

Virtual colonoscopy in routine practice?

Commentary by
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Case scenario

I recently saw a patient with a worrying change in bowel habit. She was very reluctant to have a colonoscopy because a relative had suffered a perforation during a diagnostic procedure, so we compromised and she underwent a virtual colonoscopy. However, the ensuing report said that the procedure was done on the understanding that pathology could not be entirely excluded. Is virtual colonoscopy a reasonable option? Did I waste my patient's time and money?

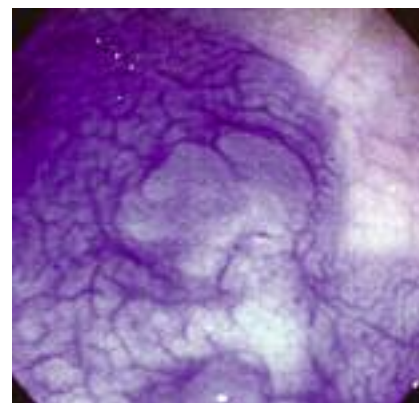
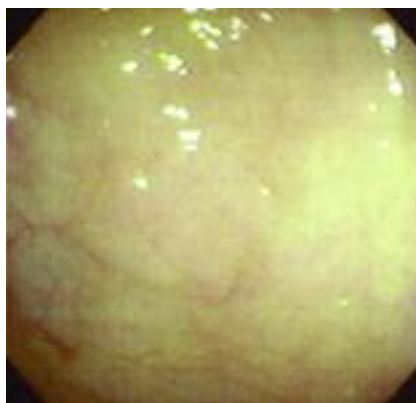
Commentary

Virtual colonoscopy is more accurately termed computed tomography colography. It has been made possible by fast spiral CT scanners, which generate high resolution, two-dimensional axial images that are used to reconstruct three-dimensional images of the colon, simulating those obtained with standard colonoscopy.

Virtual colonoscopy has the advantage of being noninvasive and, therefore, is potentially free of major complications and the need for sedation. However, it still requires bowel preparation (perhaps the most unsavoury aspect of colonic imaging) and suffers from the disadvantage of being unable to obtain tissue samples for histopathology or provide a therapeutic endpoint. If a polyp, neoplasm or stricture is detected, the patient must be subjected to standard colonoscopy and polypectomy or tissue biopsy as the case may be.

Serious concerns have arisen over the

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Figures 1a and b. Dye spraying during standard colonoscopy. a (left). No polyp is visible in the unstained view. b (right). Staining has defined an imperceptible sessile polyp.

accuracy of virtual colonoscopy. Results from prospective comparative trials at centres with substantial experience (where time for reporting films and diagnostic accuracy are optimal and unlikely to be duplicated in community practice) have been disappointing. In a recent Australian study involving 100 patients, when compared with standard colonoscopy, virtual colonoscopy's sensitivity for detecting polyps of 10 mm size or greater was only 73%. About 10% of polyps of this size will contain a focus of carcinoma. Obviously, this is unacceptable. By comparison, at least one large study has confirmed that the sensitivity of conventional colonoscopy for colorectal cancer when performed by gastroenterologists in community practice is greater than 97%. The sensitivity of barium enema for detecting colorectal cancer in this study was 81 to 85%.

More recently, debate has emerged on whether standard colonoscopy alone is sufficiently sensitive to detect adenomatous polyps. It is believed that about two-thirds of colorectal cancers arise from conventional colonic polyps. The National Polyp Study in the USA, involving over 1400 patients who had undergone colonoscopy and polypectomy, showed that this intervention reduced the expected incidence of colorectal cancer in follow up by more than 90%.

Recent Japanese reports have raised the possibility of alternative pathways for the genesis of colorectal cancer. Lesions that are termed flat or depressed colorectal adenomas appear to progress to frank

neoplasia at a much smaller size (less than 10 mm) and may be undetectable by standard colonoscopy. Japanese investigators have been advocating routine dye spraying during colonoscopy to facilitate detection of these subtle lesions (Figures 1a and b). A recent US study involving 'western patients' found a 20% prevalence of flat and depressed lesions. This area requires further research, but it seems unlikely that virtual colonoscopy will ever obtain the resolution required to demonstrate these diminutive lesions.

Recent prospective studies have shown that when standard colonoscopy is performed by appropriately trained and experienced endoscopists, the risk of a major complication (perforation or haemorrhage requiring hospital admission or transfusion) is less than one in 5000 procedures. It is generally very safe.

In summary, available data on virtual colonoscopy are limited and the results varied, so its place in diagnosis remains undefined. Virtual colonoscopy has not been endorsed by any major guideline group and cannot be recommended for routine clinical practice. Standard colonoscopy has an acceptable safety profile and is currently the most accurate means of colonic imaging.

Virtual colonoscopy holds great promise if its sensitivity can be improved. Its major potential is likely to be realised in large scale colorectal cancer screening for average risk individuals. **MT**

A list of further reading is available on request to the editorial office.

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Further Reading

1. Mendelsson RM, Foster NM, Edwards JT. Virtual colonoscopy compared with conventional colonoscopy: a developing technology. *Med J Aust* 2000; 173: 472-475.
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4. Rex DK, Rahmani EY, Haseman JH. Relative sensitivity of colonoscopy and barium enema for detection of colorectal cancer in clinical practice. *Gastroenterology* 1997; 12: 17-23.