Flat gastric epithelial neoplasm detected by endoscopic screening with autofluorescence imaging video endoscopy

Autofluorescence imaging (AFI) video endoscopy provides real-time color images from the computerization of captured fluorescence emitted from natural endogenous fluorophores that have been excited by light of specific wavelength. With early gastric cancers, AFI can visualize flat tumors, or the extent of isochromatic lesions. A 79-year-old man with a history of endoscopic submucosal resection for early gastric cancer was scheduled to undergo follow-up examination in our endoscopy unit. Endoscopic screening was done using an AFI prototype.

The system consists of an image processor (XCV-260HP; Olympus Medical Systems Corp., Tokyo, Japan), a light source (XCLV-260HP), and a dedicated video endoscopy system by using AFI and reflectance imaging for diagnosis of esophagogastric cancers. Gastrointest Endosc 2005; 62: 521 – 528

In our patient, autofluorescence observation showed a 20-mm blurred purple area in the prepylorus (Fig. 1) that was not clear in white-light images (Fig. 2). Magnifying NBI showed a fine-network microvascular pattern in the center, suggesting a differentiated-type adenocarcinoma (Fig. 3) [3]. With the extent of the tumor being established by both AFI and magnifying NBI, it was removed by endoscopic submucosal dissection. Histological examination of the resected specimen showed that it was well-differentiated tubular adenocarcinoma confined to the mucosa and with clear margins (Fig. 4, Video 1).

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Fig. 1 Autofluorescence imaging (AFI) showed a blurred purple area in a patient with a history of endoscopic submucosal resection for early gastric cancer.

Fig. 2 In the white-light image, neither the extent or even the presence of the lesion was indicated.

Fig. 3 Magnifying narrow-band imaging (NBI) showed the fine-network microvascular pattern in the center of the tumor.

Fig. 4 Histological mapping of the resected specimen: the intramucosal neoplasm (yellow lines) had been removed en bloc.

Video 1

Autofluorescence imaging (AFI) found blurred purple areas in the prepylorus, whereas the lesion was not apparent in white-light images. Magnifying narrow-band imaging (NBI) then revealed a fine-network vascular pattern that indicated well-differentiated adenocarcinoma.

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Video 1

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