

LOW ANTERIOR RESECTION OF RECTAL CARCINOMA

ARTICLE BY ROSE HEIDRICK, CST

In past years, the usual surgical correction of rectal carcinoma was abdominal perineal resection with a permanent colostomy. This surgical procedure is very involved, requiring both abdominal and perineal wounds. The rectum is completely removed, leaving a large cavity to heal postoperatively, often with complications including slow healing and/or fistulization. Also, the patient must deal with both the physical and psychologic complications of a permanent colostomy.

In many cases, removing the rectal tumor through the abdominal approach is possible, making an anastomosis of colon to the rectum. This leaves the patient with a functioning rectum. The following article will describe the technique used for low anterior resection of a rectal carcinoma.

Preoperative Preparation

Preoperatively, 1 to 2 units of blood should be prepared. If time permits, the patient can donate autologous blood prior to hospitalization. This is a safe way to replenish blood loss during the operation without the patient fearing contagious disease from blood bank units.

The patient is admitted to the hospital 2 days prior to surgery. The bowel is cleaned out by using oral laxatives. Oral antibiotics are used to prepare the bowel for surgery. Preoperative laboratory tests include a complete blood count, chemistry studies, urinalysis, and a carcinoembryonic antigen (CEA), which, if elevated, is valuable in following the patient for recurrence of carcinoma in the months and years following surgical correction. Chest x-ray films and EKG studies also are done. The patient is put on a surgical liquid diet 2 days preoperatively. A tap water enema, mixed with an antibiotic, is administered the evening before surgery.

Instrument Setup

The instrument setup for this case is quite extensive. In addition to the basic abdominal set, the gastrointestinal (GI) tray is needed. Also, a good selection of long instruments, such as long Allis, Peons, Ochsners, forceps, needle holders, and scissors, will be needed. Autosuture supplies need to be on hand, particularly the end-to-end anastomosis stapling device and the ligating and dividing stapling device.

The sutures needed include fine to heavy silk ties, surgical gut ties, and stick ties. The closure suture includes heavy

silk and synthetic absorbable suture on general closure size needles and possibly heavy retention suture or wire. Skin staples will be used on the skin. The anastomosis will be done with the autosuture device, with occasional interrupted silk or synthetic absorbable suture on GI needles.

Operative Procedure

On the day of surgery, an intravenous antibiotic is given to the patient in the surgical holding area, and the patient is then taken to the operating room. My surgeon has a special board called an inverted lithotomy board (Figure 1) that is placed on the operative table (Figure 2). A Chick operative table (Chick Surgical Systems) also could be used. The circulator should be sure to attach any table attachments needed for any third-arm type retractor before the case begins.

The patient is placed supinely on the table (Figure 3). After the patient is sedated, a Foley catheter is placed in the patient's bladder and an irrigation tube is placed in the rectum. My surgeon uses two large-size (no. 32 or no. 34) mushroom catheters taped together and placed in the rectum. Suction and an irrigating solution are then attached to the ends of the rectal tubes with five-in-one connectors.

The perineal region is prepped, as well as the abdomen from nipple line to pubis. The patient is draped as usual for the abdominal surgery.

The abdomen is entered through either a left perimedial or midline incision. Bleeding points are clamped with Kel-

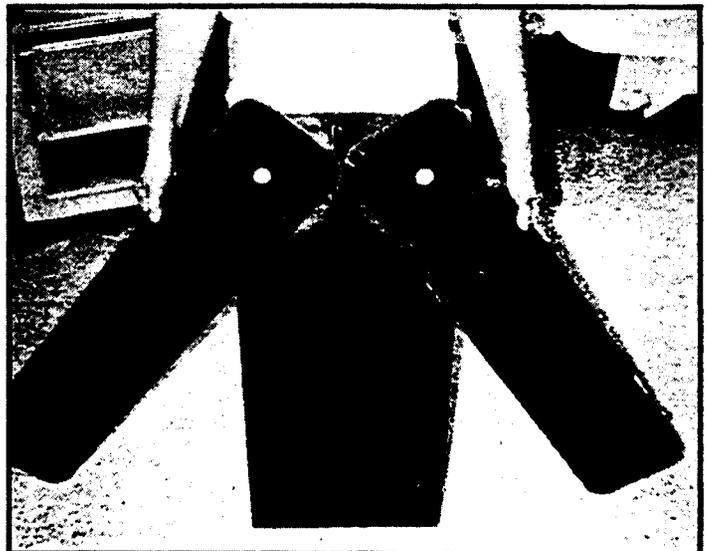


Figure 1. The lithotomy board.

