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Unique endoscopic and histological findings of early gastric cancer with surrounding map-like redness detected 10 years after successful Helicobacter pylori eradication

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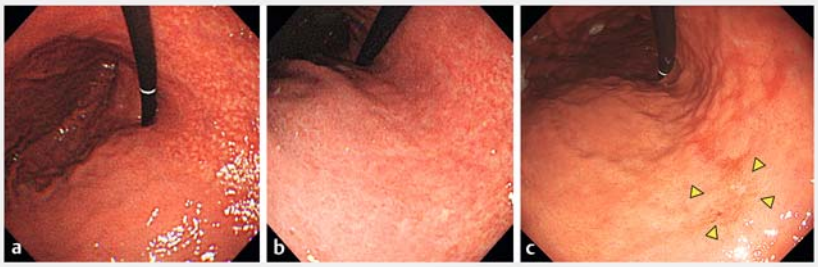
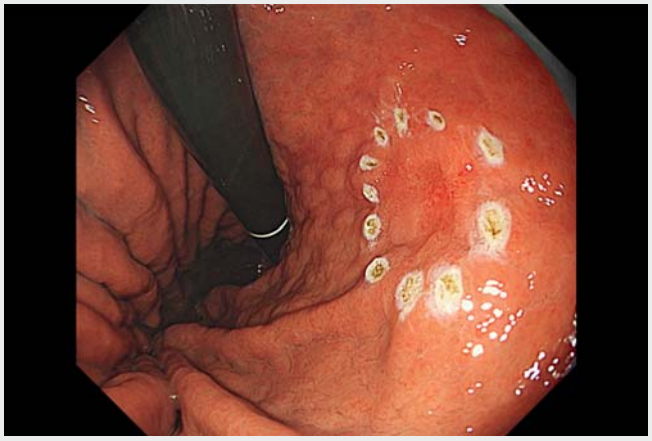
The MAPS II guidelines state that patients with chronic atrophic gastritis or intestinal metaplasia (IM) are at risk of developing gastric adenocarcinoma, and therefore should undergo surveillance endoscopy [1]. In fact, it is well established that IM is associated with intestinal-type gastric adenocarcinoma [2, 3]. Recently, map-like redness, which is specifically observed after *Helicobacter pylori* eradication, has been shown to indicate IM histologically and to be an independent risk factor for post-eradication gastric adenocarcinoma [4, 5].

We report the case of a 64-year-old man who underwent successful *H. pylori* eradication therapy 10 years previously. Esophagogastroduodenoscopy (EGD) prior to *H. pylori* eradication showed atrophic mucosa with a visible vascular pattern in the lesser curvature of the gastric body (▶ **Fig. 1 a**). An EGD 5 years after eradication therapy again displayed atrophic mucosa in the lesser curvature of the gastric body; however, the vascular pattern was less prominent than before *H. pylori* eradication (▶ **Fig. 1 b**). A further EGD 10 years after eradication therapy displayed a 10-mm depressed lesion in the lesser curvature of the lower gastric body, which was histologically diagnosed as a tubular adenocarcinoma (▶ **Fig. 1 c**). Although map-like redness was observed around the gastric adenocarcinoma, the mucosal atrophy and vascular patterns were unclear. The gastric adenocarcinoma was successfully resected en bloc by endoscopic submucosal dissection (ESD) (▶ **Video 1**).

The tumor was histologically diagnosed as a well-differentiated adenocarcinoma limited to the mucosal layer, and curative resection was achieved. IM and almost normal gastric fundic glands were observed in patches of the background mucosa of the tumor (▶ **Fig. 2** and ▶ **Fig. 3**). This case suggested that the histological difference between improvement in gastric mucosal atrophy upon *H. pylori* eradication and IM represents endoscopic map-like redness. Therefore, map-like redness may not be observed in the early period after *H. pylori* eradication, so care should be taken not to underestimate the risk of gastric adenocarcinoma when performing surveillance EGDs.



▶ **Fig. 1** Endoscopic images from the lesser curvature of the gastric body during progression over 10 years after *Helicobacter pylori* eradication therapy showing: **a** before *H. pylori* eradication therapy, atrophic mucosa with a visible vascular pattern; **b** 5 years after *H. pylori* eradication, a less prominent vascular pattern, although atrophic mucosa is still observed; **c** 10 years after *H. pylori* eradication therapy, a 10-mm depressed lesion that was histologically diagnosed as a tubular adenocarcinoma (yellow arrows), with map-like redness present around the gastric cancer, but unclear mucosal atrophy and vascular patterns.



Video 1 Unique endoscopic and histological findings of early gastric cancer with surrounding map-like redness detected 10 years after successful *Helicobacter pylori* eradication.

