

Tale of Two Studies: Cutting Through Confusion on Virtual Colonoscopies

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In the past five months, two of the country's most respected medical journals published major studies on virtual colonoscopy that appeared to reach opposite conclusions.

First, the New England Journal of Medicine said the high-tech scanning procedure worked just as well as regular colonoscopy -- a potentially dramatic finding that could prompt more widespread colon-cancer screening among patients wary of the traditional procedure.

But just two weeks ago, the Journal of the American Medical Association published a study that concluded the virtual scan was far inferior to the traditional procedure, missing half to nearly two-thirds of potentially cancerous polyps.

So who's right? The answer offers a telling lesson into the limitations of scientific research and medical politics. And it should serve as a warning to doctors and patients against placing too much stock in any single medical study.

The bottom line is that not all virtual colonoscopy procedures are equal, and the studies looked at vastly different technologies and scanning methods.

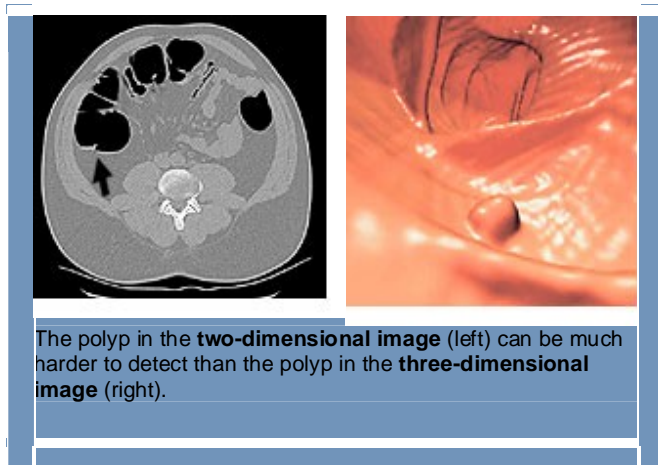
The NEJM study was ground-breaking because it used a new type of scanning technology that relied primarily on three-dimensional images, making it more similar to the standard procedure. In a regular colonoscopy, a gastroenterologist inserts a scope into the rectum, and a camera provides video images of the colon. The 3D scan creates a similar view, and even allows a radiologist to zoom back and forth through the image of the colon and take a second look -- something you cannot do with regular colonoscopy.

The downside is that the 3D technology is available in only about 50 centers around the country. But that may change soon: Yesterday, the Food and Drug Administration approved a 3D technology for broader use than any other virtual-colonoscopy tool, making it likely that more centers will adopt it. The advanced 3D software rendering tool made by closely held Viatronix Inc. of Stony Brook, N.Y., won approval for use in routine colon-cancer screenings, whereas previously virtual colonoscopy was approved only to give doctors an additional view of the colon, but not to diagnose or screen.

The more recently published Jama study, which found virtual colonoscopy to be inadequate, primarily used a two-dimensional virtual-scanning procedure. Although most scanning centers today use a version of 2D technology, radiologists say the 2D version used in the Jama study was far out of date. Although the study was only recently published, it actually ended 2½ years ago, making it older than the NEJM study, which was published five months ago.

"It's such a rapidly expanding field, to really even report on something several years old is ancient in terms of current medical technology," says Perry J. Pickhardt, a radiologist at the University of Wisconsin Medical School and a lead author of the NEJM study.

One of the biggest criticisms of the Jama study was that the radiologists viewing the virtual scans had almost no training, but the gastroenterologists performing the regular colonoscopies used for comparison were highly skilled.



In the Jama study, the radiologists were required to have viewed only 10 scans. By contrast, in the NEJM study, the radiologists had viewed at least 25 scans and some had reviewed 100 or more.

"It's outrageous," says Judy Yee, vice chairwoman of radiology at University of California-San Francisco medical school. "It was a very unfair methodology, and it was

a fatal flaw."

But the study authors say the research was important because it more closely mimics the expertise and technology currently available to most patients. "What you're going to see across the U.S. is not necessarily this super-specialized group that can do this well," says Brenda Hoffman, gastroenterologist at the Medical University of South Carolina in Charleston who worked on the Jama study. "If you're talking about putting something out for screening, you've got to look at what Joe Blow radiologist can do in the community."

Finally, some experts have questioned why Jama would publish such an old study, and say the timing raises questions about a turf battle between gastroenterologists -- who typically support standard colonoscopy, which they perform -- and radiologists -- who are pushing scanning technology. It's notable that the Jama study was led by a gastroenterologist, while the NEJM study was led by a radiologist.

Jama Executive Editor Phil Fontanarosa says the study itself was performed by both radiologists and gastroenterologists, and it was peer-reviewed by specialists in both fields. He says the study was published, in part, because it reflects the conditions under which virtual colonoscopy scans are done in the real world today. "I think the message of the paper," says Dr. Fontanarosa, "is that we need to refine things a little better before this technique is disseminated widely into clinical practice."

For patients who want virtual colonoscopy, the two studies show that patients need to ask a lot of questions. Patients can seek out the 3D procedure, or, if a 2D procedure is used, at least make sure it's the most up-to-date version. Radiologists say the experience is also important. Ask whether the radiologist has reviewed at least 25 to 50 scans and how many of those cases were verified by other experts.

"The take-home message is that virtual colonoscopy is a very promising technique with state-of-the-art methods and radiologists who are trained," says Dr. Pickhardt. "You can't just walk into any clinic advertising virtual colonoscopy."

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