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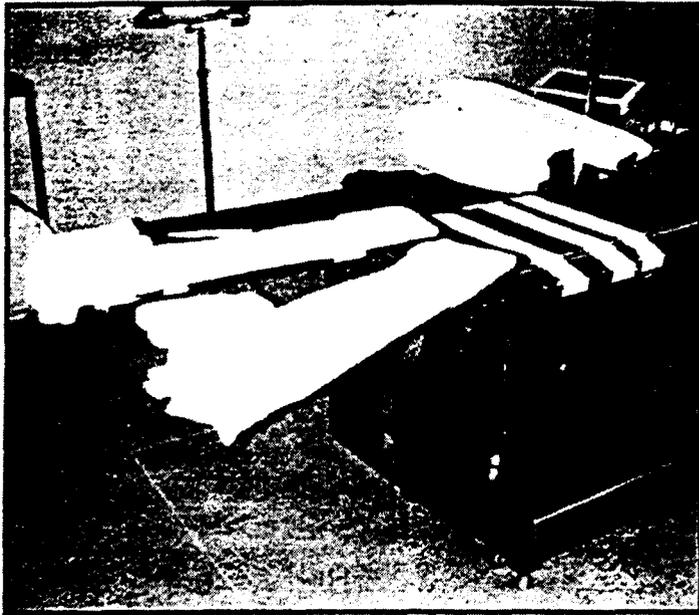


Figure 2. The lithotomy board in place on the operating table.

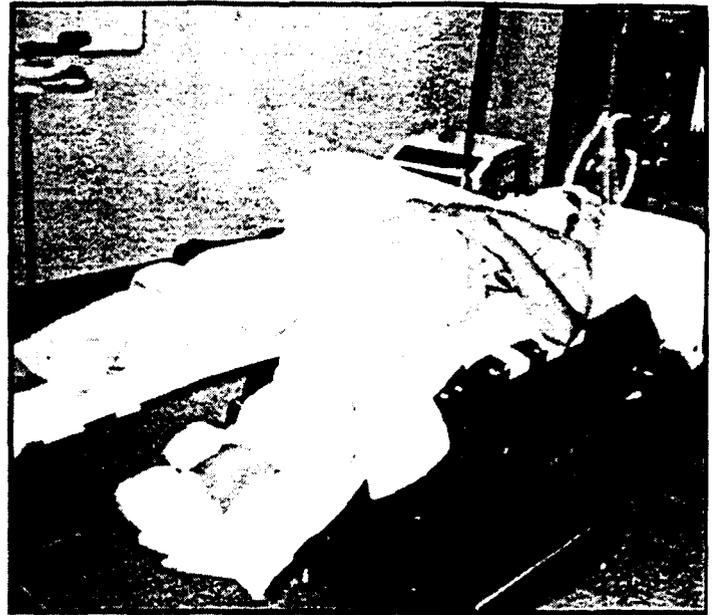


Figure 3. The patient is placed supinely on the table.

lys and cauterized. Larger vessels are clamped, cut, and tied with surgical gut. The peritoneal cavity is entered and the abdominal cavity is explored. The sigmoid colon is then isolated and the remaining colon and small bowel are packed off with lap tapes and the abdominal retractor the surgeon prefers. If the Balfour retractor, with upper extension, does not allow enough room for the surgeon and an assistant to work in the wound, something similar to a Wilkinson or Bookwalter retractor will afford more space.

The peritoneum is cut down into the area of the inferior mesenteric vessels. This is carried down into the pelvis on each side of the sigmoid colon and met in the middle anterior. Dissection is carried down posteriorly. The inferior mesenteric vessels are then clamped with heavy Ochsners, cut, and tied with heavy silk. The mesentery vessels are clamped, cut, and tied in the same manner.

It is now time to cut the bowel. At this time, the case becomes "dirty" due to the open bowel and fecal contents. My surgeon asks the scrub person to place a large square pan on the patient's lap. Towels are placed around the operative site. All instruments used during this phase of the surgery are placed in the pan on the lap. This keeps the Dubach stand from being contaminated with dirty instruments. The scrub person should pass only clean instruments as needed. The surgical assistant will pass from the dirty pan and will not contaminate the clean Dubach.

