of the complications of ulcerative colitis before and after 1947 and since that time, perhaps the most convincing evidence of this change is our own mortality rate for ileostomy. Prior to 1947 we have many times reported that the mortality for ileostomy was 18.6 per cent. Since that period (from January, 1947, to July, 1950) it has been 2.0 per cent. There were very few patients who had had ileostomies prior to 1947 upon whom we could call to attest to other patients who were contemplating this operation as to the comfort and the satisfaction with which they could conduct their lives with the present method of making and handling an ileostomy. Now literally all patients with ileostomy are not only willing but anxious to demonstrate to prospective patients for ileostomy how satisfactorily they can conduct their lives and activities without embarrassment, discomfort or limitations, with a properly made ileostomy and a properly fitted ileostomy bag cemented to their skin.

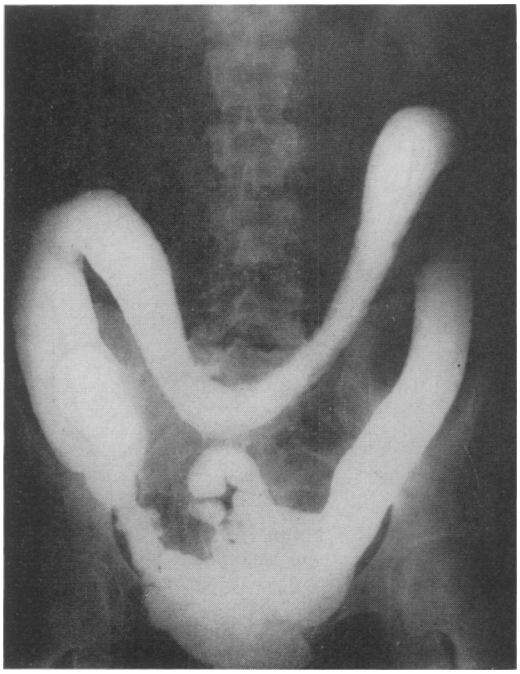


FIG. 3.—This illustration demonstrates the typical lead-pipe colon, not in an advanced stage of contraction, but with the haustrations absent.

In its early stages ulcerative colitis is largely a mucosal disease, and in about 80 per cent of the cases the rectum is involved and its characteristic appearance may be demonstrated proctoscopically. Ulcerative colitis may be segmental or it may involve all segments of the colon. In the intermediate stage of the disease haustrations may still be retained, but fuzziness, as illustrated in Figure 2, about the haustrations may be present. At this stage the process may be acute, subacute or in remission. In the late stage of the disease the colon in its entirety or in segments, as illustrated in Figure 3, may be completely rigid and of the lead-pipe variety. In all of these stages recurrent acute episodes and periods of remission occur, and in the late stage of the disease, surprisingly enough, occasional patients, even those with a completely lead-pipe colon, remain in complete remission over long periods of time without complications.

NONOPERATIVE MANAGEMENT

It is not the purpose of this paper to discuss the nonoperative management of ulcerative colitis, but so that no one will think that all cases of ulcerative colitis require surgical intervention it is of value to state that out of 770 cases of ulcerative colitis under treatment in this clinic, 308, or 40 per cent, have been handled by surgical measures.

ACUTE EXACERBATION OF THE DISEASE

In the indications for surgical intervention in patients with ulcerative colitis must

come first that of an acute exacerbation of the disease, so well illustrated in the temperature chart (Fig. 4) of a patient in whom a remission has been brought about by ACTH. It is in this stage of the disease that the mortality of ulcerative colitis largely rests. It is in this stage of the disease that co-operation between the surgeon and the internist is so necessary. The decision here which will for the most part determine the mortality of ulcerative colitis will be based upon how long a patient, during an acute phase of ulcerative colitis, as shown in Figure 4, can safely be permitted to continue under a trial of nonsurgical management. It is in this stage of the disease that unwise persistence with nonsurgical measures on the part of the medical adviser, with his understandable desire to avoid an ileostomy, may commit this patient to advancement of the disease into such a stage that the ileostomy, when done, is unjustifiably hazardous. It is here that the judgment and the balancing warning of the surgical consultant avoid the undesirable delay resulting in the complications of this disease which bring about its avoidable mortality.

As stated above, and as shown in Figure 4 of a patient whose ulcerative colitis was converted into a remission stage by ACTH, it is possible that with this agent we now have a valuable method of avoiding the immediate necessity of performing ileostomies on patients in acute and toxic stages of the disease. We have now employed ACTH in 28 patients with ulcerative colitis and have succeeded in bringing about remissions in 21 cases and failed to do so in seven cases (Table II). A much larger experience over a much longer period of time will be necessary before any dependable statements can be made regarding the success of ACTH in the treatment of ulcerative colitis. What its long range effect will be upon patients in the early stages of this disease, still mucosal in location and with complete retention of haustrations, is as yet unknown and will take time to determine. It seems unlikely that those patients in the late stages of the disease, with rigid colons, will obtain any more benefits from ACTH than will those in an as yet unproved percentage of cases in whom there is brought about remissions of acute phases of the disease.

