

# Is Laparoscopic Colorectal Surgery Staging a Comeback?

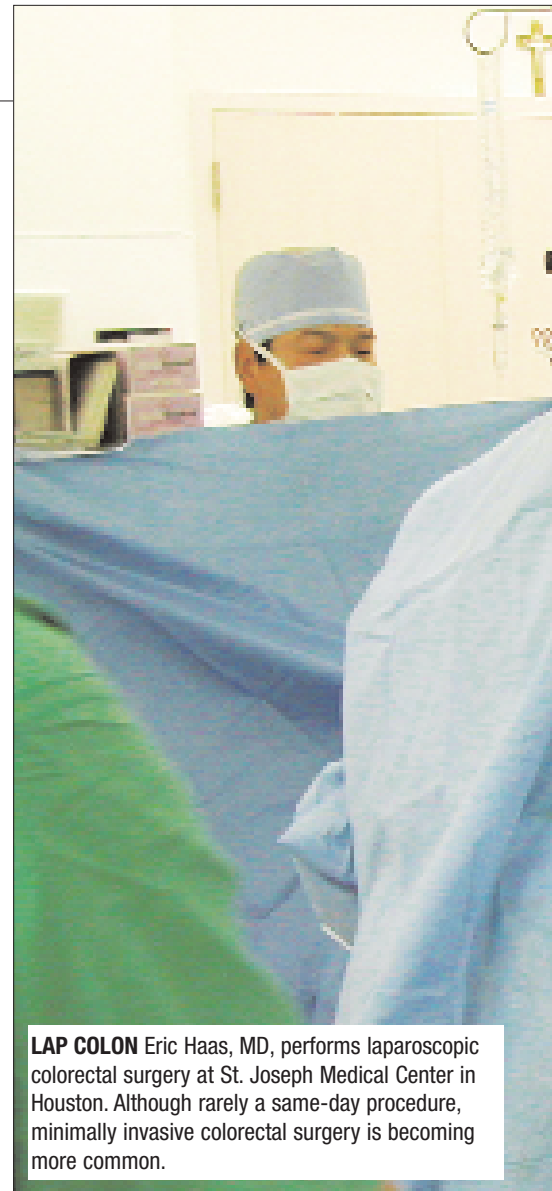
Laparoscopic colorectal surgery got off to a slow start in the 1990s because of concerns that the “little sticks” made it more difficult for the surgeon to effectively remove enough cancerous tissue and lymph nodes, compared to open surgery, as well as concerns over post-operative ileus, which can last 24 hours to a week. But experts we talked to say laparoscopy in colorectal surgery is making a comeback, thanks to better equipment, more positive evidence from clinical studies and more experienced colorectal surgeons. Here are seven signs pointing to colorectal surgeons doing more laparoscopic procedures.

**1. Keyhole surgery is here to stay.** Since minimally invasive techniques have been taught in medical schools for more than a dozen years, a whole generation of surgeons is comfortable with laparoscopy. Older surgeons are catching up and realizing that they get better results through smaller holes. But often the more complicated cases are passed on to younger surgeons, says Eric Haas, MD, FACS, program director of minimally invasive colon and rectal surgery at the University of Texas at Houston, who five years ago founded

Colorectal Surgical Associates in Houston, which specializes in minimally invasive approaches to colorectal disease.

**2. Hands-on laparoscopy is catching on.** Hand-assisted laparoscopy, using laparoscopic instruments and a camera as well as a hand through a larger incision, is becoming more common. For some surgeons, it's a way to transition from open surgery, reduce procedure time or manage complications.

David Rosenfeld, MD, a colorectal surgeon who operates at Simi Valley Hospital in Simi



**LAP COLON** Eric Haas, MD, performs laparoscopic colorectal surgery at St. Joseph Medical Center in Houston. Although rarely a same-day procedure, minimally invasive colorectal surgery is becoming more common.

Valley, Calif., says he's doing more and more hand-assisted procedures through a 5cm- to 6cm-incision whenever he needs to remove all or part of the colon. “Pure laparoscopists say you're cheating,” says Dr. Rosenfeld. “But you're making the same size incision to get the organ out.”

The hand-assisted technique — sometimes using a balloon trocar — can reduce procedure time, gives the surgeon more control over bleeding and puts less stress on the bowel tissue. With this method the colon can be resected outside the abdomen.



Colorectal Surgical Associates, Houston, Texas

## 7 signs that colorectal surgeons are pushing laparoscopy into the mainstream.

Kent Steinriede | Associate Editor

**3. Smaller tools, smaller holes.** In the last few years, laparoscopic instruments have become smaller, letting surgeons make more 5mm incisions rather than 10mm incisions, which used to be more common. Digital cameras, graspers, ultrasonic scalpels and tissue sealers can now pass through a 5mm trocar.

The smaller the incision through the abdominal wall, the less the chance of an incisional

hernia developing. With 5mm incisions, surgeons can access organs through more ports with more precision without worrying about hernias, scarring and adhesions. “We say fives are free,” says Dr. Haas. Scars and adhesions can make a patient unsuited for future laparoscopic surgery.

