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REPRINT**OLYMPUS SCOPEGUIDE™***Adding a New Dimension to Colonoscopy*

Colonoscopy has been a vital tool for colon cancer screening for decades. It also has the additional advantage of being the only method that allows for biopsy – and even treatment – during the screen. Performing colonoscopy is far from simple, however, and requires extensive training in learning to navigate the colon. A new instrument available from Olympus America, Inc., called ScopeGuide™, is designed to assist physicians and nurses during the procedure by allowing real-time 3D visualization of the shape and configuration of the scope.

According to Brian Saunders, M.D., a gastroenterologist at St. Mark's Hospital in London, the difficulty lies in “trying to pass one flexible tube through another flexible tube.” The colonoscope often buckles and loops back on itself as it probes deeper into the colon. An experienced practitioner can often feel a loop forming and undertake manual maneuvers to remove the kink. Learning to do so takes years of practice, however, and even then, some colons remain difficult to navigate “blind.” This is because, according to Saunders, the “internal anatomy is extremely variable between individuals.” In addition, the manual maneuvers required differ from one type of loop to the next, so the problem is generally solved through trial and error, even for an experienced endoscopist.

The ScopeGuide instrument from Olympus employs magnetic endoscopic imaging (MEI) to provide a three-dimensional view of the scope and its location within the colon



Olympus America: ScopeGuide™

in real time. Multiple small electromagnetic transmission coils located within the colonoscope itself generate a pulsed low-voltage magnetic field, which is picked up by a small receiver dish. The ScopeGuide unit calculates the location and orientation of each transmission coil, which is used to generate a computer rendering of the scope which can be displayed as a Picture-in-Picture window on the main monitor or an adjacent display.

Christopher Williams, M.D., consulting physician at St. Mark's Hospital in London, has been highly involved in ScopeGuide's development, having invented, with colleagues, an early prototype of the instrument in the early 1990s. He had previously used X-rays to image colonoscopy but cites a number of disadvantages to both patient and endoscopist, among them hazard

and expense. In addition, X-ray allowed for only a small window in two dimensions, whereas MEI provides the three-dimensional image needed to fully anticipate and prevent loops from forming in the colon.

A large degree of the pain and discomfort many patients experience during colonoscopy is due to these loop formations and the maneuvers needed to untangle them, or by a practitioner attempting to simply push the scope through a problem area. “Now I know I’m going to ‘win’ with a minimum of discomfort to the patient,” Williams says.

Several recent studies have questioned the effectiveness of screening with colonoscopy in prevention of colon cancer in the general population. As both Saunders and Seth Gross, M.D., (who is implementing ScopeGuide in his practice at Norwalk Hospital in Norwalk, Connecticut) point out, however, this may be more a problem of incomplete scans rather than an issue of the effectiveness of colonoscopy itself. Both have used ScopeGuide to train new endoscopists and have seen great benefit, as the new practitioner can see loops forming and better understand how their manual maneuvers counteract the curling and buckling of the scope. Saunders notes that his own technique improved after implementing ScopeGuide and feels other experienced endoscopists would note the same effect.

Williams and Saunders agree that there is a learning curve to using the instrument. “It helps to see it in action first,” Williams suggests, noting that it can take some practice to assimilate “using the scope, managing the patient, communicating with the nurse and reading two screen views.” (The monitor has an option to display an anterior-posterior view only or alongside a lateral view on a split screen display.) But after an adjustment period to the additional visual information, he says, “everything becomes logical and intuitive, instead of trial and error.”

Saunders says that it “transforms the whole procedure for everyone in the room. It becomes more interactive, as the nurses can see and therefore apply appropriate pressure.” (Nurses apply pressure to patients’ abdomens as part of the procedure, in order to help guide the scope through the colon.) Williams’ experience has been similar, as he has successfully performed procedures with only mild sedation without causing his patients discomfort. He says that being able to visualize the colon on the monitor relieves nurse fatigue, as they can view the scope’s progress, and therefore only need to apply pressure for seconds at a time.

“The success of the procedure depends on teamwork,” Saunders says. He has used ScopeGuide in more than 10,000 procedures during the past ten years.

The potential to conduct colonoscopy with minimal pain is one of the key benefits cited by Seth Gross, M.D., who is implementing ScopeGuide in his practice at Norwalk Hospital in Norwalk, Connecticut. “It’s the bowing that causes discomfort,” he says, adding that the instrument, allows him to “see the loop forming and make necessary adjustments... and keep the patient comfortable.” He is hoping that the instrument will allow him to perform the procedure without sedation.

“We’re missing a large number of those who could benefit from colonoscopy,” says Gross, “because they don’t want to lose a whole day and miss work.” Several of his patients have signed on to try the procedure without sedation. Gross believes the availability of ScopeGuide could do much to increase screening and, subsequently, detect colon cancer at an early stage when it is more treatable, thereby not only making colonoscopy procedures more pleasant for both doctors and patients, but potentially saving lives as well. ♦

For additional information about ScopeGuide™, please visit our website at www.olympusamerica.com/scopeguide.

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