Two clamps are now placed across the proximal end of the bowel. We use Allen clamps and Stone intestinal clamps for this. A temporary umbilical tape tie is placed around the bowel above the two clamps. This prohibits contamination of stool into the open ends of bowel.

The rectal tumor is then palpated and dissection is carried down anterior and posterior. The bowel is tied with umbilical tape just above the tumor, and the tumor end of the rectum is then irrigated with water, followed by an antibiotic solution. This is done through the special rectal catheters that were inserted before the case. A clamp, usually a heavy Glassman, is then placed below the rectal

tumor. The bowel is then cut below the clamp, with the assistant grasping the bowel ends with long Allis clamps. The specimen is then removed from the sterile field. The rectal end is again cleansed from above with an antibiotic solution and gauze.

To make the anastomosis between the sigmoid colon and the rectum, stapling devices are usually needed. Making a hand-sewn anastomosis is very difficult if the anastomosis is very low in the pelvis. A pursestring suture is placed through the mucosal edges of both cut ends of bowel. This can be done by hand with a heavy absorbable suture or by using the newer automatic pursestring clamp. This clamp is placed across the bowel end and will automatically place the pursestring suture in the bowel when the device is "fired."

The Dubach stand is now moved from across the patient's legs, and the bottom drape sheet is lifted. The already draped legs are spread, and the surgical assistant moves to a stool between the legs. The assistant places a large-size end-to-end stapling device through the rectum. The surgeon ties the rectal stump about the shaft of the stapling device with the pursestring suture already in place. Then the proximal bowel is brought down over the blunt end of the device and tied around the shaft. The assistant below then closes the instrument and fires the stapling mechanism (Figure 4, A through E). The instrument is then opened and removed from below. The anastomosis is checked for any defects, any of which are hand-sewn closed (Figure 4, F and G). The proximal umbilical tie is removed from the bowel (the distal tie was removed with the specimen).

The legs are then brought together and a new sterile top sheet is placed over the now contaminated legs. The surgeon and all assistants who were contaminated during the case then remove the dirty instruments and all dirty towels and laps. They re-gown and glove, fresh towels are placed around the wound, and the Dubach is placed back over the patient's legs.