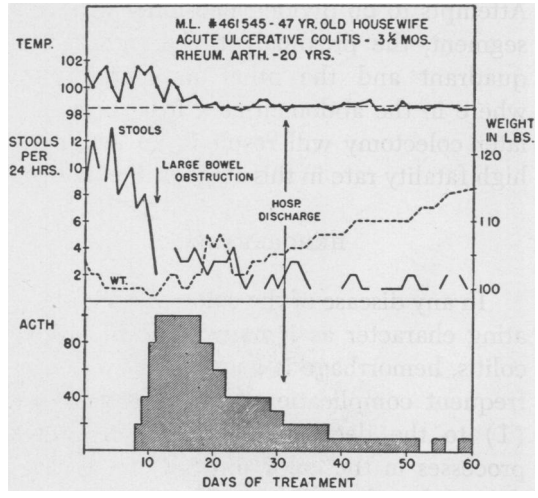


FIG. 4.—This figure serves two purposes: (1) to show the acute phase of ulcerative colitis with high temperature and as many as 14 stools in 24 hours, and (2) to demonstrate graphically the prompt and successful remission in the acute process, brought about by the employment of ACTH. Note in the blocked section on the lower part of the chart the dosage and time periods of administration of ACTH.

It also is probably unnecessary to remind readers that after the administration of ACTH, a period of four days must elapse to eliminate this substance before operation is undertaken, because it so interferes with wound healing.

There will undoubtedly be patients resistant to ACTH who will still require emergency ileostomies during the period of high temperature, multiple daily bowel movements and the discharge of large amounts of liquid stools mixed with blood and pus.* Despite the fact that the warn-

* Ileostomy has already been necessary in six patients under treatment with ACTH.

ing seems unnecessary, I would like again to call attention to what everyone knows who has dealt with this disease surgically: that is, in the acute phases of this disease the simplest type of ileostomy should be done. This is the simple loop ileostomy of a temporary nature but of such a type that it requires the least exposure of the peritoneal cavity and handling of the bowel. Attempts to do divided ileostomy with one segment, the proximal, in the right lower quadrant and the other implanted elsewhere in the abdomen as a first stage of a later colectomy will result in an avoidable high fatality rate in this stage of the disease.

HEMORRHAGE

In any disease of the colon of such ulcerating character as is nonspecific ulcerative colitis, hemorrhage is bound to be a not infrequent complication of the disease, due (1) to the deep and multiple ulcerative processes in the colon and (2) to the fact that such colons are at times incapable of absorbing enough vitamin K to provide the essential elements for the synthesis of prothrombin in the liver. Living, as we do, in the midst of an immediately surrounding population of two million people, and being known as interested in this disease, it is inevitable that the problem of hemorrhage as a complication in ulcerative colitis not infrequently arises here. Few cases of ulcerative colitis reach the acute phase of the disease—that is, with the high temperatures, multiple discharges of liquid character mixed with blood and pus—without the discharge of a not inconsiderable amount of blood. In an occasional case there will occur moderate discharges of pure blood in which, with the control of the disease either by nonoperative or operative measures (ileostomy), bleeding will promptly cease. Cases occur constantly, however, of serious massive and uncontrollable bleeding (Fig. 5) in which control of the bleeding by all measures is not possible, even with ileostomy, and an emergency colectomy, partial or complete, becomes imperative if the patient's life is to be saved. It has occasionally been necessary to do immediate removal of a part or the entire colon and rectum by abdominosacral resection in one stage in order to save such patients from complete exsanguination and death.

I know of nothing less encouraging to successful medical control in a patient with ulcerative colitis than the complication of massive bleeding. When it occurs, ileostomy should be done without delay, not only to put the colon at rest, with the hope that following this procedure bleeding will cease, but to establish the ileostomy and divert the fecal stream. If a colectomy, total or incomplete, then becomes urgently necessary because of failure to control the bleeding from the colon, it can be undertaken with the ileostomy already established and the fecal stream sidetracked.* If the ileostomy is done immediately, this step of the procedure will not be an additional burden to the patient who, after serious exsanguination, must go through an operation of no small magnitude, that is, the removal of part or all of the colon and rectum in one stage. Fortunately, most of our patients with massive hemorrhage in this disease have been in the young age group.

Not unlike the problems of when to operate upon a patient with a bleeding duodenal ulcer or how long one may delay the ileostomy in the acute exacerbations of ulcerative colitis, the fatalities from massive hemorrhage in patients with ulcerative colitis will in a large measure depend upon

* The combination of ileostomy with colon resection, as shown in Table I, in which 26 patients had ileostomy and partial resection of the colon combined in one operation, elevated the mortality rate unduly. Such procedures should be combined only in good risk patients by surgeons experienced with this disease, and even then with extreme caution.

FIG. 5

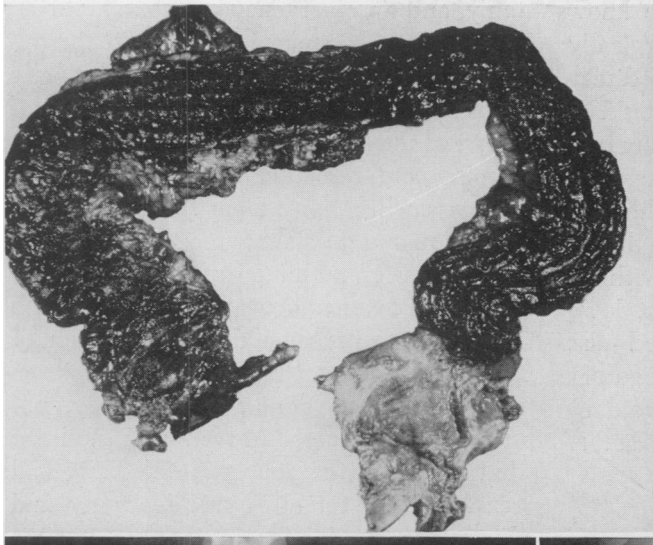
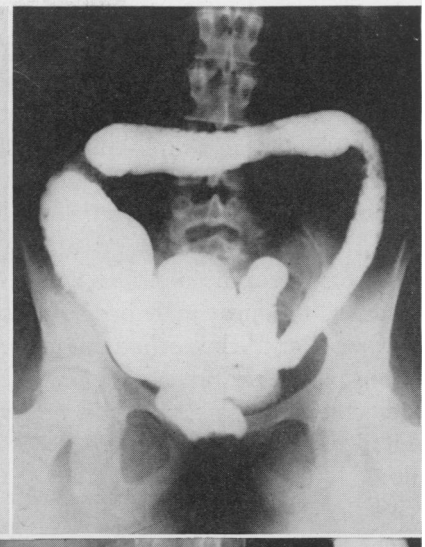


