Diminutive submucosally invasive cancers of the colon and rectum

Tab. 1 Baseline patient data, endoscopic and pathological findings, and outcomes of seven patients with diminutive submucosally invasive colorectal cancers.

Patient number sex; age	Tumor location; type; size, mm	Endoscopic diagnosis	Treatment	Pathological diagnosis	Resection margin	Growth type	Invasion depth, µm	ly	v	pN	Metastatic risk	Outcome
1 M; 67	Ascending colon; Ip; 5	Adenoma	Polypectomy then surgery	Adenocarcinoma (tub1)	Negative	Non-polypoid	1750	0	1	0	High	Lost to follow-up
2 M; 85	Transverse colon; Is; 5	Adenoma	EMR then surgery	Adenocarcinoma (tub1)	Negative	Non-polypoid	1750	0	0	0	High	Alive, disease free
3 M; 76	Transverse colon; Is; 5	Adenoma	EMR	Adenocarcinoma (tub1)	Negative	Non-polypoid	300	0	0	N/A	Low	Alive, disease free
4 F; 86	Rectosigmoid; Is; 4	Adenoma	EMR	Adenocarcinoma (tub1)	Negative	Non-polypoid	1370	0	0	N/A	High	Alive, disease free
5 M; 57	Sigmoid colon; IIc; 5	Intramucosal cancer	EMR	Adenocarcinoma (tub1)	Negative	Non-polypoid	250	0	0	N/A	Low	Alive, disease free
6 M; 53	Sigmoid colon; IIc; 5	Intramucosal cancer	EMR	Adenocarcinoma (tub1)	Negative	Non-polypoid	200	0	0	N/A	Low	Alive, disease free
7 F; 61	Sigmoid colon; IIa + IIc; 5	Submucosal invasive cancer	Surgery	Adenocarcinoma (tub1)	N/A	Non-polypoid	3500	1	0	0	High	Alive, disease free

ly, lymphatic permeation; v, vascular permeation; pN, pathological lymph node metastasis; M, male; F, female; tub1, well-differentiated tubular adenocarcinoma; EMR, endoscopic mucosal resection; N/A, not applicable.

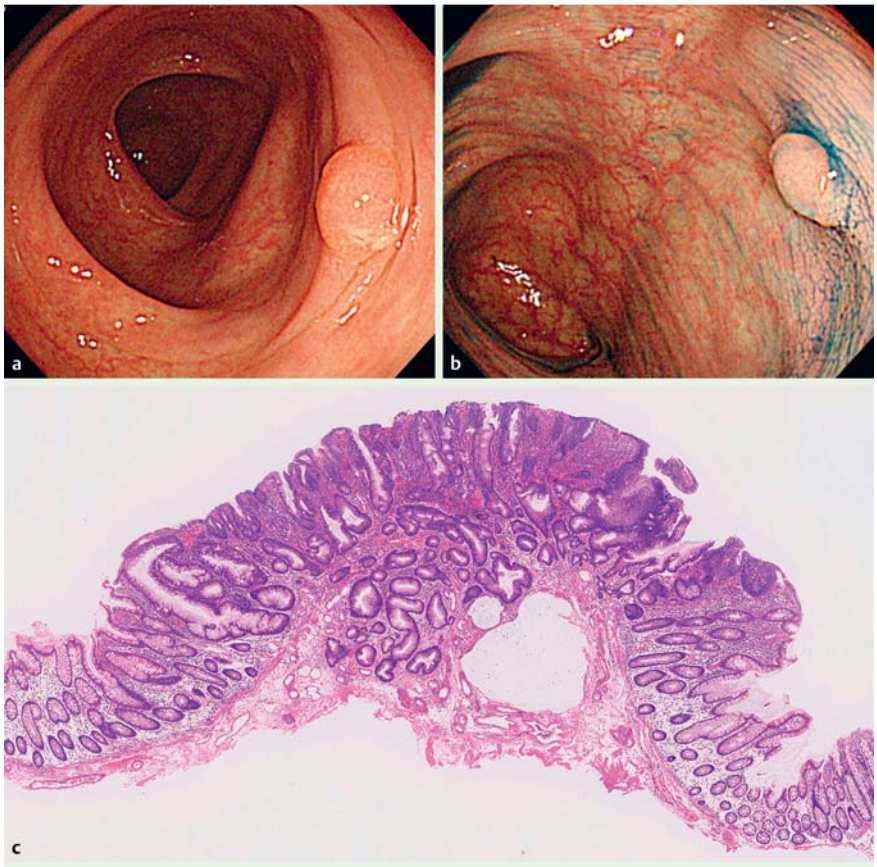

Fig. 1 Images from patient #2. **a** Conventional colonoscopy showing a protruded lesion (5 mm in diameter) in the transverse colon. **b** Chromoendoscopy obtained using an indigo carmine spray showing an indistinct depressed area surrounding a protrusion. **c** Pathology of the specimen from endoscopic mucosal resection (EMR) showing submucosal invasive cancer (1750 µm) of non-polypoid growth type.

Only a few cases of submucosally invasive colorectal cancer (SM-CRC) in diminutive colorectal polyps of ≤5 mm have been described [1], and as yet there is no detailed knowledge of these cancers.