The instruments are thinner and allow more articulation. But there’s still a ways to go when it comes to precision with a light

touch. “You need delicate instruments to hold on to the bowel,” says Sonia Ramamoorthy, MD, FACS, assistant professor of colorectal surgery at the University of California, San Diego. She adds that there’s not much of a selection of laparoscopic instruments designed for colorectal surgery.

Camera optics and widescreen high-definition displays have improved over the years, letting surgeons see better and OR teams follow the procedure. New digital 5mm cameras create a clearer and much brighter image compared to the analog cameras of a few years ago, says Dr. Haas.

#### 4. More energy sources.

Facilities now have a wider choice of energy sources to offer surgeons for cutting, sealing and welding tissue, including ultrasound, electrocautery and electrosurgical devices. During a laparoscopic procedure, blood vessels and vascular tissue can be more easily sealed with bipolar thermal energy than with sutures or staples. At the same time, staplers have improved to equalize the compression. The current generation of staplers spread pressure across the staple rather than just at the edges, says Dr. Rosenfeld. With each new generation, devices become easier to

use and less traumatic on tissue, which translates to better healing, less scarring and adhesion and patients leaving the hospital sooner. "I keep most patients three days," says Dr. Rosenfeld.

#### 5. Improved efficacy.

Laparoscopic surgery is tricky because the surgeon is using long instruments through a trocar while looking up at the display screen. Colorectal surgery presents its own set of challenges because the colon is curved and not stationary like most other organs. The rectum is a difficult area to work in because of its size and proximity to other organs such as the prostate.

"There's a steep learning curve to laparoscopic surgery," says James Celebrezze, MD, FASCRS, FACS, an assistant professor of surgery at Drexel University College of Medicine and a staff surgeon at Allegheny Hospital in Pittsburgh. It takes about 50 procedures to become comfortable. The more laparoscopic colorectal procedures a surgeon performs, the better the outcomes.

Researchers have recently begun to release positive outcome data for colorectal procedures. A Cochrane Collaboration meta-analysis published in May found no significant differences between open and laparoscopic surgery in relation to long-term survival and colorectal cancer recurrence rates.

In another study, Dr. Haas and his colleagues at two Texas hospitals analyzed 100 consecutive laparoscopic surgeries for rectal

### The Hurdle Is Ileus

Laparoscopic colorectal surgery is rarely a same-day procedure because of the risk of post-operative ileus, which can last 24 hours to a week. "As soon as we can get over that obstacle, people can go home the next day," says Sonia Ramamoorthy, MD, FACS, assistant professor of colorectal surgery at the University of California, San Diego.

Although it is associated with opioid use, there's no known single cause of ileus. The FDA approved alvimopan (Entereg) in May for treating ileus. The drug shows promise in reducing post-operative hospital stays, especially after open surgery.

At the same time, physicians are challenging the dogmas of when patients should

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cancer and found no remaining markers for cancer. At least 12 lymph nodes should be removed to prevent recurrence. Dr. Haas and his colleagues were able to remove an average of 15 nodes, more than the standard for open surgery. "Technique matters, especially with rectal patients," says Dr. Haas. "Technical outcome has been linked to long-term survival."

### 6. Here comes the robot.

Surgeons are still experimenting, trying to figure out which procedures are best suited for robots. In general, it seems that more surgeons are using robots for rectal procedures than for colon procedures. In part that's because the rectum is small and stationary, the perfect application for a robot.

The success of robotic prostate surgery, however, has piqued the interest of colorectal surgeons, says Dr. Haas. "We're

begin walking in the hospital, drinking and eating food. "We're becoming more aggressive with getting people back on fluids and food," says Mehran Anvari, MB, BS, PhD, FRCSC, FACS, director of the Centre for Minimal Access Surgery in Hamilton, Ontario.

By using pain pumps to reduce the amount of narcotics, Dr. Anvari and his colleagues have been performing same-day laparoscopic colectomies for a few years. Since the patients are less likely to be nauseous, they're walking sooner and often can go home in less than 24 hours. Once home, however, patients receive home care for two to two-and-a-half days, says Dr. Anvari.

— Kent Steinriede

learning from the urologists."

With the robot, colorectal surgeons often are able to spare the sphincter and avoid colostomy, says Dr. Haas. But during colon procedures, the robot often needs to be moved a few times during the surgery because the colon is curved and not contained like the rectum or prostate. While still uncommon, robotic technology looms large for minimally invasive colorectal procedures.

### 7. Better instruments coming?

Robots are not cheap. They cost about \$1.3 million each, which makes them unsuited for every facility. Regardless, robots will eventually play a large

role in colorectal surgery, possibly indirectly. "Because of the robot, we're going to have better laparoscopic instruments," says Dr. Rosenfeld, who hopes that laparoscopic instruments will one day be able to mimic the articulation of robot arms.

Dr. Celebrezze would like to see the development of cordless instruments to eliminate the spaghetti-like mess that grows around the surgical site as the surgery progresses. "If someone could make cordless laparoscopic instruments, they'd make a mint," he says. **OSM**

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