FIG. 6



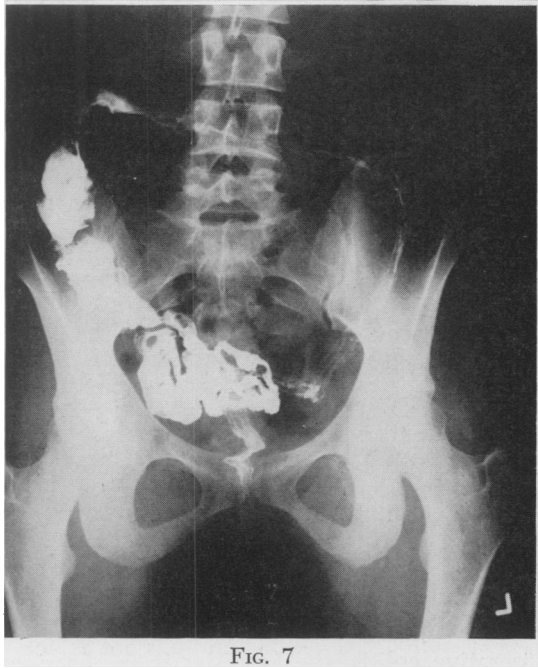


FIG. 7

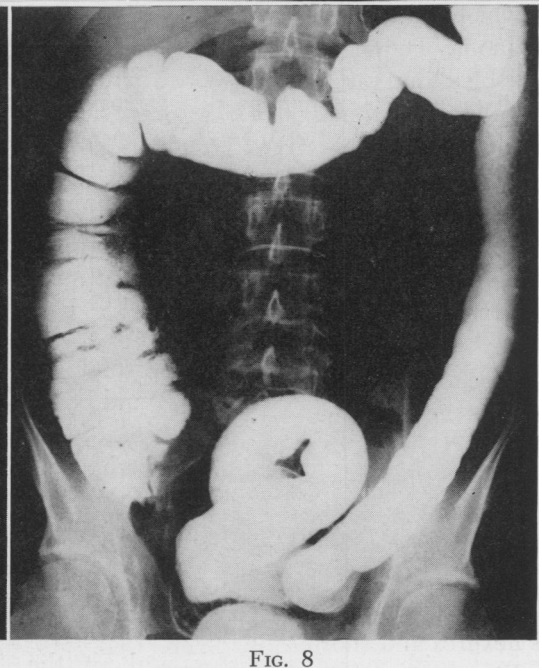


FIG. 8

FIG. 5.—This specimen represents the entire colon and rectum in a patient with massive hemorrhage uncontrolled by ileostomy, uncontrolled by the injection of plasma into the colon, and of such seriousness that the patient required 23 transfusions before total colectomy and abdominosacral removal of the colon were done in one stage as an emergency.

FIG. 6.—This roentgenogram is shown to demonstrate complete obliteration of the splenic flexure and marked shortening of the entire colon as a result of the infiltration and cicatrization of the colon.

FIG. 7.—This is another example of a colon in which the flexures have been almost completely obliterated. It again demonstrates the added ease with which colectomy can be done on patients with ulcerative colitis when late cicatrization has obliterated the flexures and shortened the colon.

FIG. 8.—In this illustration haustrations are lost in the descending colon but retained in the ascending and proximal transverse colon. Note the retention of the splenic, sigmoid and hepatic flexures because cicatrization and contraction have as yet not taken place here. This patient had such massive hemorrhage from ulceration of the descending colon that resection of this segment was necessary in the middle of the night.

the surgeon and physician's co-operative judgment of when the possibilities of nonsurgical control of bleeding from the colon have been exhausted and aggressive surgical measures must be instituted. Today the nonsurgical measures for the control of bleeding from an ulcerated colon are limited in number and quite indefinite in character. We have as yet not had the opportunity to determine whether or not ACTH in such a complication will bring about cessation of the bleeding, but other than this measure nonsurgical resources are limited to elevating the prothrombin time to normal and introducing plasma into the bleeding colon.

Since we have had a number of cases in which ileostomy, by means of which the colon may be put at rest, has not terminated the bleeding, and colectomy, partial or complete, has been necessary because of continuing massive hemorrhage, we have doubts that ACTH will provide the desired measure to stop bleeding. When such a serious complication resulting from deep ulcerations does occur, the process has by this time probably become an irreversible one.

