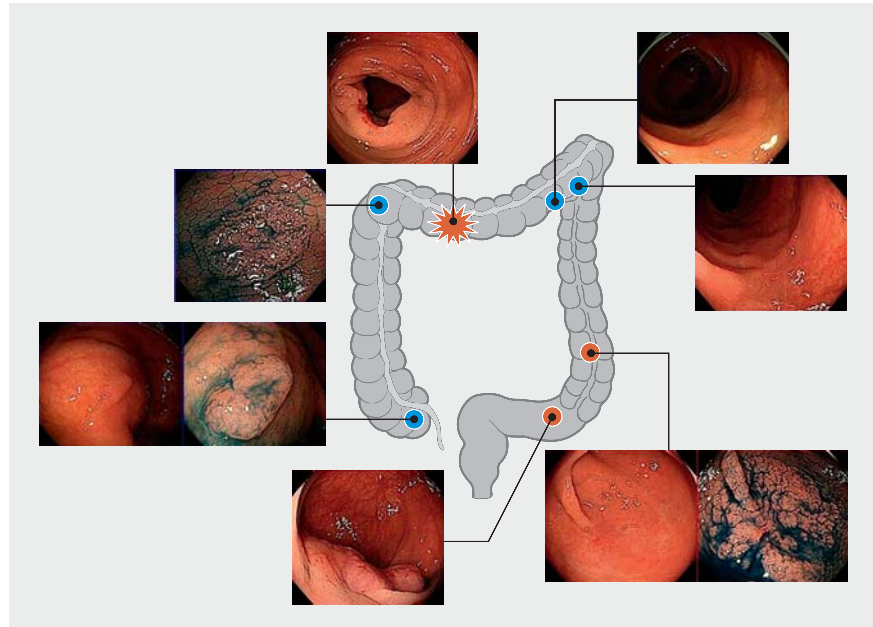
Article published online: 2022-02-18

Effective use of image-enhanced endoscopy and endoscopic submucosal dissection for multiple flat non-polypoid colorectal neoplasms

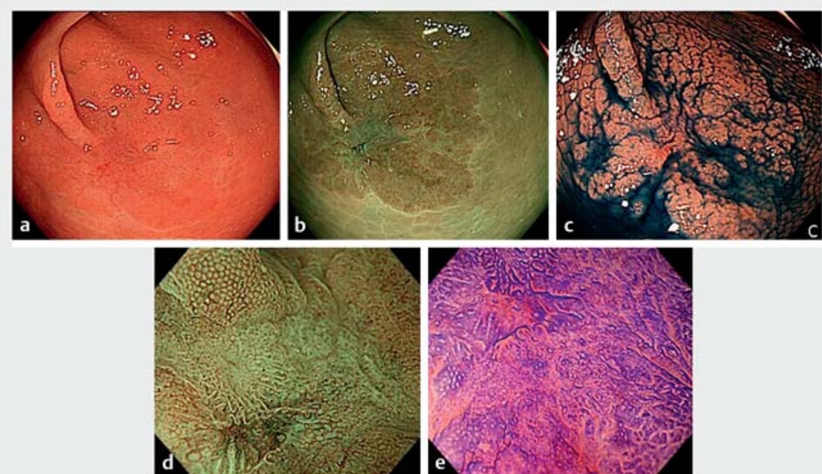
Non-polypoid colorectal neoplasms are the precursors of post-colonoscopy colorectal cancers (PCCRCs) [1], but can easily be overlooked because of their appearance. Therefore, early detection and treatment of laterally spreading tumors, non-granular type (LST-NGs) and 0-IIb lesions are important for preventing PCCRC. We report the case of a patient with multiple flat non-polypoid colorectal neoplasms, among which a 0-IIb (LST-NG) lesion was appropriately diagnosed with image-enhanced endoscopy and treated with endoscopic submucosal dissection (ESD) [2].

A 58-year-old woman whose mother and uncle had a history of CRC had a positive fecal occult blood test result. Multiple flat non-polypoid colorectal neoplasms with diverse morphologies, including a type 2 lesion, were detected by subsequent colonoscopy (▶Fig. 1). Right hemicolectomy was scheduled for the type 2 lesion in the transverse colon. Another colonoscopy was performed for close examination before surgery.

