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An early-stage primary signet ring cell carcinoma of the colon

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Conflicts of interest
The authors disclose no conflicts.

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Dear Editor,
A 57-year-old Chinese man, who had undergone surgery for colon cancer 9 years ago, came to our endoscopic center for follow-up colonoscopy. His mother was diagnosed with colon cancer in her mid-50s. This colonoscopy revealed a 0-IIa type lesion in the transverse colon with size of 12mm (Figure 1A). No primary lesions and tumor metastasis was detected by upper endoscopic examination, and abdominal, pelvic computed tomography (CT). The level of carcinoembryonic antigen was within reference values. After two months, the patient was admitted to our hospital for endoscopic submucosal dissection (ESD). Magnifying endoscopy revealed rough and uneven surface of the lesion, with defined line and irregular arrangement of microvessels (Figure 1B-C). The tumor was successfully removed en bloc by ESD without complication. Histologically, the tumor was intramucosal signet ring cell
carcinoma (Figure 1J), with partial extracellular mucin differentiation observed locally (Figure 1K). The size of the tumor was 14 * 14 mm, without invasion of the mucosal muscle layer, and with negative vertical and lateral margins. Immunohistochemistry showed diffuse expression of Ki67, with a positive rate of 40% (Figure 1G). No tumor was observed in the lymphatic and venous vessels. E-cadherin expression in cancerous cells was not reduced (Figure 1H). Mismatch repair (MMD) expression was detected by IHC, the expression of MLH1, MSH2, MSH6, and PMS2 in tumor specimen were positive (Figure 1D-F, I), but MSH2 and MSH6 expression were weakened (Figure 1F, I). According to the colorectal cancer treatment guidelines, surgical intervention should be considered as an additional treatment for post-ESD cases with poorly differentiated adenocarcinoma. Then, after three months, the patient accepted additional colon resection and regional lymph node dissection at a large provincial hospital. Postoperative pathology revealed no residual carcinoma and lymph node metastasis. After a 2-year follow-up, no tumor recurrence has been detected, and the patient is still under follow-up.

Discussion
Colorectal signet ring cell carcinoma (SRCC) accounts for approximately 1%-2.4% of colorectal cancer. Primary signet ring cell carcinoma of the colorectum is rarely detected at an early stage; most cases are detected at an advanced stage. Its characteristics included younger age, advanced tumor stage at presentation and lymph node metastasis. Therefore, its prognosis is poorer than that of the other colorectal cancer. Here, we present a case with early stage primary signet ring cell carcinoma of the colon, and also provide endoscopic and histological characteristics of early stage SRCC.

References
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**Figure 1** Endoscopic view and Histological micrograph of the Early-stage primary signet ring cell carcinoma of the colon.

A: Initial colonoscopic findings: a 0-IIa type lesion in the transverse colon with size of 12mm.

B-C: Magnifying endoscopy with narrow-band imaging revealed rough and uneven surface of the lesion, with defined line and irregular arrangement of microvessels.

D-F, I: The expression of MLH1(D), MSH2(E), MSH6(F), and PMS2(I) in tumor specimen were positive, but MSH2 and MSH6 expression were weakened.

G: Immunohistochemistry showed diffuse expression of Ki67, with a positive rate of 40%.

H: E-cadherin expression in cancerous cells was not reduced.

J: On high-power magnification, the tumor cells were located in the colonic propria mucosae, without invasion of the mucosal muscle layer (40 × objective).

K: Partial extracellular mucin differentiation was observed locally (40 × objective).