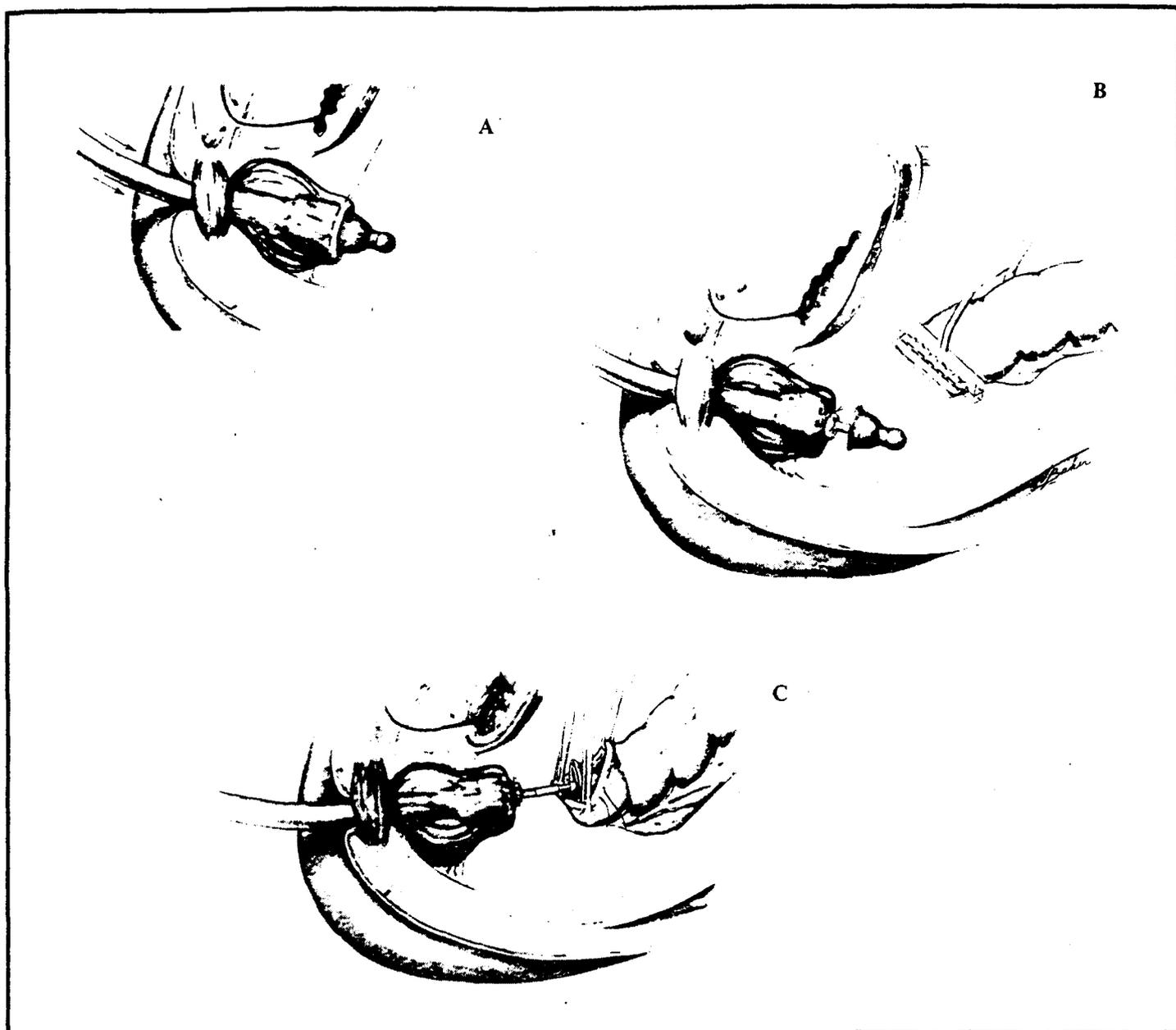


Figure 4. Premium CEEA™ instrument used to perform the anastomosis. **A,** Instrument is introduced transanally. **B,** Instrument is advanced to level of pursestring instrument. Pursestring instrument is removed, CEEA is opened allowing anvil to protrude from rectum, and rectal pursestring suture is tied. Pursestring instrument is applied around the proximal colon, pursestring suture is placed, and excess tissue is resected. **C,** Pursestring instrument is removed, tissue edges are grasped with Allis clamps, and anvil portion of instrument is inserted into proximal colon. (*Figure continued on next page.*)

The pelvic area is then isolated by suturing the peritoneum over the bowel with a small silk suture. The posterior spaces are closed in the same manner. The abdominal retractor is then removed, as well as all lap packs. The scrub person should now start the first count of suture, needles, sponges, and possibly instruments with the circulator. The surgeon and the assistant will be starting the closure of the abdominal wound.

The peritoneum is then closed with a continuous heavy absorbable suture on a general closure size needle. The surgeon may also use heavy retention suture or wire on a large cutting needle, through the skin, subcutaneous fat, and anterior fascial layer. The fascia is closed with inter-

rupted heavy silk. The skin is closed with skin clips.

Postoperative Care

Postoperatively, the rectal catheters will be left in the rectum for several days to allow for drainage from the rectum. The bladder catheter will also remain in place for several days. The patient will be kept on IV fluids and then graduate to a liquid diet for approximately 2 to 5 days postoperatively. This will help keep the new anastomosis from being traumatized by stool, giving it a chance to begin its healing process. The patient is usually able to leave the hospital, on a fairly normal diet, 5 to 7 days postoperatively.

