



European Society of Gastrointestinal and Abdominal Radiology Consensus statement on CT Colonography- 2006

Bowel preparation and tagging agents

Use of oral tagging agents should be considered in patients undergoing colorectal cancer screening using CTC. Full bowel purgation is acceptable although reduced purgation is also acceptable where local interpretative expertise exists. Symptomatic patients should receive full bowel purgation (if tolerated). Additional oral tagging agents are optional. The choice of oral tagging agent should be based on local experience with due regard given to any history of allergy.

Colonic distension

In general, spasmolytics should be used routinely. Selective administration, either in the context of sub-optimal distension or patient discomfort is acceptable. Hyoscine butylbromide is the agent of choice but glucagon may be used if hyoscine butylbromide is contra-indicated.

Carbon dioxide is the distension agent of choice but room air is an acceptable alternative. When available, **automated insufflation of carbon dioxide is optimal**, although manual techniques are acceptable.

Use of thin rectal catheters for gas administration are preferable, although judicious use of small volume inflated rectal balloon catheters may be considered in incontinent patients.

Both supine and prone acquisitions should be obtained routinely. Lateral decubitus positioning is an alternative if the patient is intolerant of the prone position.

IV contrast

Intravenous contrast should be administered to symptomatic patients, either routinely or if deemed appropriate after immediate image review.

Intravenous contrast should not be administered routinely to asymptomatic screening patients unless deemed necessary after immediate image review

Technical parameters

Effective slice width should be less than 3mm. For supine and prone non-IV contrast enhanced acquisition, a tube current of 100mAs or less, and 50mAs or less respectively should be used. Exact currents will be dependent on available CT technology. For contrast-enhanced scans, a tube current of 50mAs or less (non contrast enhanced prone acquisition) and 100-200mAs (contrast enhanced supine acquisition) is optimal. Exact currents will be dependent on available CT technology.

Reading protocol

Datasets should be analysed by a combination of 2D axial images, 2D MPRs and 3D rendering.

Datasets with full bowel purgation, either with or without oral tagging agents, may be read by primary review of 2D axial images with MPRs and 3D rendering reserved for problem solving, or by primary review using 3D rendering, with 2D reserved for problem solving. Choice of primary analysis method will be dependent on reader experience, preference, and available software.

Reduced purgation datasets with oral tagging agents should be interpreted using primary review of 2D axial images with MPRs and 3D rendering reserved for problem solving. A complementary full review of the 3D rendered dataset may additionally be performed.

To avoid reader fatigue, it is recommended that no more than 10 CTC datasets be read in any 4 hour reporting session.

Maximum polyp diameter may be measured using either the 2D MPR image best showing the maximum diameter (using standard colon windows e.g. width 1500, level -150), or from a 3D rendered image.

Computer aided diagnosis

Use of computer aided detection (CAD) software is likely to improve reader performance, regardless of experience. Any clinically useful CAD product should reliably detect 80% of polyps 6-9mm and 90% of polyps 10mm or greater. Polyps 4mm or less need not be reliably detected. The optimal reading paradigm for CAD software is not established.

Training

The number of endoscopically verified training cases required to achieve reporting competency in day-to-day clinical practice is poorly defined and dependent on individual reader experience and aptitude. However, an absolute minimum of 50 cases should be read during training, with examples of both tagged and non-tagged data. Readers should undergo testing after training to ensure competency. The test dataset should include at least 20 cases with a prevalence of abnormality between 21 and 50%.

Once competency is proven, further interval re-testing, although desirable, is not mandatory. However readers should ensure feedback is obtained on a regular basis from cases referred for endoscopy.

Implementation and Reporting

CTC is preferred by patients over barium enema, and is now the radiological investigation of choice for symptomatic patients, assuming adequate local expertise and infra-structure. CTC may be considered as a primary colorectal cancer-screening tool, but only when validated local expertise is in place. Further research is required before population wide screening using CTC can be recommended.

Extracolonic organs should be evaluated in asymptomatic screenees and findings of high (such as aortic aneurysm) and moderate (e.g. gallstones) clinical importance reported. Findings of low (e.g. renal cysts) importance may be reported depending on locally agreed policy.

Polyps less than 5mm should not be reported in either asymptomatic screenees or symptomatic patients, providing agreement for such a reporting policy has been made with those referring patients. A reasonable minimum size for reported polyps is 5 or 6mm, depending on local preference.