Underwater EMR for the diagnosis of diffuse infiltrative gastric cancer

Yushi Kawakami, MD,[1] Satoki Shichijo, MD, PhD,[1] Yoji Takeuchi, MD, PhD,[1] Chiaki Kubo, MD,[2] Takeshi Omori, MD, PhD,[3] Noriya Uedo, MD, PhD[4]

A 75-year-old woman experienced nausea 7 months prior and had lost 9 kg over 3 months. She was referred to the university hospital for further examination. A CT scan showed circumferential wall thickening of the stomach. Endoscopic examination revealed markedly enlarged folds, redness, and poor extension of the gastric lumen. Advanced infiltrative gastric cancer was suspected. However, endoscopic forceps biopsy specimens did not reveal adenocarcinoma. Endoscopic examination and the forceps biopsy were repeated twice during the next 6 months. However, specimens revealed just normal epithelium without evidence of malignancy. Additionally, perigastric lymphadenopathy and increased omental density and mesenteric fat were observed on the CT scan after 6 months (Fig. 1). Therefore, the patient was referred to our institute for further examination and treatment.

An endoscopy revealed abnormally thickened folds with poor extension of the gastric body (Fig. 2). Narrow-band imaging showed no demarcation line, irregular microvessel pattern, or irregular micro-surface pattern, suggesting submucosal tumor infiltration (Fig. 3). To obtain sufficient submucosal specimens, underwater EMR was performed (Video 1, available online at www.giejournal.org). After filling the lumen with saline, hot-snare polypectomy was performed using a 10-mm stiff snare. Bleeding was controlled with coagulation forceps. Considering the risk of postprocedural bleeding, we performed underwater EMR on admission. No adverse events occurred. Histological examination of 3 of the 6 specimens revealed a poorly differentiated adenocarcinoma in the deep lamina propria and submucosa, but not in the superficial layer (Fig. 4). Peritoneal dissemination was confirmed histologically by laparoscopy, and chemotherapy was performed.

The underwater EMR technique enables resection of sufficient deep submucosal tissue, yielding a high en bloc

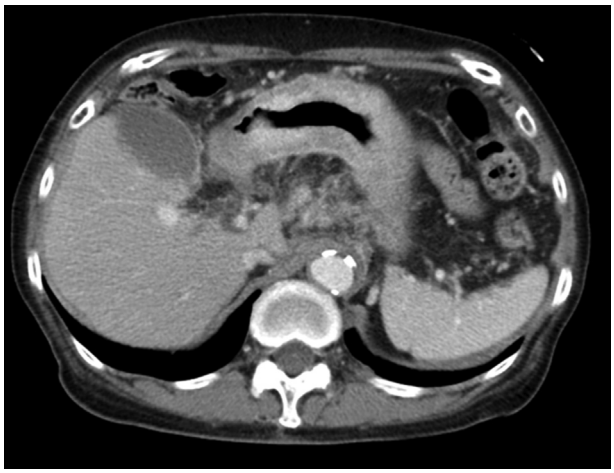

Figure 1. CT scan showing circumferential thickening of the gastric wall.

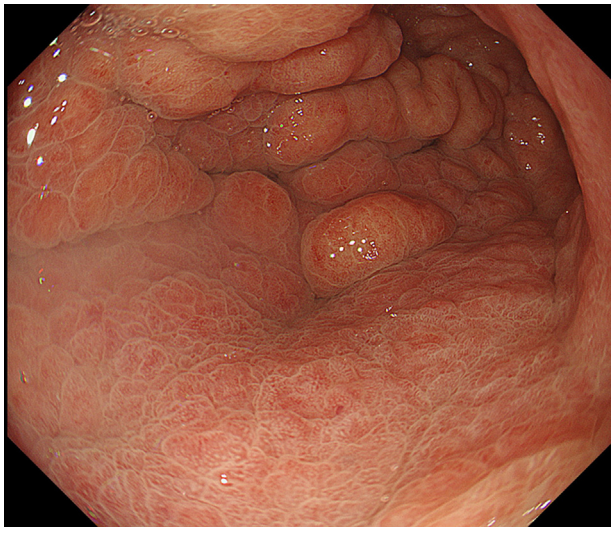

Figure 2. Abnormally thickened folds with poor extension of the gastric body.

Abbreviations: UEMR, underwater endoscopic mucosal resection; CT, computed tomography.