One of the problems in patients with massive hemorrhage in ulcerative colitis is that of localization of the bleeding and selection of the colon to be removed. When the bleeding is bright in character it is probable that the active process is between the splenic flexure and the anus, but such is the ability of the contracted colon to obliterate its flexures and shorten the colon, as shown in Figures 6 and 7, that this is a less dependable feature than in the colon of normal length and with normal flexures. The decision as to which segment to remove first can be a difficult one. Since in many of the patients with advanced ulcerative colitis there will be a contracted colon and obliterated flexures, an abdominosacral removal of the rectum, together with the colon up to the transverse colon, will offer the best chance of removing the segment of colon which is responsible for the bleeding. After this section of colon has been removed it can be opened and if the bleeding area can be demonstrated in the specimen to extend beyond the removed area, the remaining portion of the colon can readily be taken out. Actually, in cases of ulcerative colitis with contracted flexures, hepatic, splenic and sigmoid, total colectomy is technically a less difficult operation than is partial colectomy in cases in which the flexures are intact.

PERFORATIONS (ACUTE AND CHRONIC)

Acute perforation in patients with ulcerative colitis has not been a common complication in our experience with this disease. This is probably due to the fact that the process is a diffuse infiltrating one and not a localized one, that it is slowly progressive, giving the infiltrated colon an opportunity to cicatrize ahead of the process, and also due to the fact that in the beginning ulcerative colitis is a mucosal disease, followed later in the advanced stages of the disease by gradual thickening and cicatrization of the muscular coats of the bowel wall. Acute perforation of ulcerative colitis is to be dealt with the same as acute perforation elsewhere, except that the bowel wall in ulcerative colitis is friable, holds stitches badly, does not invert and contains organisms of a highly virulent character. In the earlier acute phases of ulcerative colitis when the bowel wall is still flexible and has not as yet become cicatrized, there is a graver danger of perforation than in the later stages of the lead-pipe colon. It is in this stage, when haustrations are still present (Fig. 8), that acute ulcerating episodes can bring about perforation and it is in this stage that infolding of the perforated area will be more successful. All closures of perforations for ulcerative colitis should be combined with an ileostomy.

The most common type of perforation with which we have had to deal is the chronic perforation so frequently associated with obstruction and with a walled-off abscess. This type of lesion is best dealt with by preliminary ileostomy followed by local drainage of the walled-off abscess and later resection of the colon.

OBSTRUCTION

Intestinal obstruction in ulcerative colitis occurs with surprising infrequency. This, again, I believe, is due to the fact that the process does not produce its effect locally but diffusely along the tube of bowel, in the beginning involving the mucosa and later infiltrating the muscular coat. This is well illustrated by Figure 3, showing a specimen of rigid colon, demonstrating the diffuseness rather than the localizing character of the process.

A type of obstruction which has occasionally occurred in our experience has been stricturing, as shown also in Figure 9, in a completely ciatrized or lead-pipe colon. The infrequency of stricturing in completely cicatrized colons is noteworthy.

I have been impressed over the years with how few adhesions this disease produces within the peritoneal cavity. It appears to be a disease within the bowel, in which extensive ulcerating processes can be present and extensive involvement of the colon wall can have occurred without reactions within the peritoneal coat of the colon and without the establishment of adhesions between the colon and the neighboring structures. I have likewise been impressed as I have done multiple stage removals of the colon over the years, with how infrequently adhesions are found in the gutters after right and left colectomy, when these are investigated after the other procedures are done. Unfortunately, this is not true of the terminal ileum where it is implanted in the abdominal wall for the ileostomy. As one routinely inspects previously established ileostomies during the latter stage of removal of the colon, kinking, angulation and adhesions of the terminal ileum to the parietal peritoneum and neighboring structures are by no means uncommon, and sometimes are troublesome in producing partial obstructions of the ileum proximal to its implantation in the abdominal wall.

JOINT INVOLVEMENT

It has been somewhat astonishing to me that in discussions of the treatment of ulcerative colitis with joint involvement, the establishment of an ileostomy and the removal of the infected colon have not been advocated more often, and that this procedure has not been undertaken earlier in some of the patients who have come to us with ulcerative colitis and joint involvement. We have had a number of patients in whom the complication of joint involvement has been directly associated with, and the result of, the ulcerative colitis, as proved by the prompt disappearance of the joint effects and the return of complete activity with the establishment of an ileostomy and the removal of the colon. Joint involvement is, in our opinion, a definite indication for prompt ileostomy, to be followed by total colectomy and abdominosacral removal of the rectum when it is involved in the disease. I believe this very strongly even though the ulcerative colitis is being successfully managed by nonsurgical procedures as a means of terminating joint involvement and avoiding later irreversible joint changes. It is wrong to delay operation in such cases until joint cartilages are destroyed and damages to the joint are of such extent that even though the infecting agency, the colon, be removed, complete joint motion and full activity cannot be restored. We have now dealt with a number of patients with ulcerative colitis with joint involvement of such extent that joint motion and physical activity were limited to the use of crutches, who were completely restored to full joint motion and general ac-

tivity with the establishment of an ileostomy and the removal of the involved colon.

