

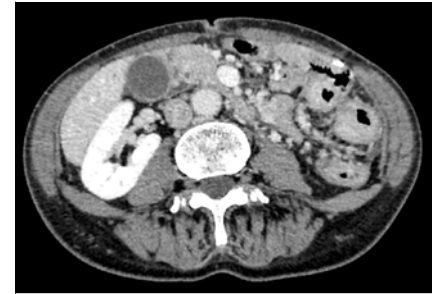
Underwater endoscopic mucosal resection for the diagnosis of metastatic gastric cancer in the descending colon

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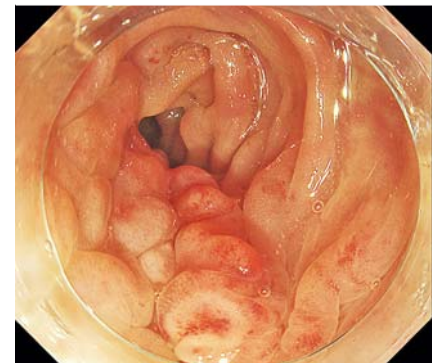
A 55-year-old woman underwent total gastrectomy for advanced type 4 (nonulcerated, diffusely infiltrating) gastric cancer (pT4a) with negative margins and received adjuvant chemotherapy for 1 year. Three years later, she developed abdominal pain, and colonoscopy revealed stenosis on the left side of the colon. Biopsy evaluations showed no primary or metastatic tumor, and she was referred to our institution for further investigation and treatment. Computed tomography showed abnormal thickness of the colonic wall in the descending colon (▶ **Fig. 1**). Colonoscopy revealed stenosis at the splenic flexure, and the colonoscope could not pass through (▶ **Fig. 2**). Uneven ridges continued in the longitudinal direction on one side. Narrow-band imaging showed no apparent tumor on the mucosa (▶ **Fig. 3**). Endoscopically, we diagnosed metastatic gastric cancer or primary advanced type 4 colonic cancer.

In order to obtain sufficient tissue for histology, we performed underwater endoscopic mucosal resection (EMR) (▶ **Fig. 4**, ▶ **Video 1**). Pathological diagnosis revealed adenocarcinoma (poorly differentiated, signet ring cell carcinoma) (▶ **Fig. 5**). Immunostaining was consistent with metastatic gastric cancer (CD7 positive, CD20 negative, MUC2 negative, MUC5AC partially positive, and MUC6 partially positive) and similar to the pathology of the patient's previously resected stomach.

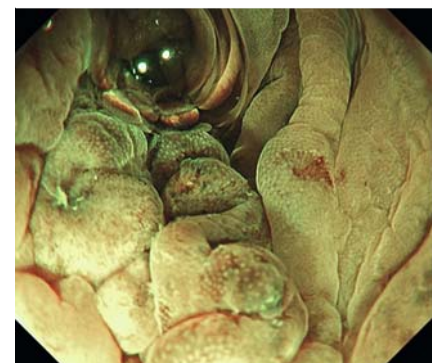
Underwater EMR was first reported by Binmoeller et al. in 2012 [1], and we reported its usefulness for resecting colorectal polyps [2] and duodenal tumors. The cutting depth with underwater EMR was comparable to that of conventional EMR [3]. For cases in which pathological diagnosis is difficult by endoscopic biopsy because only nontumor epithelium is obtained, endoscopic ultrasonography-guided fine-needle aspiration may be performed [4]; however, this procedure



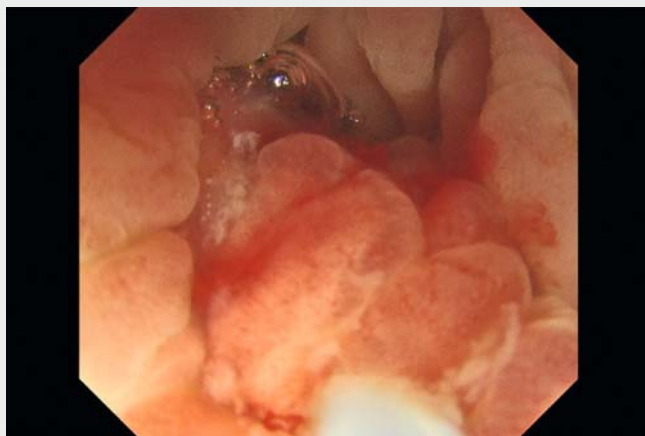
▶ **Fig. 1** Computed tomography showed abnormal thickness of the colonic wall in the descending colon.



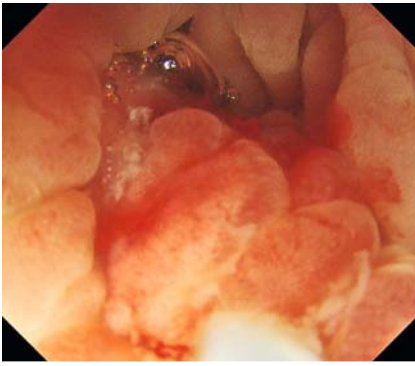
▶ **Fig. 2** Uneven ridges continued in the longitudinal direction on the intestinal membrane side, leading to stenosis.



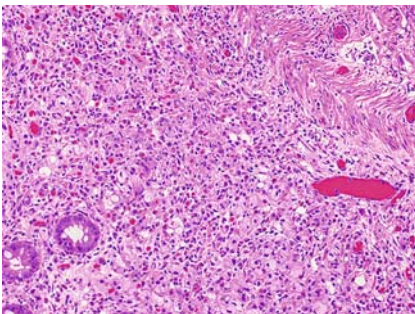
▶ **Fig. 3** Observation with narrow-band imaging. No apparent tumor appeared on the mucosa.



▶ **Video 1** Underwater endoscopic mucosal resection for the diagnosis of metastatic gastric cancer in the descending colon.



► **Fig. 4** Snaring of uneven ridges in the descending colon.



► **Fig. 5** Pathological diagnosis revealed adenocarcinoma (poorly differentiated, signet ring cell carcinoma).

carries the risk of abdominal dissemination [5]. Conventional EMR is another option, but injection may not lead to submucosal tumor elevation because of invasion, and the limited luminal space after injection would hinder snaring. Without using a needle or injection, underwater EMR minimized the risk of dissemination and yielded sufficient tissue for pathological diagnosis.

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Competing interests

The authors declare that they have no conflict of interest.

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