

Technique Can Classify Lesions During Colonoscopy

BY SUSAN LONDON

SAN FRANCISCO — Confocal laser endomicroscopy accurately classifies lesions found during colonoscopy according to their malignant potential, the results of a prospective cohort study show.

“Confocal laser endomicroscopy is a promising tool for in vivo microscopic imaging of mucosal lesions during ongoing endoscopy,” said Dr. Anna Buchner, a gastroenterologist at the Mayo Clinic in Jacksonville, Fla.

“It may allow us to classify neoplastic and benign lesions in real time during colonoscopy, thus reducing the time and risk of procedures, with fewer polypectomies performed,” she said, reporting the results of the prospective study among patients undergoing surveillance colonoscopy.

Confocal laser endomicroscopy allows a clinician to look at living tissue in an area of interest, as if the tissue were under a microscope, while the endoscope is still in the patient. Mucosa can be inspected at a magnification of up to 1,000 times, much greater than the 100 times permitted by zoom endoscopy and the 30 times permitted by normal endoscopy.

The Cellvizio GI system used in the study had a confocal laser probe that can be passed through any endoscope, a laser scanning unit that acquires up to 12 images per second, and control and acquisition software that permit real-time image reconstruction.

Lesions were identified by high-resolution colonoscopy, and imaged by confocal laser endomicroscopy after administration of intravenous fluorescein contrast. They were then removed by polypectomy and examined histopathologically, Dr. Buchner reported at a meeting on gastrointestinal cancers sponsored by the American Society of Clinical Oncology.

In the pilot part of the study, the confocal images were analyzed without the observers being blinded to the colonoscopic appearance and histopathology findings. This enabled investigators to develop key image features for distin-

guishing between hyperplastic and neoplastic lesions. Imaging was performed in six patients, with examination of a total of 10 normal sites, 10 hyperplastic lesions, and 10 neoplastic lesions.

Hyperplastic lesions typically had regular crypts with round or stellate-shaped crypt openings, Dr. Buchner reported. In contrast, neoplastic lesions typically had elongated, tubular crypt openings, a reduction in the number of goblet cells, in-

creased and irregular vasculature, and dramatic variation in cell size.

Then the confocal images were analyzed by an investigator blinded to colonoscopic appearance and histopathology findings, to assess the accuracy of the confocal diagnosis relative to the gold standard of the histopathologic diagnosis.

For classification of lesions as neoplastic, confocal laser endomicroscopy had a sensitivity of 86%, a specificity of

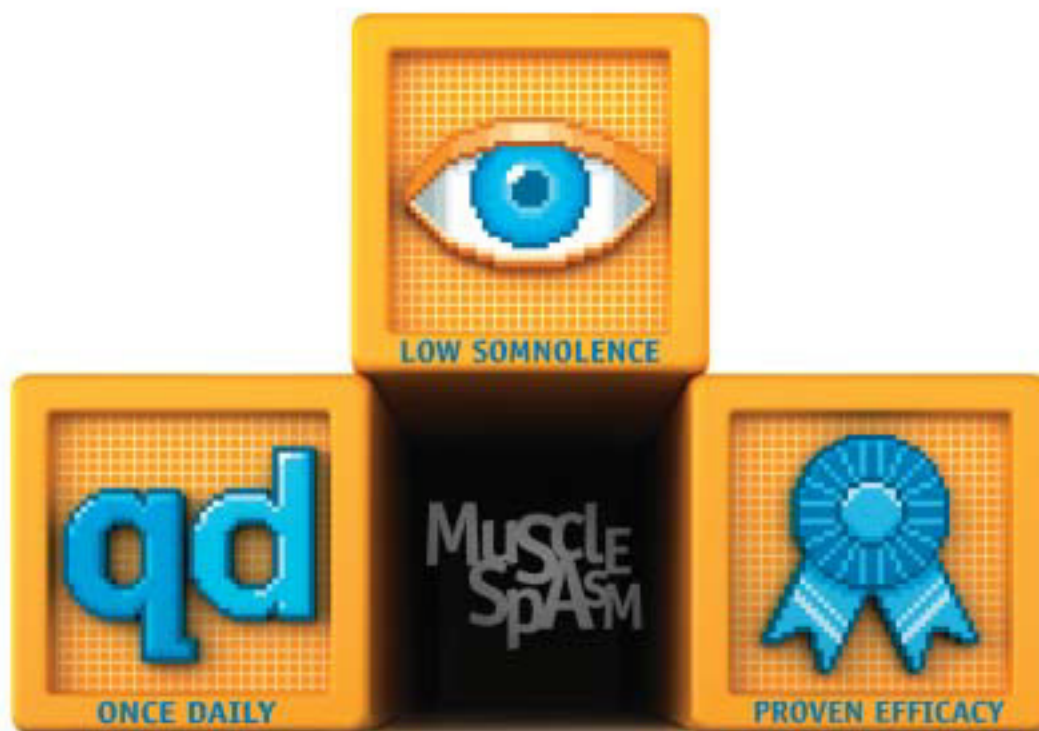
93%, and an overall accuracy of 89%, according to Dr. Buchner. The positive predictive value was 95%, and the negative predictive value was 80%.

“The use of this method has the potential to avoid polypectomies of non-neoplastic polyps,” Dr. Buchner said.

She said she had no conflicts of interest relevant to the study, which was funded by a grant from the American Society for Gastrointestinal Endoscopy. ■

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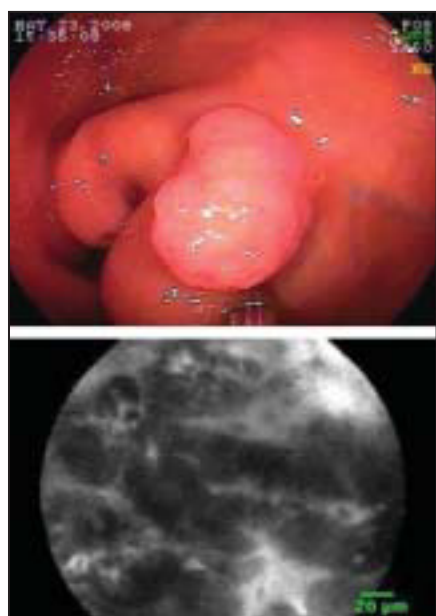
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Endoscopic (top) and confocal (bottom) images of an adenoma shows high-grade dysplasia and focal adenocarcinoma.

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