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Department of Gastrointestinal Oncology, Osaka International Cancer Institute, Osaka, Japan (1), Department of Pathology and Cytology, Osaka International Cancer Institute, Osaka, Japan (2), Department of Surgery, Osaka International Cancer Institute, Osaka, Japan (3), Department of Gastrointestinal Oncology, Osaka International Cancer Institute, Osaka, Japan (4).

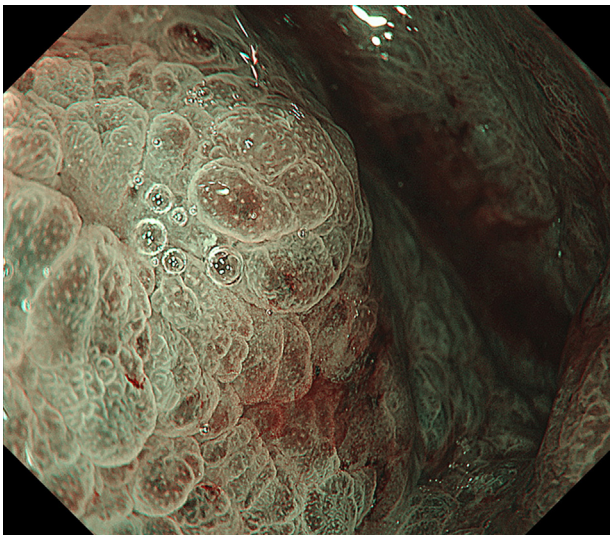

Figure 3. Narrow-band imaging showing enlarged mucosal structures without a demarcation line, irregular microvessel pattern, or irregular microsurface pattern, suggesting submucosal infiltration of the tumor.

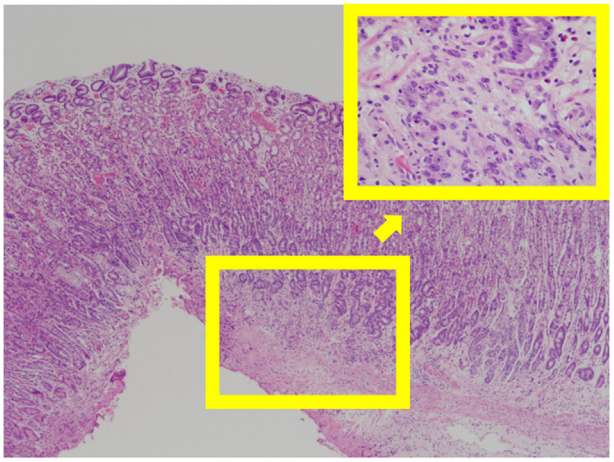

Figure 4. Histology results showing a poorly differentiated adenocarcinoma in the deep lamina propria and submucosa. (H&E, orig. mag. ×100)

resection rate for colorectal polyps.[1,2] EUS-guided FNA is often performed to acquire deep submucosal tissue for diagnosis when neoplastic tissues exist beyond the mucosa and pathological diagnosis using endoscopic forceps biopsy is difficult.[3] Although using EUS-guided FNA for both the gastric wall and lymph nodes, overall diagnostic yield could reach 87.5% to 93.7%,[4,5] and thus EUS-guided FNA poses certain risk of seeding. In this case, no enlarged lymph nodes were detected on a CT scan. Thus, we performed underwater EMR instead of EUS-guided FNA. Conventional EMR has been reportedly shown to be useful for diagnosing infiltrative gastric cancer.[6] However, needle injection for a lift into the hard tumor tissue is often difficult, and inappropriate injection makes subsequent snaring of the tissue challenging. When underwater EMR is used, adequate submucosal tissue could be obtained without needle injection, providing an accurate pathological diagnosis.

DISCLOSURE

Dr Shichijo has received honoraria for lectures from EA Pharma, AstraZeneca, The AI Medical Service, and Janssen Pharmaceutical, all in Japan. Dr Takeuchi has received honoraria for lectures from Olympus, Boston Scientific, Daiichi-Sankyo, Miyarisan Pharmaceutical Co Ltd, Asuka Pharmaceutical, AstraZeneca, EA Pharma, Zeria Pharmaceutical, Fujifilm, Kaneka Medix, Kyorin Pharmaceutical, and Japan Gastroenterological Endoscopy, all in Japan. Dr Uedo has received honoraria for lectures from Olympus, Fujifilm, Boston Scientific, Daiichi-Sankyo, Takeda Pharmaceutical, EA Pharma, Otsuka Pharmaceutical, AstraZeneca, and Miyarisan Pharmaceutical. All other authors disclosed no financial relationships.

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