

Patient Information:

What is Virtual Colonoscopy?

Virtual Colonoscopy is a new method that allows doctors to look at the large bowel (colon) to detect polyps and cancers. Polyps are small growths in the colon that may become cancerous if they are not removed. Virtual Colonoscopy is a recently developed technique that uses a CT scanner and computer virtual reality software to look inside the body without having to insert a long tube (Conventional Colonoscopy) into the colon or without having to fill the colon with liquid barium (Barium Enema). Research performed at Boston University and elsewhere has shown that Virtual Colonoscopy is better able to see polyps than Barium Enema and is nearly as accurate as Conventional Colonoscopy. In addition, most patients report that the Virtual Colonoscopy technique is more comfortable than either Barium Enema or Conventional Colonoscopy.

Why is it important?

Colorectal cancer (CRC) is a leading cause of cancer-related death in the United States.

In 1999, approximately 140,000 cases of colon cancer will be diagnosed in the United States, and 60,000 patients will die of the disease. Colon cancer can be prevented if polyps are discovered and removed early. Tumors, masses of abdominal cells, take years to develop. Initially, a cell from the colon starts to multiply abnormally and forms a benign (non-cancerous) polyp, which can remain harmless for a long time before becoming an aggressive cancer. Polyps, when detected, can be removed preventatively. Nevertheless, individuals at greatest risk of developing colorectal cancer remain largely under-screened. This is due, in part, to poor public awareness and acceptance of current screening techniques.

What are the current methods used to detect polyps?

There are several tests that are used to try and detect polyps. Several government agencies as well as the American Cancer Society recommend that patients undergo a test that allows the doctor to see the entire colon at age 50 and then every three to five years. Currently, there are 2 accepted methods for seeing the entire colon; the Conventional Colonoscopy and the Barium Enema. Other tests like the Flexible Sigmoidoscopy or Rigid Sigmoidoscopy which can only see a small portion of the large bowel (colon) are considered inferior tests. Although the Barium Enema and Conventional Colonoscopy permit visualization of the entire colon, the sensitivity of Barium Enema is far from optimal and is uncomfortable both for the patient and the examiner. Conventional Colonoscopy is associated with increased risk and cost. Conventional Colonoscopy is unable to see the entire colon in one out of ten people. In addition, Conventional Colonoscopy may cause an injury of the colon (tear or perforation) in 1 of 1,500 patients. Medication given into the vein (intravenous sedation) is usually required to make the exam bearable and therefore patients cannot resume normal activities immediately after the test. The introduction of a safe, noninvasive, and effective method of detecting colorectal polyps and cancers has obvious appeal and has been the reason researchers at the Center for Virtual Colonoscopy at Boston Medical Center are pursuing evaluation of Virtual Colonoscopy.

How is it done?

Virtual Colonoscopy uses a standard computer tomography (CT or CAT scan) of the abdomen, which allows radiologists (special physicians with advanced training in x-ray imaging) to create pictures on the computer that look similar to those seen by Conventional Colonoscopy. Patients need a cleansing preparation of their bowel prior to the test. The day of the test, they come to the Radiology Department for a CT scan. The actual Virtual Colonoscopy procedure will begin by having a small flexible rubber tube placed in the rectum, so that air can be introduced. A CAT scan is then performed while patients lie comfortably on their backs and then on their stomach. The total time required for the study is approximately 10-20 minutes. Because sedation is not required, patients are free to leave the CT suite immediately without the need for observation or recovery. Patients can resume normal activities immediately after the procedure and can eat, work or drive without delay. Doctors (radiologists) analyze the CT data to detect colon polyps or cancer.

Is it painful?

When air is introduced in the colon some patients experience minimal temporary abdominal cramping or “gas pains”. An intravenous injection of a widely used medicine to relax the bowel can also be given to help reduce gas pains, but this is usually not necessary.