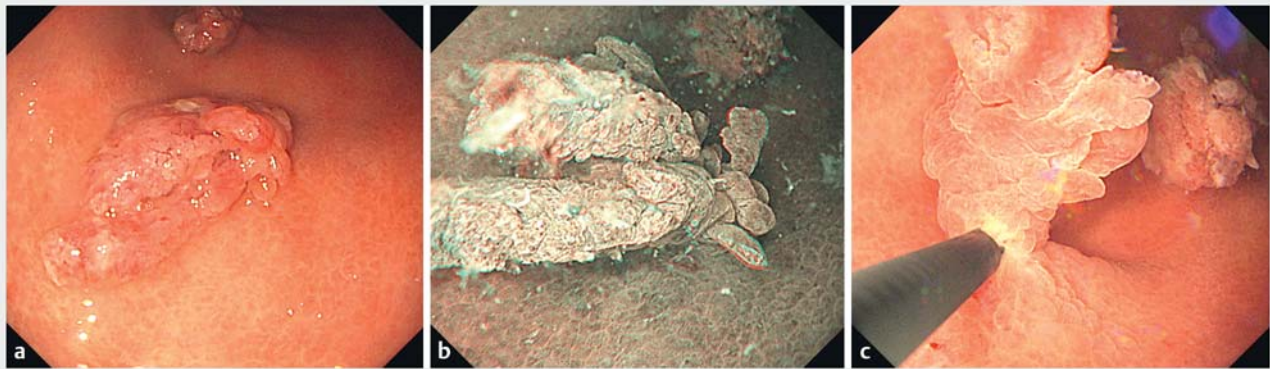


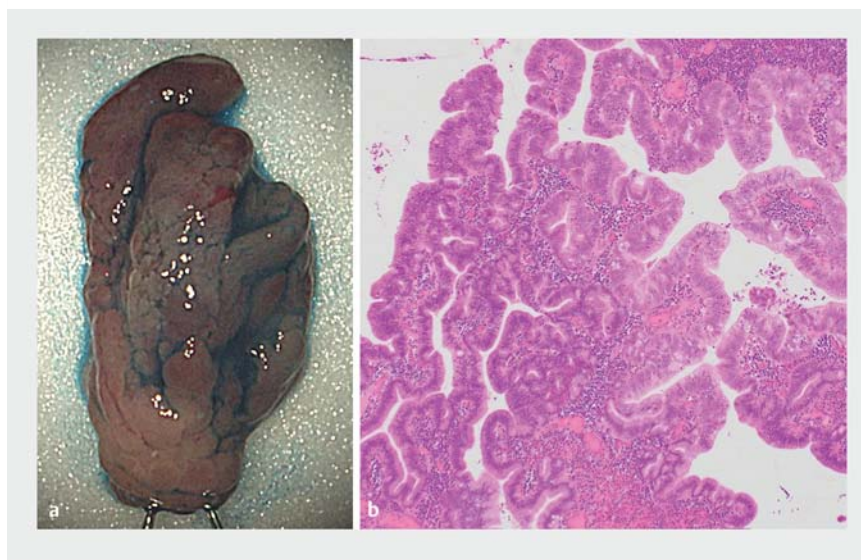
## Underwater endoscopic observation and mucosal resection for gastric protruding polyps ▶

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▶ **Fig. 1** **a** A 20-mm semi-pedunculated early gastric cancer lying at the greater curvature of the middle stomach body. **b** In the underwater view, the lesion floated up and branched. **c** Underwater endoscopic mucosal resection was performed while confirming a negative margin with an electrocautery snare (SD-5L-1; Olympus, Tokyo, Japan) and electrocautery unit (ERBE, VIO 300 D, endocut Q, effect 2, duration 3, interval 2; forced coagulation, effect 4, 50W; Erbe Elektromedizin, Tübingen, Germany).

In an 82-year-old woman, two 20-mm polyps were identified at the greater curvature of the middle stomach body during esophagogastroduodenoscopy with a high-definition magnifying endoscope (GIF-H290Z, Olympus, Tokyo, Japan). Both lesions were in close contact with the stomach wall due to the influence of gravity, and their morphology could not be accurately determined (▶ **Video 1**, ▶ **Fig. 1a**). When underwater, however, the lesions floated up, the surface structure clearly separated, and the base was clearly recognizable (▶ **Fig. 1b**). Both lesions were semi-pedunculated-type polyps. Magnifying endoscopy with narrow-band imaging showed an irregular microsurface pattern. Water pressure was also used to clearly identify the polyp base and the demarcation line of the base was clearly confirmed. The lesions were diagnosed as cancer. Changing the patient's position, combination with the underwater method, also may have contributed to observation of the base of the lesions. Both lesions were resected with an electrocautery snare while a negative margin was confirmed (▶ **Fig. 1c**). Spurting bleeding occurred from the resected surface of the distal le-

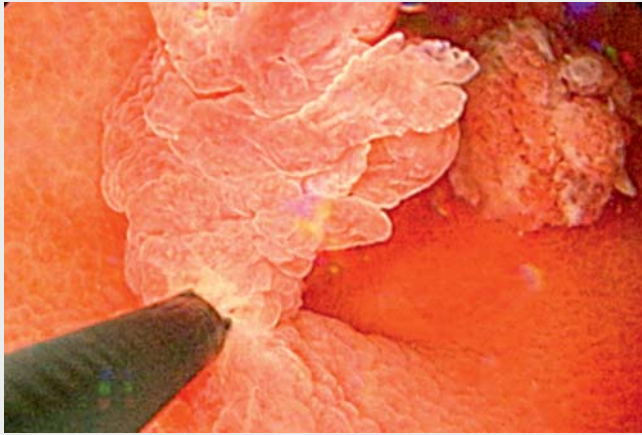


▶ **Fig. 2** Resected specimen of the proximal lesion. **a** Macroscopic view. **b** Histopathological examination revealed a well-differentiated intramucosal adenocarcinoma no lymphovascular invasion, and negative margins.

sion, and the water was quickly aspirated to allow hemostasis with clipping. The pathological results showed that most of the proximal lesion was hyperplastic lesion and part well-differentiated adenocarcinoma, whereas the distal lesion was mostly intramucosal, well-differenti-

ated adenocarcinoma. Both lesions had not lymphovascular invasion, and the lateral and vertical margins were cancer-free (▶ **Fig. 2a**, ▶ **Fig. 2b**).

We previously reported that the water immersion technique is useful for observing the structure of polypoid lesions [1].



**Video 1** Underwater endoscopic observation and mucosal resection for gastric protruding polyps located on the greater curvature of the middle stomach.

In this case, the method revealed the base of each lesion, thus allowing effective resection with a negative margin [2]. The underwater method was useful for observation and resection of large protruding lesions located on the greater curvature of the middle stomach.

### Competing interests

The authors declare that they have no conflict of interest.

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