MULTIPLE ANAL FISTULAS AND RIGID ANAL SPHINCTERS

Since a majority of patients with ulcerative colitis will have involvement of the rectum, in a number of the cases multiple anal fistulas will be present, directly caused by the infiltration of the process in and about the anal canal. There are two exnite indication for ileostomy, to be followed by colectomy and abdominosacral removal of the rectum. In connection with the problem of multiple anal fistulas and rigid anal sphincters as indications for surgical intervention in ulcerative colitis, I would like to state from personal experiences that no anus can be so involved, no fistulas so multiple and no perianal tissue so rigid that such rectums and ani cannot be excised and reasonably good wound healing obtained—

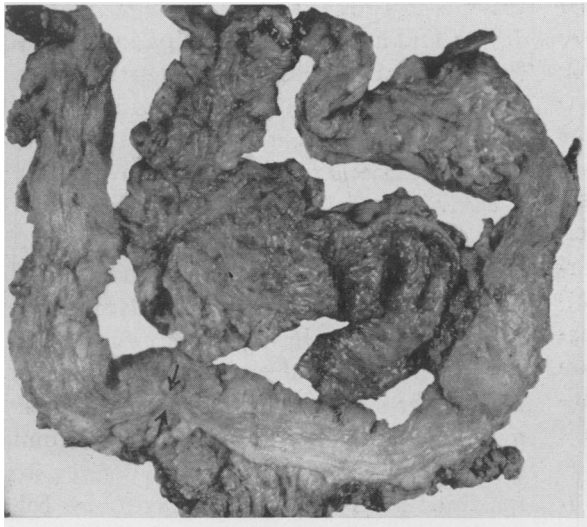


FIG. 9

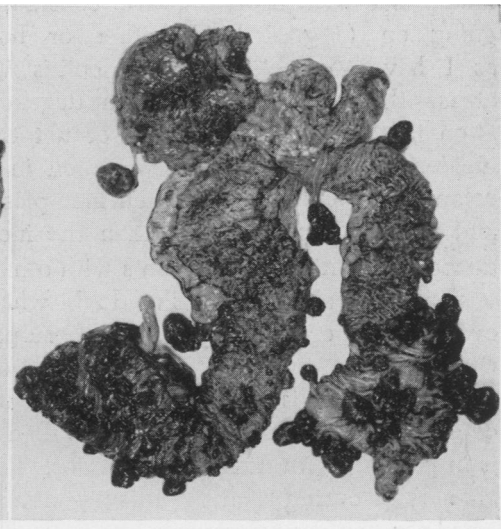


FIG. 10

FIG. 9.—This photograph of a removed specimen of ulcerative colitis shows the cicatrized, lead-pipe type of colon but with stricturing at the point indicated by the arrows.

FIG. 10.—This specimen of a colon was removed from a young girl who had repeated acute episodes and remissions of ulcerative colitis, because of which, and because of hemorrhage, colectomy became urgently necessary. One cannot visualize this specimen with the evidences of destruction and repair and the establishment of polyps without being impressed with the added danger of malignant degeneration in this type of process in ulcerative colitis.

tremely undesirable features to this complication. One is the constant soiling about the anus by discharges from the fistulas, with skin irritation; the second is that as these fistulas produce induration of the perianal tissues, the consequent induration results in rigidity and ineffectualness of the anal sphincters. This brings about inability to control the liquid movements that are associated with rigid walled colons and rectums, and this is in itself, I believe, a defisuch is the local resistance of the adjacent area to the involved area and the infecting agents which produce it. It is well to advise patients who have had abdominosacral removals of their rectums for involvement of that segment of the bowel by ulcerative colitis that for several months after operation, unlike the permanent healing in patients having this operation for carcinoma of the rectum, there may occur local small accumulations in the perineum which will

require drainage, and sinuses which may persist sometimes for several months. All of these complications eventually disappear.

MALIGNANT DEGENERATION

Increasing experience with ulcerative colitis has given rise in everyone's mind to an increasing apprehension concerning the danger of malignant degeneration in ulcerative colitis, since this is a disease in which destruction and repair with metaplasia and neoplasia are constantly going on (Fig. 10). Whether or not, as I have thought, ulcerative colitis increases the incidence of malignant degeneration in these colons, whether or not the incidence of malignant degeneration in a colon which is the site of such metaplasia and neoplasia is no higher than the incidence of this disease in patients with otherwise normal colons, there is no doubt whatever that the opportunity to cure those patients who do have malignant degeneration in a colon which is the site of nonspecific ulcerative colitis is very materially less than it is in patients with noninfected colons. The chances of curing such patients are diminished for two very obvious reasons. One is that, not unlike malignant disease in the breast when associated with an inflammatory process, the ability to obtain satisfactory five-year survival rates is markedly diminished in patients with this same inflammation associated with ulcerative colitis. Second, it is diminished because in a patient with ulcerative colitis the symptoms which make the early diagnosis of carcinoma of the rectum or colon possible are confused by the symptoms of ulcerative colitis. The three signal symptoms by which one may be made suspicious in patients with carcinomas of the colon and rectum—the passage of blood, the alteration in bowel function and obstructive pain—are no longer useful since they are altered by the symptoms of ulcerative colitis.

Whether or not the incidence of carcinoma of the colon is increased in patients with long-standing ulcerative colitis, as everyone interested in the disease believes, I know that of 18 patients in our experience with proved and removable carcinoma of the colon associated with ulcerative colitis, only two are now alive without recurrence. These two cases are hardly to be classed with true carcinoma of the colon and rectum in a stage in which it could be diagnosed in a patient without ulcerative colitis, since they were microscopic findings made by the pathologist in the course of the postoperative examination of the specimen. It could be said that of 16 patients with carcinoma of the colon visually demonstrable after removal, none are alive.

