VeraLook

iCAD

VeraLook CAD for CTC Detects Flat Polyp Missed During Initial Read

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Computed Tomographic Colonography (CTC), also known as Virtual Colonoscopy, has been shown to be highly effective in the detection of polyps and masses in the colon.[1, 2] It is possible however, for radiologists to overlook visible polyps even after careful review of the study.[3] CTC Computer-Aided Detection (CAD) has been shown to be effective in the detection of polyps in the colon[4] and to have a positive effect on reader sensitivity.[5] VeraLook® CAD for CTC is sophisticated, patent-protected software designed specifically to detect & highlight potential polyps. Radiologists read CTC studies according to their standard protocol without CAD, and then turn on the CAD for a second read.

VeraLook's algorithms have been trained with images from over 1000 patient studies to search for and highlight clinically significant types and sizes of potential polyps and adenomas. It uses pattern recognition and artificial intelligence to identify and mark regions of interest for further clinician review.

Dr. Abraham Dachman, Professor of Radiology at the University of Chicago Medical Center, has been interpreting CTC studies for 14 years. In the case study outlined below, Dr. Dachman demonstrates how the use of VeraLook CAD for CTC can support increased reader sensitivity by detecting a small, flat polyp that would have been difficult to identify using only a primary read.

History

51 year old male undergoing routine colorectal cancer screening. No signs or symptoms.

Patient Preparation

The patient underwent a one-day prep with a liquid diet, afternoon 2 liter cathartic with polyethylene glycol (HalfLytley™). 60 cc iohexol (Omnipaque™) was given in divided doses in the evening prior to the exam after completing the cathartic and on the morning of the exam.

Virtual Colonoscopy Technique

Colonic insufflation was performed with CO_2 using a mechanical insufflator (ProtoCO_2L®, Bracco Diagnostics, Inc.) to patient tolerance. The patient was scanned supine and prone on a Philips 256 Brilliance iCT scanner, 30 mAs, kVp 120, (CTDIvol 1.91 mGy/series) 128 x 0.625, 1.25 mm slice thickness, 0.75 mm increments.

Interpretation

The exam was interpreted on a Viatronix V3D™ Colon Workstation using iCAD VeraLook 1.0 with a primary 3D read with 2D problem solving.

Case Study

Findings

The patient preparation was excellent and the colonic distention was excellent. A small amount of residual fluid was well-tagged with oral contrast.

There was a 7mm sessile lesion seen on the 3D supine view. However, it could not be found on the initial 3D review of the prone data set. VeraLook CAD was then turned on and showed a flat polyp candidate in the sigmoid colon on the prone view in the corresponding location. The change in colonic distention caused the polyp to flatten and become less conspicuous. The polyp was confirmed on optical colonoscopy.

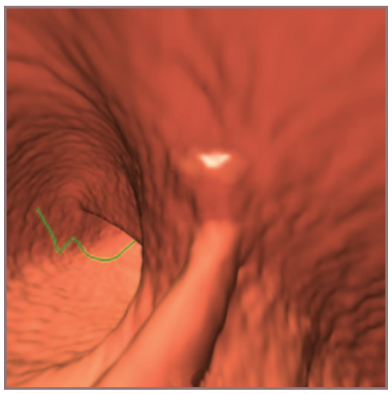

Figure 1A. Prone 3D view, CAD off. The polyp is on a fold at the point of a colonic bend and was inconspicuous.

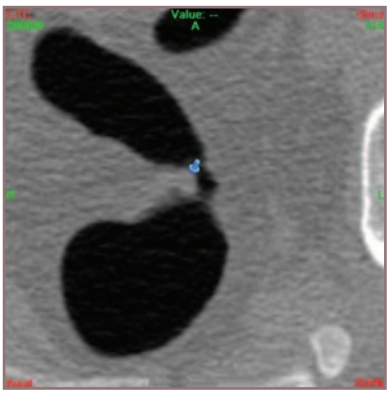

Figure 1B. Corresponding prone 2D view with CAD off.

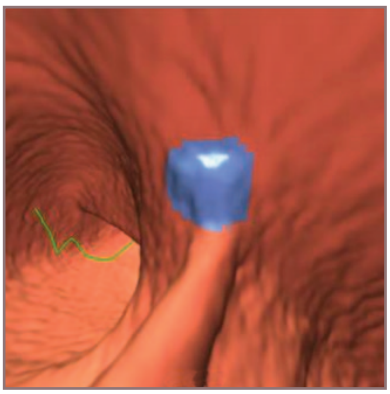

Figure 1C. Prone 3D view, VeraLook CAD on. The lesion is now obvious and confirmed on 2D.

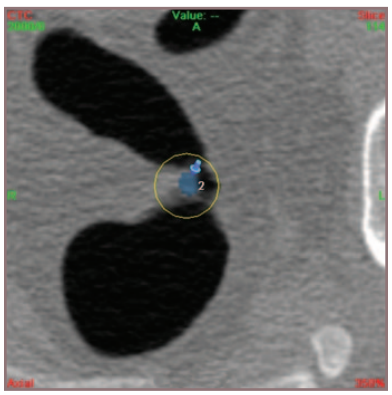

Figure 1D. Prone 2D view with VeraLook CAD on.

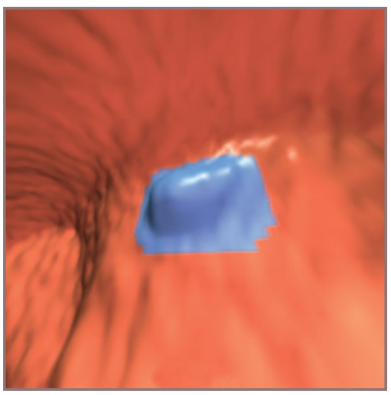

Figure 2A. Supine 3D view with VeraLook CAD on. The lesion was well seen even without CAD, but proof that it is not untagged stool required careful comparison to the prone view.

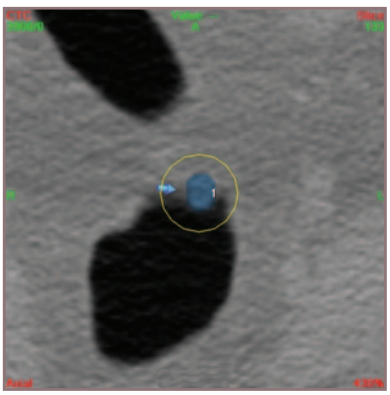

Figure 2B. Supine 2D axial view, VeraLook CAD on.

[1] *Pickhardt, et al., "Computed tomographic virtual colonoscopy to screen for colorectal neoplasia in asymptomatic adults", N Engl J Med 2003; 349:2191-2200.*

[2] *Johnson CD, et al., "Accuracy of CT colonography for detection of large adenomas and cancers." N Engl J Med 2008; 359:1207-17.*

[3] *Summers, et al., "Computed tomographic virtual colonoscopy computer-aided polyp detection in a screening population", Gastroenterology 2005; 129:1832-1844.*

[4] *Doshi, et al., "CT Colonography: False-Negative Interpretations", Radiology 2007;244:165-173*

[5] *Petrick, et al., "CT colonography with computer-aided detection as a second reader: Observer performance study", Radiology 2008; 246:148-156*

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