Abstract:

Background:
Virtual Colonoscopy (VC), using CT imaging, is a novel method of detecting colorectal polyps. Rapid and reliable methods of screening the images for abnormalities are not yet available. We report on our preliminary results using imaging software in “polyp flagging”.

Methods:
CT colonography datasets were obtained, using a Siemens Somatom 4 spiral CT scanner and standard image acquisition parameters. Custom image-analysis software was used to process DICOM images, and potential polyps were flagged based on their size and morphology. We generated 3D models, using the 2D slices of the region around the potential polyps, in order to provide a more informed decision on polyp presence. In addition to standard 3D models, stereo (virtual reality) models were also provided to enhance visualisation.

Results:
This method of analysis can detect polyps > 5mm in size and cope with several different morphologies. Current results indicate that the detection of true positives is good although the percentage of false positives is still quite high.

Conclusions:
Automated flagging of polyps using this technique facilitates rapid screening of CT-acquired datasets for abnormalities. This will provide a non-invasive means of detecting those at higher risk of colorectal carcinoma. Validation of this technology is necessary in a clinical trial setting.