THE MAKING OF AN ILEOSTOMY

The postoperative complications of an ileostomy can be briefly stated. The ileostomies can be too short or too close to the level of the skin, in which case there will be grave danger of contraction. They can be too long, in which case they will project too far through the neck of an ileostomy bag and be irritated by pressure of the rubber wall of the bag against them. They can be badly placed, that is, too close to the umbilicus, in which case the collar of an ileostomy bag (Figs. 13, 14 and 15) cannot be well cemented to the skin around it. They can be too close to the anterior-superior spine, which again will interfere with applying the collar of an ileostomy bag close to the skin. They can be too close to the rib edge, which will result in the same disadvantage. Ileostomies are best placed opposite the umbilicus, a little above the level of McBurney's point, about a third of the way out toward the anterior-superior spine. A good ileostomy, as shown in Figure 11, has been the type pulled through a stab wound in which there is a completely smooth area of skin about the ileostomy. It

is to be remembered that when ileostomies are implanted through a longitudinal abdominal incision, and I have done a great many this way and still continue to do so, there are at times certain later disadvantages. Many of these patients are operated upon after having lost up to 100 pounds

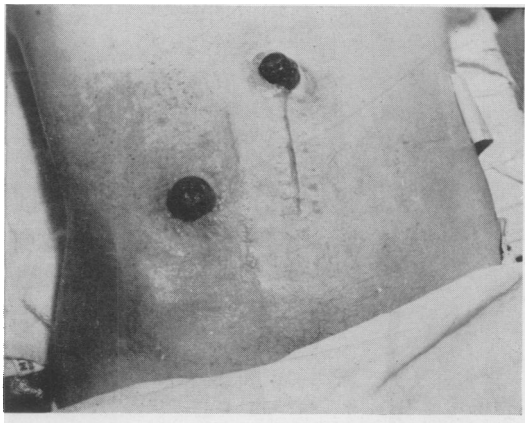


FIG. 11

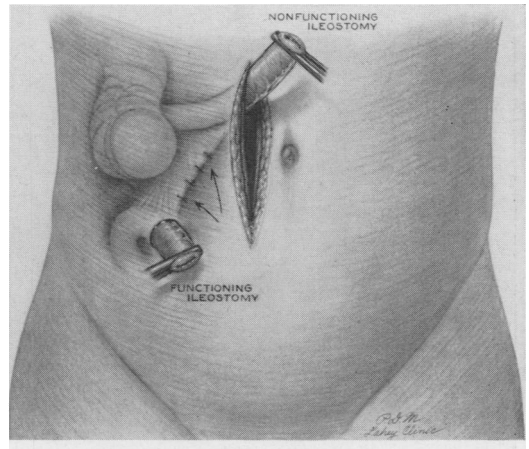


FIG. 12

FIG. 11.—This illustration demonstrates a stab wound ileostomy in the deliberate, divided type of ileostomy as a preliminary step to colectomy. The ileostomy on the right is the functioning ileostomy, the one above and on the left implanted in the incision is the nonfunctioning ileostomy which will be removed when the colectomy is later done. This ileostomy has not had time for all of the edema to disappear.

FIG. 12.—This transparency drawing attempts to show the method of attaching the ileum to the parietal peritoneum with interrupted silk stitches in the deliberate, divided type of ileostomy which is to be followed by colectomy. These stitches, indicated by the arrows, represent in transparency the mesentery sutured to the parietal peritoneum. Note the stab wound ileostomy properly placed and with a completely smooth area of skin about it for good attachment of the cemented flange of the ileostomy bag to the skin. The nonfunctioning segment of the ileostomy is placed in the top of the longitudinal incision.

terminal ileum for a not inconsiderable distance to the parietal peritoneum adjacent to the ileostomy with interrupted stitches of silk (Fig. 12), as proposed by Dr. R. B. Cattell. Retraction of the ileostomy will not occur with a good wound, with a sufficient amount of ileum brought out upon the skin (Fig. 1). It is to be recalled that with the regaining of their weight they will put on a great deal of subcutaneous abdominal fat so that the scar of the incision with the ileostomy in it will be represented as a retracted valley to which it will at times be difficult to make the ileostomy bag adhere and not leak, since the bag cannot be held in close contact with the entire skin throughout its circumference around the ileostomy.

Prolapse of the ileostomy can be avoided by suturing the mesentery of the and with the avoidance of skin damage from discharging ileal contents.

One of the most undesirable complications of an ileostomy and one of the easiest complications to bring about is the development of a fistula in the ileum at the level of the skin or at the level of the fascia. Once this fistula into the ileostomy has occurred, with its outpouching of mucosa, I have never seen it close spontaneously and it will require disconnecting the ileostomy completely and the making of a new one. This unhappy complication is usually the result

