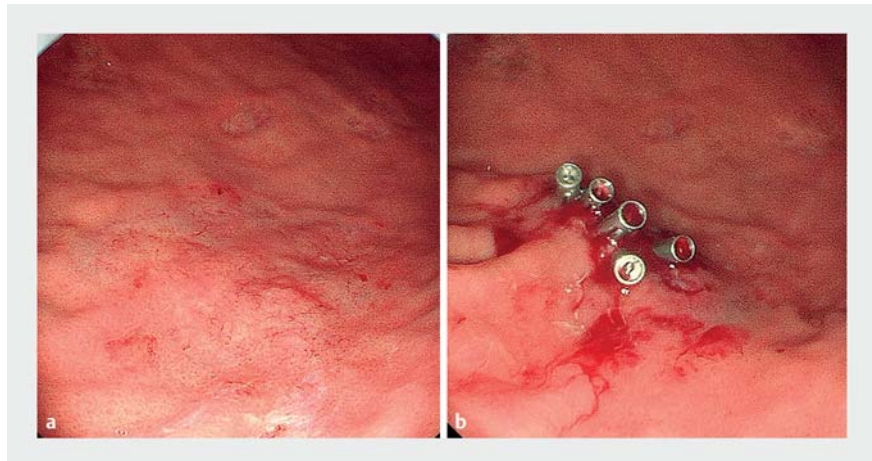


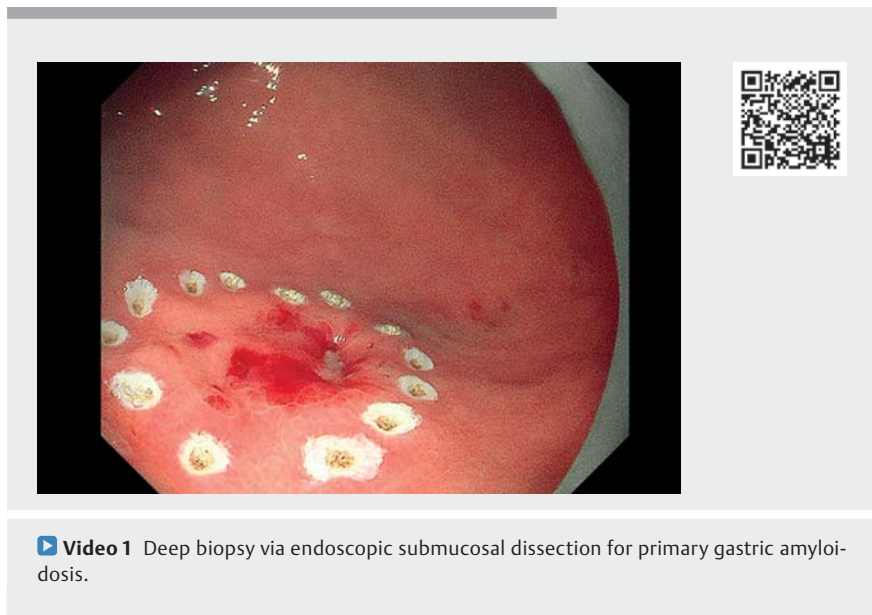
Deep biopsy via endoscopic submucosal dissection for primary gastric amyloidosis

Amyloidosis is characterized by interference with multiple organs. It is usually systemic and uncommonly limited to the stomach [1, 2]. Here we report a rare case of primary gastric amyloidosis.

A previously healthy 56-year-old man, whose family history was not significant for any digestive system tumors or blood disorders, presented to our institution with dyspepsia and weight loss lasting for one year. Esophagogastroduodenoscopy (EGD) showed multiple depressed superficial lesions at the greater curve of the gastric body (► **Fig. 1 a**). The lesions were whitish, and the boundaries were not clear. Gastric cancer and malignant lymphoma were suspected initially, but biopsy specimens revealed mild chronic atrophic gastritis. Notably, the lesions bled easily after biopsy, so we used endoclips (► **Fig. 1 b**). To rule out any missed diagnosis and misdiagnosis, we decided to perform a deep biopsy via endoscopic submucosal dissection (ESD) with informed consent. After evaluation of endoscopic ultrasonography (EUS) and magnification endoscopy with narrow band imaging, we removed one of the lesions en bloc in a specimen measuring 300×270 mm (► **Video 1**). Unexpectedly, histopathological examination showed deposition of amyloid in the mucosal and submucosal layer (► **Fig. 2 a**) with the ability to bind Congo red (► **Fig. 2 b**), leading to green birefringence under polarized light (► **Fig. 2 c**). Furthermore, light chain staining for kappa and lambda were positive. Additionally, we performed an enteroscopy and biopsies from the esophagus, duodenum, jejunum, ileum, and colon, all of which were negative for amyloid. Meanwhile, the patient received a systematic examination including blood biochemistry analysis, coagulation test, echocardiography, abdominal computed tomography (CT), serum-free light chain analysis, and protein electrophoresis, yet no abnormalities were found. Because other organs were unaffected, we diagnosed



