CARCINOMA of the colon offers a better prognosis than does carcinoma of any portion of the digestive tract from the pharynx to the anus. Cancer of the esophagus has rarely been successfully removed. Carcinoma of the stomach, from the common delay in making the diagnosis, the reluctance of the patient to submit to operation, and finally fatal operative complications, reproaches us with less than three per cent recoveries. Carcinoma of the small intestine, relatively rare, usually affecting the duodenum or jejunum, so frequently involves the pancreas, biliary tract, or other important structures before the diagnosis is made and operation attempted, that but few patients are cured. Carcinoma of the colon, however, may remain localized to a section of removable bowel for a year or more, during which time the patient often is driven to seek operative relief and hence the percentage of recoveries is relatively high.

Nearly nine out of ten patients with cancer of the colon note the passage of blood and while physician and patient often are content to ascribe this to hemorrhoids, the associated irregularities of bowel habit finally impel a more careful examination. Instead of being free and bright red as from hemorrhoids, the blood from cancer usually is in small amount, dark, offensive and mixed with the stool.

Diarrhea is a common symptom of cancer of the pelvic colon. The diarrhea which arouses the patient from bed early in the morning and gives little trouble the rest of the day is almost pathognomonic for rectal cancer. A profuse, clear, mucilaginous diarrhea occurs with bulky papillary growths. Frequent small diarrheal movements with incontinence, an "incontinence of overflow", suggests an advanced, partially obstructing, and inoperable rectal growth. Diarrhea also may occur or a peculiar early anemia from adenocarcinoma of the cecum and ascending colon. For the most part, however, anemia and cachexia denote an advanced and neglected condition.

In the left half of the colon, or that portion with a narrow lumen, constipation from a constricting anular scirrhus carcinoma is the rule. In one of eight patients complete obstruction occurs, and not infrequently the obstruction is acute. Eliminating strangled hernia, carcinoma of the sigmoid or descending colon is the most common, single cause of intestinal obstruction in middle and advanced life.

The majority of cancers of the large bowel may be detected by the finger in the rectum or by the proctoscope. The irregular ulcer with raised, everted, hard infiltrating borders is diagnosed so accurately by the examining finger alone that a biopsy rarely is required. By having the patient strain while in a sitting position, higher rectal growths may be brought within reach of the finger. The diagnosis also may be made by the proctoscope, but when the tumor can be reached, the finger gives more complete information as to the character and extent of the growth. It should be emphasized that pelvic growths, which are so easily recognized by the examining finger, are not shown on the usual roentgen films. Nevertheless, physicians continue to send patients for a useless and misleading roentgen examination before making the simple local examination, and the patient's life may be jeopardized by the report that the film shows no carcinoma. It is to be remembered that only about 16 per cent of cancers of the large bowel are situated so far above the anus as to require roentgen study for their diagnosis. Adenomata and papilloma of the bowel are so frequently associated with cancer that they always should be viewed with suspicion. Diverticulitis of the sigmoid may be difficult to differentiate, especially when a firm inflammatory mass has been produced. In such circumstances a very radical operation undertaken with the diagnosis of cancer may place the life of the patient in unwarranted jeopardy.

The treatment of cancer of the bowel is early radical operative extirpation. No other curative method has yet been developed. Irradiation, often harmful, usually useless, only occasionally has a palliative action. Colostomy or enterostomy is an important pre-operative and palliative measure which always should precede the radical operation when complete obstruction has occurred. It serves as the most effective measure to prolong life when an obstructing inoperable growth is present.

Although at present widely used, a permanent colostomy rarely is, if ever, necessary when the cancerous portion of intestine is removable.

In preparing the patient for operation ample fluids and soluble carbohydrates are used. Coarse, cellulose-containing food should be avoided as well as should purgatives. Although the bowel may be irrigated with saline or soap solution, a purgative will occasionally produce an acute and dangerous intestinal obstruction. Such obstruction is followed by the rapid passage of bacteria through the intestinal wall into the peritoneum and secondary peritonitis, usually necessitates an immediate enterostomy and delays the radical operation for several weeks. As manipulations within the peritoneum during intestinal obstruction carry a high mortality, we prefer, when feasible, an appendicostomy. The appendix is delivered through a small but-
Figure 1—Resection of the cecum, ascending colon, and lower ileum for carcinoma of the cecum. The structures to be removed with adjacent peritoneum are liberated en masse, brought through the abdominal incision and only cut away after the wound has been closed and occlusive dressings applied. The insert shows the antimesenteric suture of the loop of ileum and colon protruding from the wound and the rectal tubes tied in place. Seven to ten days later the partition between the ileum and colon is divided by clamp, or by knife with immediate suture of the divided margins.

The technique of resection for a carcinoma of the transverse colon is modified by the attached great omentum, the transverse mesocolon, and the limited collateral circulation of the mid-colic artery. The mesentry and omentum are divided well beyond any lymphatic involvement or infiltration and delivered through the wound with the attached diseased bowel, all divided vessels being securely ligated. It is important that the two loops of bowel where they pass through the abdominal incision are free from omentum and have only sufficient mesenteric attachment to maintain viability. If a bulky mass of folded great omentum and mesentery is left protruding through the abdominal incision it becomes the seat of secondary necrosis and an infection which may spread to the peritoneum with a fatal result. It also is important to make sure that pulsating vessels are present in both loops of bowel where they pass through the abdominal incision. The operation is completed by suturing the serous surfaces of the two loops together, the application of gauze occlusive dressings and the removal of the liberated section of colon and attached structures. Finally, a rectal tube is tied into each loop. During the operation, if necessary to relieve tension, the lateral peritoneal attachments of the hepatic or splenic flexure may be divided and the flexure mobilized toward the mid-line.

In the removal of cancers involving portions of the colon between the ileum and the lower sigmoid, modifications of the Mikulicz operation deserve chief consideration as by these methods the danger of peritoneal contamination greatly is reduced and all abdominal openings are finally closed. The old objection to the operation that it was not sufficiently radical need no longer apply. For carcinoma of the cecum and ascending colon after dividing the lateral peritoneal reflexion at a sufficient distance from the diseased bowel, the cecum, ascending colon, hepatic flexure, and lower ileum are mobilized toward the mid-line, and the liberated bowel with the involved and divided portion of mesentery, delivered through the wound. The adjacent loop of colon and ileum, as they pass through the abdominal incision, are united by fine interrupted seroserosa sutures, but not along the mesenteric border, which carries the blood supply to the bowel. The wound then is sutured around these two loops of bowel, dressings applied, and finally the diseased portions of the colon, peritoneum, and mesentery cut away. No attempt is made to anchor the bowel to the margins of the abdominal incision. With the wound protected by ample gauze dressings rectal tubes are tied into both the proximal and distal loops. Six or eight days later the double partition between the intestinal loops is cut through and the margins sutured after the method of Pauchet and usually without the necessity of an anesthetic, or it is slowly divided by the necrosis produced by a crushing clamp. In this way the artificial anus is converted into a fecal fistula which later closes spontaneously or after an extraperitoneal operation.

For patients without obstruction, Rankin and Bargen have administered preoperative injections of vaccine into the peritoneal cavity to increase the resistance to infection.

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