Virtual colonoscopy offers visualization of colon in less invasive procedure

Virtual colonoscopy, also known as ‘CT colonography’ because the images are created by three-dimensional reconstruction of high-resolution CT (computed tomography) images, offers visualization of the colon similar to that of an optical colonoscopy in a less invasive and less time-consuming procedure.

Currently, virtual colonoscopy is being offered at UCLA to patients who require a colon study but have contraindications for the optical colonoscopy procedure, or for whom the optical colonoscopy has failed. Optical colonoscopy failure can be due to an obstruction in the colon or to the colon being too torturous to permit passage of the endoscope. Patients contraindicated for optical colonoscopy include those using anticoagulant drugs who cannot be taken off their medications.

Preparation and examination
The virtual colonoscopy examination may be performed acutely or electively. Following a failed colonoscopy, the patient can be referred for same-day virtual colonoscopy examination to take advantage of the already cleansed colon. When the virtual colonoscopy has been scheduled electively, the patient undergoes the required colonic preparation similar to an optical colonoscopy or barium enema, but with the addition of a small amount of barium to highlight residual stool.

For the examination, the patient is put on the CT table and the colon is distended with gas introduced through a small rubber tube inserted into the rectum. Two scans are performed while the colon is distended, one with the patient lying on his or her back and one lying on the stomach. After the two scans are completed, a powerful computer generates virtual-reality images of the inside of the colon. Physicians can then see a ‘fly-through’ view of the colon as if the patient was having an optical colonoscopy.

The CT procedure lasts for only about 10 minutes and, while the patient may experience some discomfort, no sedation is required. Optical procedures, by contrast, last longer and usually require sedation. In addition to being less invasive than an optical colonoscopy, the virtual procedure has the potential advantage of examining the rest of the abdomen and pelvis area. Its disadvantages include the inability to biopsy any polyp that may be seen.
Some patients are not good candidates for the virtual colonoscopy procedure. These include those with diverticulitis and extensive diverticulosis in whom it is difficult to distend the colon well for the procedure.

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Patients who have difficulty holding the gas within their colon are also poor candidates for virtual colonoscopy. This includes patients who have lost continence at their sphincter and many patients who have had prior colon surgery.

**Virtual colonoscopy under investigation as screening tool**

Due in part to the cost and discomfort associated with optical colonoscopy, relatively few of the patients who meet current guidelines are getting regular screening colonoscopies. The literature suggest that as few as 30 percent of patients who meet current guidelines actually undergo colon screening. Virtual colonoscopy is currently being studied as a possible screening tool for colon cancer and precursors to cancer in asymptomatic patients.

The question currently being studied is whether virtual colonoscopy offers adequate accuracy for the detection and characterization of polyps. UCLA is one of 15 institutions participating in a national trial of virtual colonoscopy as a screening tool. Patients being screened with optical colonoscopy are being asked to volunteer for a virtual colonoscopy on the same day. The study, which is sponsored by the National Cancer Institute and administered through the American College of Radiology Imaging Network, will compare the findings of the virtual and optical colonoscopies for each patient to help assess the virtual procedure's accuracy.

**Patient referral**

UCLA's clinical virtual colonoscopy program is a referral-only practice; patients cannot self-refer. For a consultation or to refer a patient for evaluation or diagnosis, please call (310) 301-6800 or fax (310) 794-9035. You can find additional information on our website at www.radiology.ucla.edu.

For patients who wish to participate in the National CT Colonography Trial, please direct referrals to the Study Coordinator at (310) 825-8547.

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