A 35-mm 0-IIb (LST-NG) lesion, which had an unclear margin on white-light imaging, was detected in the descending colon. The lesion was clearly visualized using narrow-band imaging (NBI) and indigo carmine dye. Magnifying NBI showed a Japan NBI Expert Team (JNET) type 2B pattern [3], and crystal violet staining indicated a type VI (non-invasive) pit pattern (▶Fig. 2). The preoperative diagnosis was intramucosal or submucosal superficial invasive cancer (< 1000 µm), and the lesion was located outside the right hemicolectomy area. It was therefore resected via ESD, and curative resection was achieved (▶Fig. 3; ▶Video 1). The tumor was intact for the two mismatch repair proteins (MSH6, PMS2) by immunohistochemical staining. No germline pathogenic variant was found in the cancer predisposition genes, including *MLH1*, *MSH2*, *MSH6*, *PMS2*, *PTEN*, and *TP53* by multigene panel test-



▶Fig. 1 Endoscopic views of the multiple colorectal neoplasms, with a schematic marking where they were identified, showing a 10-mm 0-Is lesion in the cecum; a 12-mm lesion at the hepatic flexure; a 40-mm type 2 lesion in the transverse colon; a 15-mm 0-IIa lesion in the transverse colon; a 0-IIb lesion in the transverse colon; a 40-mm 0-Is + IIa lesion in the sigmoid colon; and a 35-mm 0-IIb laterally spreading tumor, non-granular type, in the descending colon.



▶Fig. 2 Endoscopic images showing: **a** a 35-mm 0-IIb laterally spreading tumor, non-granular type, on white-light endoscopy; **b, c** the tumor margin demonstrated with: **b** narrow-band imaging (NBI); **c** indigo carmine dye; **d** an irregular distribution of vessels and a visible irregular surface pattern on magnifying NBI; **e** an uneven and irregular pit pattern without territoriality on crystal violet staining.

Uozumi Takeshi et al. Effective use of… Endoscopy 2022; 54: E684–E685 | © 2022. Thieme. All rights reserved.

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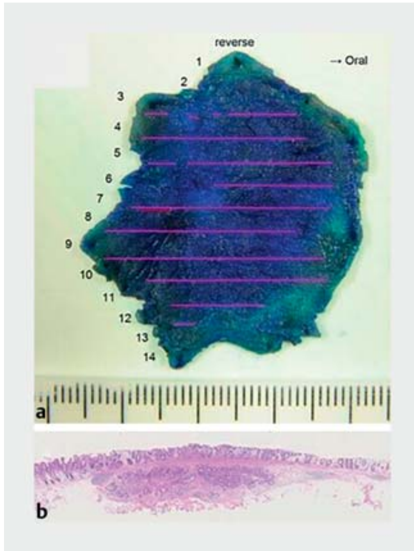
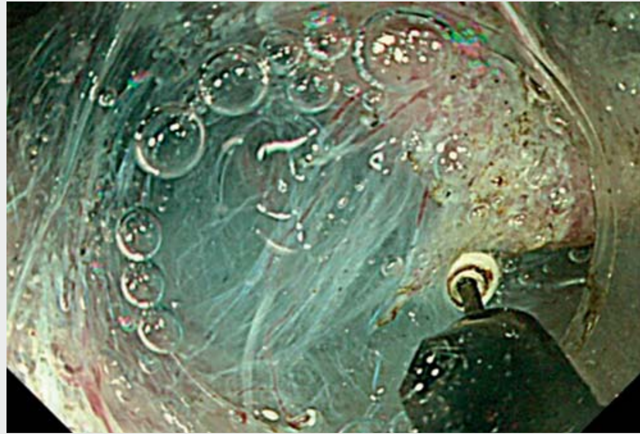


► **Fig. 3** Histopathological appearance of the resected lesion showing: **a** tumor-free horizontal and vertical margins and no evidence of lymphovascular invasion (pink lines represent adenocarcinoma in the mucosal layer; the red line represents adenocarcinoma in the submucosal layer); **b** the microscopic appearance with a depth of 750 µm indicating invasion into the submucosal layer without lymphovascular invasion, consistent with a curative resection having been achieved.



Video 1 Image-enhanced endoscopy and endoscopic submucosal dissection of a 0-IIb lesion in the descending colon.

ing using peripheral blood. After the ESD had been completed, the type 2 lesion was surgically treated.

Appropriate diagnosis and treatment of non-polypoid colorectal neoplasms are crucial for the prevention of postoperative metachronous CRC and PCCRC.

Endoscopy_UCTN_Code_CCL_1AD_2AC

Competing interests

The authors declare that they have no conflict of interest.

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Endoscopy 2022; 54: E684–E685
DOI 10.1055/a-1753-9294
ISSN 0013-726X
published online 18.2.2022
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Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany

CORRECTION

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Uozumi T, Saito Y, Toyoshima N et al. Effective use of image-enhanced endoscopy and endoscopic submucosal dissection for multiple flat non-polypoid colorectal neoplasms.
Endoscopy 2022, doi:10.1055/a-1753-9294

In the above-mentioned article, the classification of tumors has been corrected to 0-IIb. This was corrected in the online version on March 24, 2022.

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