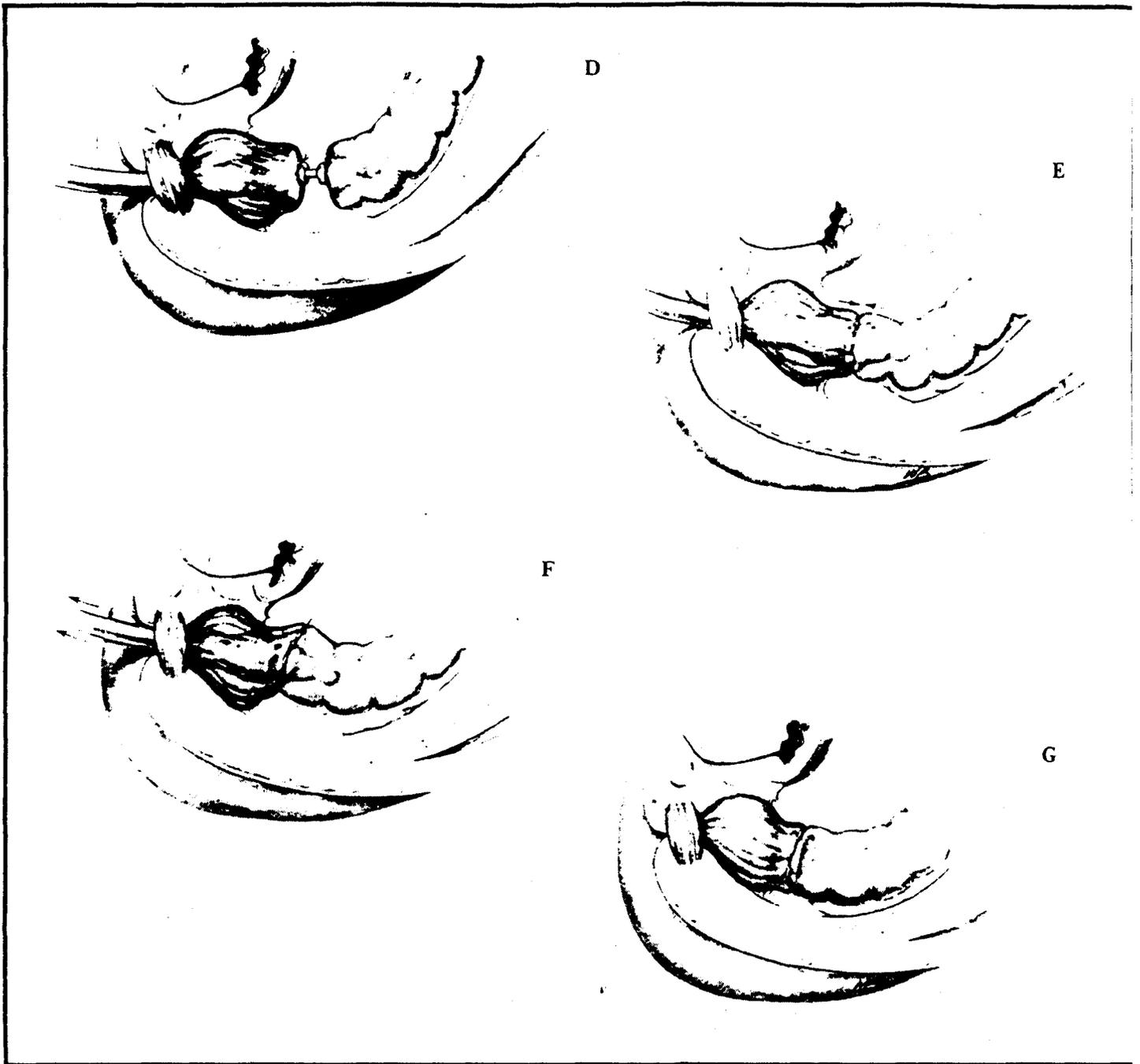


Figure 4 (continued). D, Pursestring suture is tied. E, CEEA is closed and fired. Circular double staggered row of staples joins the bowel and circular blade in instrument cuts a stoma. F, Instrument is opened slightly with traction or figure-of-eight suture around the staple line and is gently removed. G, Resulting anastomosis is shown with bowel wall transparent to depict reconstruction. (Used by permission of United States Surgical Corporation. All rights reserved.)

Summary

The most important treatment for the patient with a rectal carcinoma is, of course, to have complete removal of the tumor; however, the approach to removal varies. If the surgeon feels the tumor can be completely removed, and an anastomosis can be accomplished, the patient can be treated without the need for a colostomy. The operation itself is lengthy, but the surgical technologist can make the surgery proceed smoothly by having knowledge of the operating surgeon's routine. Having all supplies and instruments available before the case begins can save valu-

able operating time. In addition, careful sterile technique by the surgical technologist when doing bowel resections can help ensure the patient will not suffer postoperative complications from wound infection. □

Acknowledgment

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Bibliography

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