Pathological SM-CRCs were selected from our colonoscopy database. We examined the frequency of these lesions relative to all colonoscopy examinations and to colorectal neoplasms ≤5 mm. The growth type of the lesions was divided into two categories: polypoid growth and non-polypoid growth [2].

A total of 32 692 colonoscopies were performed between September 2002 and December 2012, from which 5690 colorectal neoplasms were detected and treated. Only seven cases of SM-CRC occurred in lesions ≤5 mm, accounting for only 0.5 % (7/1358) of colorectal neoplasms ≤5 mm.

Baseline patient information, endoscopic and pathological findings, and outcomes are summarized in **Table 1**. Four cases were of protruded type and three cases were of depressed type. All the protruded-type lesions were initially diagnosed before treatment as being adenomas and were resected endoscopically. All the depressed-type lesions were diagnosed before treatment as being malignant. Endoscopic treatment was indicated for six of the patients (#1 – #6), and additional surgery was performed for two patients (#1 and #2) because of histological

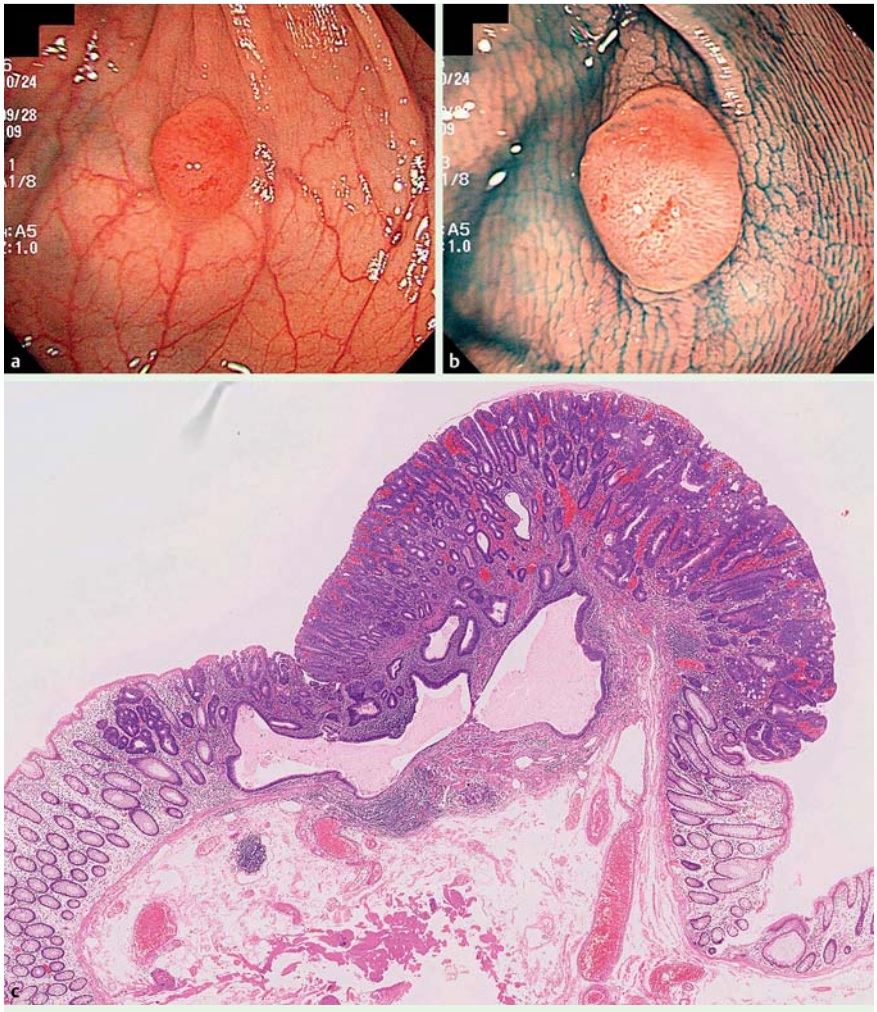

Fig. 2 Images from patient #3. **a** Conventional colonoscopy showing a protruded lesion (5 mm in diameter) in the transverse colon. **b** Chromoendoscopy obtained using an indigo carmine spray showing an indistinct depressed area surrounding a protrusion. **c** Pathology of the specimen from endoscopic mucosal resection (EMR) showing submucosally invasive cancer (300 µm) of non-polypoid growth type.

findings that suggested a high metastatic risk. All cases were of pathologically well-differentiated adenocarcinomas of non-polypoid growth type. No lymph node metastasis was evident in the surgically resected cases. The appearances in patients #2 and #3 are shown in **Fig. 1** and **Fig. 2** respectively.

The most important finding of the present study was that all diminutive SM-CRCs were pathologically diagnosed as being of non-polypoid growth type. Shimoda et al. [2] reported that colorectal cancers showing non-polypoid growth tended to invade the submucosa when of a smaller size than those showing polypoid growth. Chromoendoscopy, magnified endoscopy, and image-enhanced endoscopy have been shown to be effective for the precise diagnosis of invasion depth in colorectal cancers [3,4]. Careful endoscopic observation is strongly recommended when adopting the policies of the DISCARD trial [5,6].

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Competing interests: None

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