FIG. 13 FIG. 14

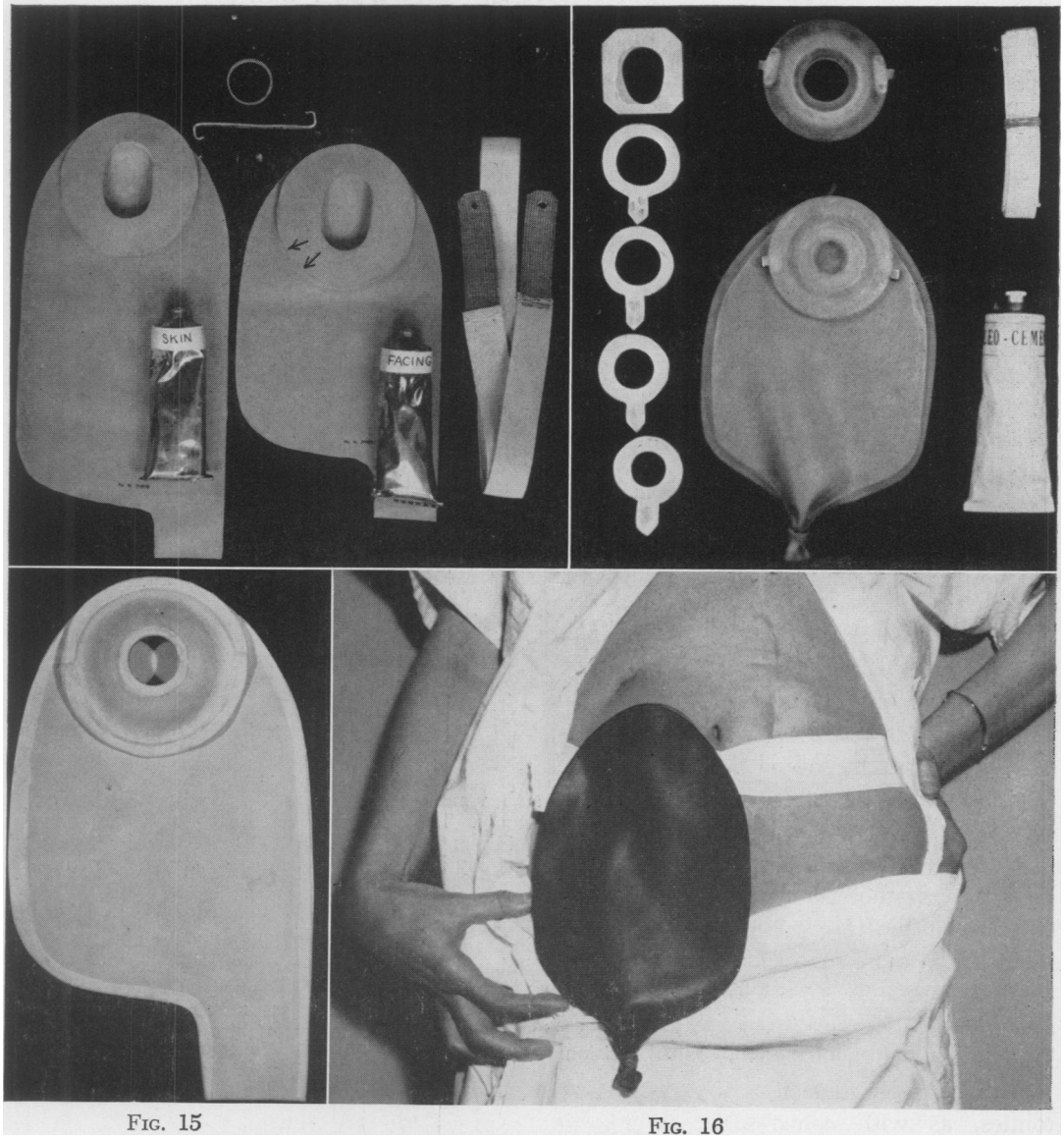


FIG. 15 FIG. 16

FIG. 13.—This photograph shows two different sizes of the Rutzen bag with the complete equipment which goes with them, the two tubes of cement, one for the facing of the collar of the bag and the other for the skin, the strap to suspend it and the hook to aid in the removal of the bag for changing. The apertures in these bags, to fit accurately about the ileostomy, are made to correspond to actual measurements, so that there will be no pressure of the edges of the collar on the protruding ileostomy. Note the flanged flat surface which will be cemented to the skin, as indicated by arrows.

FIG. 14.—This is the Torbot bag, also devised by a patient with an ileostomy. It may be noted that the flange which is to be cemented to the skin in this bag is of plastic material. To the left of the bag are the various measuring devices from which one can select a circle which fits easily about the ileostomy, forward this measurement to the manufacturer and obtain a bag with an aperture which will fit perfectly.

FIG. 15.—This is the Perma bag, which is much like the other bags with the exception that the flanged collar has an elevated projection so that it tends to project into the soft skin around the ileostomy. This bag has been worn by several patients for as long as a week without leakage and without having to be removed and re-applied.

FIG. 16.—An ileostomy bag is shown in place and cemented to the skin.

This illustration is shown particularly to indicate the proper location at which to make the ileostomy so that it will not be too close to the umbilicus, too close to the anterior-superior spine or too close to the rib. These bags are flat and can be worn with tight-fitting dresses or trousers without disfigurement.

of putting stitches too close to the ileum, inserting them inadvertently through the wall of the ileum or making the closure too tight about the neck of the ileostomy. This is a complication which has occurred to us more than once and can be avoided by greater care in the introduction of stitches about the wall of the ileum as it comes through the abdominal wall. I am convinced that all ileostomies should be supported in the abdominal wall only by the suture of the mesentery to the parietal peritoneum (Fig. 12), and that under no circumstances should stitches be introduced between the terminal ileum, the peritoneum or the fascia.