► **Fig. 1** Endoscopic images show multiple depressed superficial lesions. **a** The lesions are whitish, and the boundaries are not clear. **b** The lesions bleed easily after biopsy, and endoclips are used.



► **Video 1** Deep biopsy via endoscopic submucosal dissection for primary gastric amyloidosis.

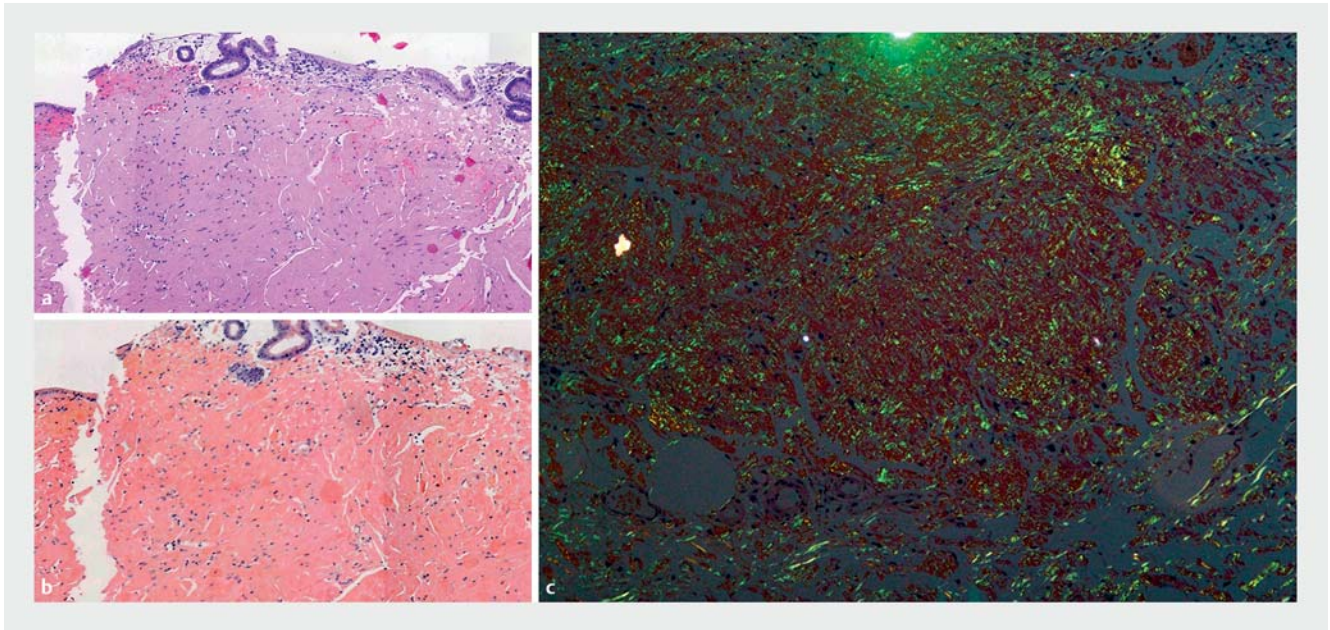
gastric amyloidosis and endoscopic surveillance was arranged.

In conclusion, primary gastric amyloidosis remains challenging to diagnose because its appearance on endoscopy is not specific [3, 4]. However, when facing suspicious lesions, we endoscopists should be aware of amyloidosis and investigate further.

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► **Fig. 2** Histopathologic findings. **a** Hematoxylin and eosin staining shows deposition of amyloid in the mucosal and submucosal layer. **b** Congo red staining reveals amyloid deposition with orange-colored deposits in the mucosal and submucosal layer. **c** Green birefringence under polarized light.

Competing interests

The authors declare that they have no conflict of interest.

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