

► Colonoscopy Smart Tech Increases Accuracy, Sensitivity of Evaluation

Endoscopists have a new, AI-powered “second set of eyes” that’s now improving their identification of cancerous or precancerous lesions. Smart, live, computer-assisted image analysis significantly increases adenoma detection rates in colonoscopy for routine screening, for surveillance, or for preventive diagnosis in patients with risk factors such as inflammatory bowel disease (IBD), vastly reducing the need for random biopsies.

“The system we are using, GI Genius™, highlights locations for us to examine, on screen, in real time while we conduct the scoping procedure,” explained Gregory Seltzer, MD, medical director of Virtua GI and Digestive Health. “It’s a huge aid for pointing us particularly to what might be sometimes difficult-to-differentiate hyperplastic lesions.”

An Assist for Detecting Areas of Concern

The technology integrates with existing colonoscopes, and Virtua is the only health system in South Jersey that has it in use at all of its hospital locations and at many of its ambulatory surgery centers. With high sensitivity, the system aids endoscopists in detecting colonic mucosal lesions, including those of various sizes and shapes, and those with flat, non-polypoid morphology. It helps confirm cases of multiple polyps and polyps in the distal and proximal colon. If movement occurs during the procedure, the system can help the operator relocate areas of interest.

Advanced endoscopists also have forms of endomicroscopy and endocytoscopy available that allow a deeper analysis of the intestinal mucosa at ultrastructural levels. This yields real-time histologic information.

Advanced Colonoscopy for IBD

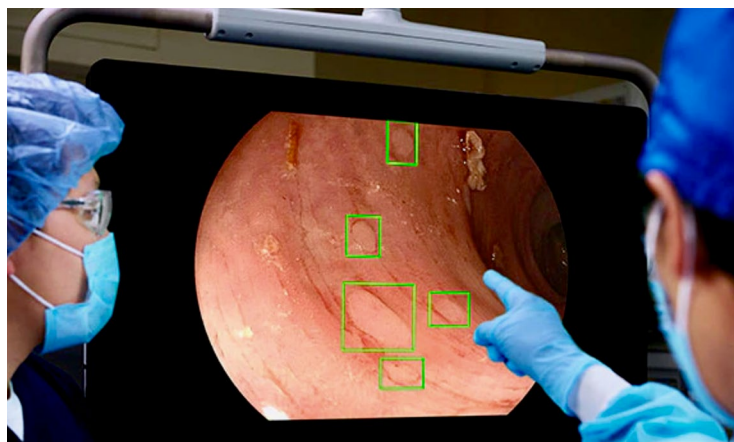
Computer-assisted colonoscopy also has potential in evaluating IBD, to differentiate or predict disease activity and detect dysplasia, which can be challenging in this patient population. Other advanced forms of colonoscopy are also important for monitoring these patients (and those

with additional risk factors, such as primary sclerosing cholangitis), who are at high risk for colorectal cancer. Depending on duration and severity of the disease, and other risk factors, these patients may need a surveillance colonoscopy every one to five years.

“To follow this cancer risk in our IBD patients, we are taking advantage of the smart scoping technology, just as we have integrated other advanced colonoscopic techniques,” said GI subspecialist Sanket Patel, DO, who recently joined Virtua to lead its multidisciplinary IBD program, after having completed an IBD fellowship at Cedars-Sinai Medical Center in Los Angeles. He sees IBD patients for second opinions, evaluation and treatment questions, and/or management.

Chief among the additional modalities, in use routinely for a subset of IBD patients, is chromoendoscopy, which involves the use of dyes under standard high-definition white light to highlight abnormalities, as well as dyeless (narrow-band or virtual) chromoendoscopy, which uses blue-light technology to improve characterization of detected lesions.

“We use multiple tools, appropriate to individual needs, because in most cases when the GI team catches colorectal cancer at a reasonable stage or spots impending colorectal cancer, patients can beat this disease,” said Dr. Seltzer.



Advanced colonoscopy now includes emerging technology that may rapidly become a standard of care. A computer, programmed to differentiate mucosal abnormalities, highlights suspicious areas for inspection. As the endoscopist controls the scope, the smart system superimposes indicators of locations for attention.

To reach a Virtua GI & Digestive Health specialist, call 856-237-8045

Decreasing Invasiveness of Diverticulitis Surgery

Diverticulitis not only necessitates colonoscopy typically for diagnosis, but is also a very common reason for colon surgery—a strategy for cases that don't respond and stabilize adequately through conservative measures. Fortunately for patients requiring removal of a segment of the colon, the surgery has become increasingly easier to undergo as the result of robotic-assisted laparoscopy.

Traditional open surgery for this need involves a significant pelvic/abdominal incision, often requiring months of recovery. Conventional laparoscopic surgery for this purpose significantly improved this scenario, decreasing pain-control measures and shortening healing time. This minimally invasive approach, though, entails four to five small-incision ports and widening of one of these incisions for removal of the resected portion of the colon.

Now, robotic-assisted laparoscopic surgery for diverticulitis has reduced both the number and size of these “buttonhole” incisions, bringing the need for only two or three such access points and merely requiring the colorectal surgeon to widen one of these ~1-centimeter openings (typically the camera port) to ~3 centimeters for removal of the resected tissue. While some programs are using natural-orifice removal of the resected portion, the method brings its own surgical challenges and danger of anorectal infections.

“Not only does the da Vinci robotic system give us high-definition visibility and more precision and dexterity in the surgical tools, but the abdominal wall is less disturbed this way and less exposed to the contaminated portion of the colon that we are extracting,” said Keith P. Meslin, MD, FACS, FASCRS, Virtua section chief for colorectal surgery. “And patients also experience less blood loss.”

With the approach, resectional surgery for diverticulitis takes less than two hours. Patients are out of bed the same day and, normally spend only two to three days in the hospital. Many can be back to most regular activities (with some restriction on lifting) in two weeks. In addition, the rate of interoperative conversion to open surgery has dropped to less than 1% in the Virtua experience, compared to approximately 20% when using manual laparoscopy.

“All this means that patients who have recurrent, intractable diverticulitis, who may have been hesitant to undergo surgery in the past, are more likely to seek the procedure, knowing that the experience will be less challenging than in the past,” said Dr. Meslin, who has performed more than 1,000 robotic colon procedures over the past 10 years. Virtua's colorectal surgery team also uses the robot-assisted system for colectomy for IBD and other conditions, and benefits diagnostically from Virtua's computer-assisted colonoscopy capability (*see page 1*).



A da Vinci robotic laparoscopy system is mounted and docked to begin a sigmoidectomy for diverticulitis.