Since it is possible to avoid skin damage completely by means of the ileostomy bag if it is made so that it fits accurately to the mucocutaneous edge and leaves no area of skin to be irritated, I see no advantages in the skin grafting of an ileostomy. The ileostomy bag, of which now there are several varieties (Figs. 13, 14 and 15), functions so satisfactorily when the aperture at the neck of the bag, as shown in Figure 14, is made of proper diameter for each case that not only is skin grafting an unnecessary refinement but in more cases than one, when this grafted ileostomy is implanted in the bag, I have seen irritation and ulceration of the grafted wall of the ileostomy occur.

I like to urge that all patients with ileostomies, as with colostomies, have their ileostomies inspected carefully every night for loss of blood supply for at least five days after operation. It will be a rare case in which, as the result of vomiting or coughing, the included mesentery of the ileum will be torn, or as the result of swelling, its blood supply will be limited. If the ileostomy is observed regularly every night for five or six days, there will still be time to remake the ileostomy should this unfortunate event occur, and save the patient from perforation, wound contamination and sometimes peritonitis.

SHOULD ILEOSTOMY AND TOTAL REMOVAL OF THE COLON AND RECTUM BE DONE UPON ALL PATIENTS WITH ULCERATIVE COLITIS?

While one would hardly wish to support such a radical thesis, there are many encouraging aspects to the treatment of ulcerative colitis by ileostomy, total colectomy and abdominosacral removal of the rectum. The first one is that it will completely relieve the patient of the disease, completely rehabilitate him from all of its effects and protect him against any and all of the above-stated complications, including the high hazards of malignant disease of the colon associated with ulcerative colitis. It has the additional advantage that following the removal of the colon, the character of the ileal contents quite materially improves in terms of semisolidity. With the bag cemented to the skin about the ileostomy (Fig. 16), this operation makes life, after removal of all of the involved colon and rectum, unlimited in any of its phases, even permitting, as I have already stated in articles on this subject, marriage, pregnancy and the raising of a family on the part of young women in whom this disease has so frequently occurred. I was reluctant when first presented with this problem to permit young women who had had ulcerative colitis and upon whom we had done ileostomies, total colectomies and abdominosacral removals of the rectum, to marry and have children, but a sufficient number of these patients have now gone through pregnancy after ileostomy, colectomy and abdominoperineal removal of the rectum so that I do not believe that it adds an unreasonable amount to the hazard of that undertaking.

Even though we have managed a considerable group of patients with ulcerative colitis quite satisfactorily under a medical plan, such has been the satisfaction of patients with ulcerative colitis who have had their entire colons removed and ileostomies made that I would not, and do not, hesitate

to advise total colectomy in all patients who have had ileostomies. The mortality of this operation in patients who have already had ileostomy is very low in experienced hands and the benefits in protection from complications and, particularly, superimposed malignant disease are well worth the investment in time, risk and relatively short disability.

CONCLUSIONS

Some of the causes of the high mortality and disturbing complications of the past in patients with ulcerative colitis are discussed in the light of the improvements in the management of this disease and its complications in later years.

Under nonoperative management are discussed our experiences with ACTH in converting patients in acute phases of the disease into remissions.

Attention is called to the need for early ileostomy in those patients in acute stages of this disease whose condition is not promptly converted to remission by this agent.

The problem of blood loss in patients with ulcerative colitis is considered, and the occasional need for emergency ileostomy and colectomy in this complication is discussed.

Perforation as a complication and its management are discussed, as is obstruction. Joint involvement and early removal of the colon as a means of avoiding permanent joint damage and resulting disability are discussed, as are multiple anal fistulas and the rigid, incompetent anal sphincter.

Cancer in patients with ulcerative colitis and the poor outlook for a cure when this occurs are discussed.

The making of a successful ileostomy and some of the ways of doing it and avoiding complications with it are discussed.

The types of ileostomy bags are illustrated.

Colectomy is advised for all patients who have had a permanent ileostomy established.

DISCUSSION.—DR. ALTON OCHSNER, New Orleans: Concerning the surgical treatment of ulcerative colitis, I would like to call attention to the psychosomatic phase of this disease. I never see a case of ulcerative colitis but what I think of a story that Dr. Albert Sullivan of our gastroenterological division told several years ago while attending a meeting of the Clinical Congress of the American College of Surgeons. Dr. Sullivan emphasized the difference between these two psychosomatic disorders, ulcerative colitis and peptic ulcer. The patient with peptic ulcer, as you know, is the dynamic successful business man who accomplishes everything and, with few exceptions, the patient with ulcerative colitis is frustrated and likely to be a failure. The story concerns a scene in the Empire State Building on the 32nd floor, at the time of the stock market crash several years ago. The ticker tape is going down, and all these highly successful business men with ulcers are looking at the tape. One goes out and jumps off the 32nd floor. Another goes into the men's room and shoots himself. Another starts home and jumps off the George Washington bridge. The last man, who has ulcerative colitis, does nothing; he shouldn't be there anyway because he has ulcerative colitis—he doesn't belong in that office.

The important thing is, it seems to me, that in addition to treating these patients surgically—and we certainly agree that many of them do require surgical treatment—they require good treatment. They require more than simple surgical care. Dr. Lahey did not mention the medical care, which consists largely of psychic therapy. I fear that we as physicians become so specialized that we think of individuals less and we think of disease more frequently. Right now there is a wave of enthusiasm for psychiatry; that is necessary because we have been gradually losing the art of medicine and are emphasizing the science of medicine. As a result we see more instances of psychosomatic disorders. The family doctor who used to sit down and talk to these people did a great deal for them. The incidence of ulcerative colitis is increasing, I believe due to the fact that we are living in a period of frustration and, as physicians, we are not helping that