

Points

- Till date, fiberoptic colonoscopy has been the gold standard for the evaluation of colonic mucosa and lumen
- Virtual colonoscopy using a 64-slice CT scanner is also able to visualize the mucosa and lumen
- Virtual colonoscopy is now considered an acceptable tool for the regular screening of colonic polyps

Virtual Colonoscopy

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With the advent of 64-slice CT, imaging of the colon has progressed significantly. For a long time, fiberoptic colonoscopy has been the gold standard for visualizing colonic mucosa. Virtual colonoscopy allows minimally invasive evaluation of the large bowel, and holds significant promise for large-scale colorectal cancer screening.

Technique

The patient is adequately prepared as for fiberoptic colonoscopy. After instillation of atmospheric air in the large bowel through a rectal tube, the patient is imaged in the prone and supine positions in 64-slice CT scanner.

The data obtained is then reconstructed on a workstation into two and three-dimensional images. Fly-through images (Fig. 1A) and movies, which simulate fiberoptic colonoscopy are created using special software. Double contrast images (Fig. 1B) are also created to simulate a double contrast barium study. All these images allow us to accurately evaluate colorectal polyps (Fig. 2) and masses (Fig. 3).

Other disorders of the large bowel like ulcerative colitis (Fig. 4), strictures, infective and inflammatory disorders and diverticulosis (Fig. 5) can also be visualized with virtual colonoscopy.

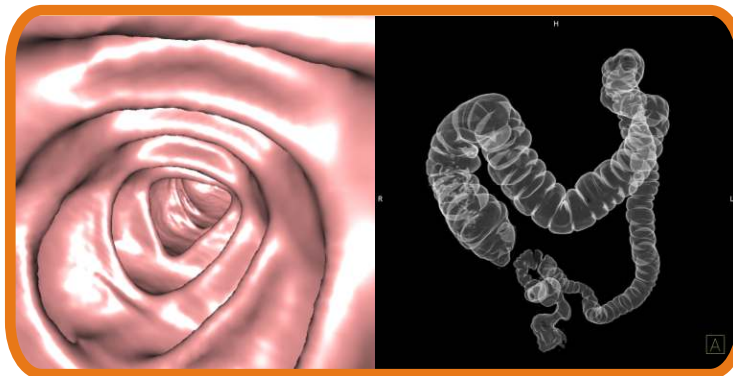


Fig. 1A

Fig. 1B

Fig 1 (A, B): Normal patient with an intraluminal fly-through image (A) through the transverse colon and a double contrast (B) image of a normal colon.

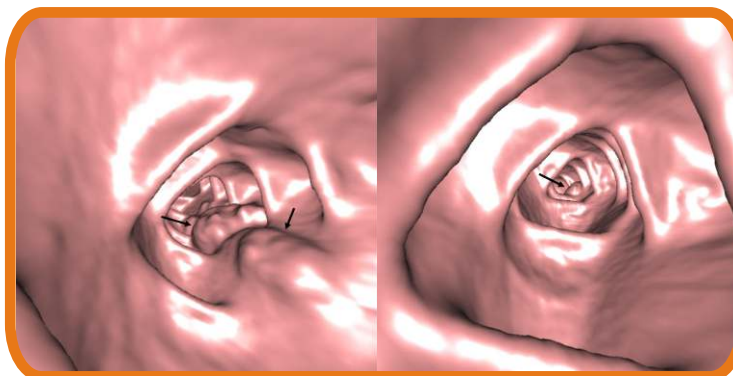


Fig. 2A

Fig. 2B

Fig 2 (A, B): Fly-through images in two different patients show polyps (arrows) in the transverse colon.

The online version is up at <http://www.jankharia.com/innerspaces/current.htm>

Virtual Colonoscopy avi file visit : hp://www.jankharia.com/innerspaces/Virtual_Colonoscopy.htm



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Indications

- Colorectal cancer screening
- Suspected polyp or intraluminal mass
- Occlusive cancer
- Incomplete or failed fiberoptic colonoscopy
- Patients who refuse fiberoptic colonoscopy

Advantages

- Minimally invasive
- No or minimal sedation

- Good patient compliance
- Lesser risk for perforation
- Can “look” behind a mucosal fold or beyond a stricture where the scope cannot pass
- Visualization of extracolonic structures

Disadvantages

- Ionizing radiation
- Biopsy not possible
- Occasionally, fecal material may appear as polyps.

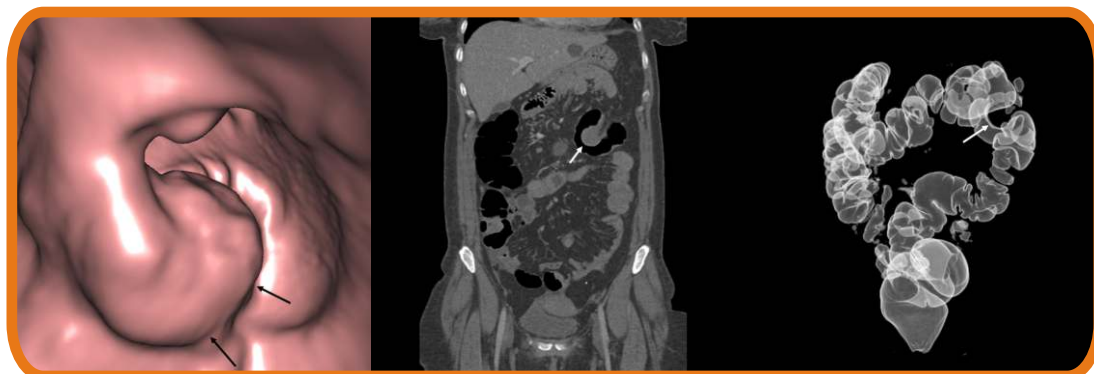


Fig 3 (A-C): Ca colon. Fly-through (A), coronal 2D (B) and double contrast (C) images show an intraluminal mass.

Fig. 3A

Fig. 3B

Fig. 3C

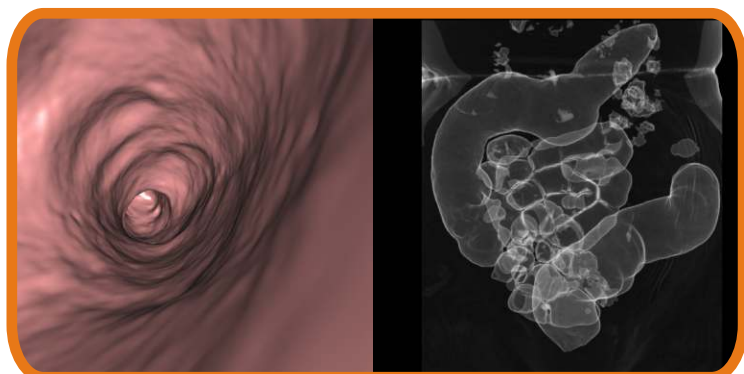


Fig 4 (A, B): Ulcerative colitis. Fly-through (A) and double contrast (B) images show a typical featureless colon with loss of the normal haustral pattern (compare with Fig. 1A).

Fig. 4A

Fig. 4B



Fig. 5

Fig 5: Diverticulosis. Double contrast image shows multiple diverticuli.

Designed by



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Owner, Printer & Publisher: Dr. Bhavin Jankharia, Published at: Dr. Jankharia's Imaging Center, Bhaveshwar Vihar, 383, S.V.P.Road, Prarthana Samaj, Mumbai 400 004.
Printed at: India Printing House, First Floor, 42, G D Ambekar Marg, Opp. Wadala Post Office, Wadala, Mumbai 400 031

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