Bowel Preparation and Colonoscopy Technique To Detect Non-Polypoid Colorectal Neoplasms

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KEYWORDS

• Colonoscopy • Non-polypoid colorectal neoplasm • Bowel
• Colon • Colon cancer screening • Colon preparation

Colonoscopy is considered the gold standard for colon cancer screening. In a recent study, however, 0.3% to 0.9% patients were reported to develop colorectal cancer within 3 years after removal of adenomas.[1,2] Some reasons for the development of interval colorectal cancers include missed or incompletely removed lesions during the initial colonoscopy. Non-polypoid colorectal neoplasms (NP-CRNs) (**Fig. 1**) are a potential contributor to the pool of missed lesions because they can be easily missed as a result of inadequate colon preparation or examination technique.[3–6]; This article discusses the methods that are useful to improve the quality of bowel preparation and examination technique.

ENDOSCOPIC RECOGNITION OF NP-CRN

Colon preparation should be absolutely clean to detect non-polypoid colorectal neoplasia because NP-CRNs, unlike the polypoid lesions that project into the lumen and can be easily identified, can hide under a thin layer of mucus or stool lining the mucosa and be easily missed. To detect the NP-CRN, excellent visualization of the vasculature and appreciation of the mucosal surface patterns (pits and grooves) of the entire colon is critical (**Fig. 2**).

Identification of the NP-CRN requires training the eye to look for surface vascular architecture of the colonic mucosa and subtle changes in the pattern of the innominate grooves. The endoscopist should be able to clearly visualize the surface microvessels, because a subtle change in the vascular network is one of the clues to identify these

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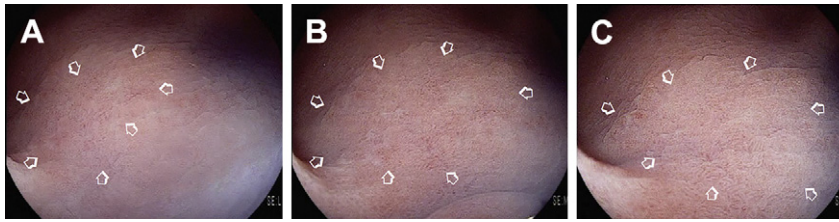

Fig. 1. A completely flat (IIb type) adenomatous lesion. Visualization of this lesion requires a completely clean colon. The lesion was examined with i-SCAN's surface enhancement feature (Pentax Medical, Montvale, NJ, USA) and showed a better delineation of the extent of lesion with higher surface enhancement. (*A*) Standard enhancement. (*B*) Medium enhancement. (*C*) High enhancement. The border of the lesion becomes more apparent with increasing enhancement—the lesion at high enhancement is larger than what is appreciated at low enhancement.

lesions. Other findings about NP-CRNs include slightly red appearance and/or friability of the mucosa and wall deformity. High-resolution endoscopy with magnification and electronic image processing (using narrow-band imaging; Fuji Intelligent Chromo Endoscopy, Fujinon Inc, Wayne, NJ, USA; or i-SCAN, Pentax of America Inc, Montvale, NJ, USA) as well as chromoendoscopy with indigo carmine may help to enhance these lesions. Interruption of the innominate grooves is another clue to the presence of subtle NP-CRN lesions.

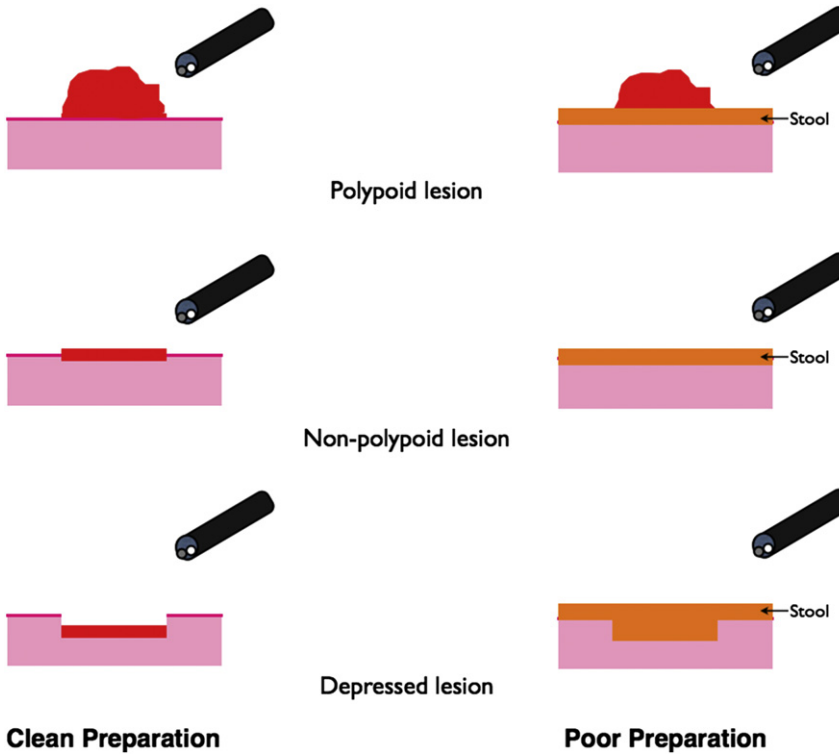

Fig. 2. Stool interferes with the detection of non-polypoid and depressed lesions.

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