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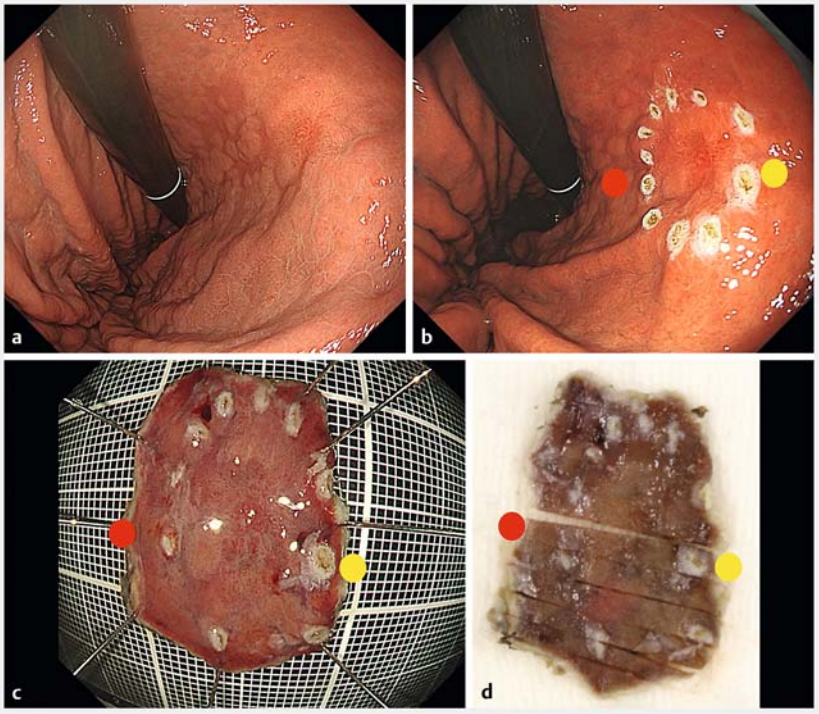

▶ **Fig. 2** Endoscopic submucosal dissection of the lesion showing: **a, b** endoscopic images: **a** before marking; **b** after marking around the lesion; **c** the macroscopic appearance of the resected specimen; **d** the formalin-fixed and sectioned specimen. Histological images of a section from the region connecting the yellow and red dots are shown in ▶ **Fig. 3**.

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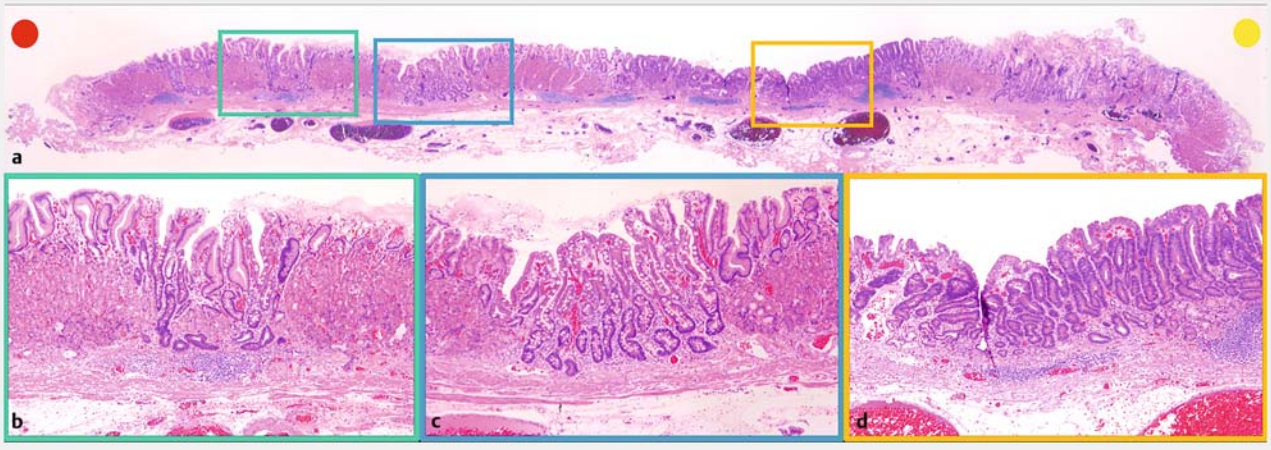
Competing interests

The authors declare that they have no conflict of interest.

The authors

Yohei Koyama[1], Takashi Kawai[2], Fumito Yamanishi[1], Sho Matsumoto[1], Masakatsu Fukuzawa[1], Jun Matsubayashi[3], Takao Itoi[1]

1 Department of Gastroenterology and Hepatology, Tokyo Medical University Hospital, Tokyo, Japan
2 Department of Gastroenterological Endoscopy, Tokyo Medical University Hospital, Tokyo, Japan
3 Department of Anatomic Pathology, Tokyo Medical University, Tokyo, Japan



▶ **Fig. 3** Histological images (all stained with hematoxylin and eosin) of a section from the region connecting the yellow and red dots shown in ▶ **Fig. 2** showing: **a** panoramic view; **b, c, d** magnified images (original magnification × 200) of: **b, c** intestinal metaplasia and almost normal gastric fundic glands in patches within the green and blue boxes; **d** a well-differentiated adenocarcinoma limited to the mucosal layer in the orange box indicated in part **a**.

Corresponding author

Yohei Koyama, MD, PhD
Department of Gastroenterology and Hepatology, Tokyo Medical University, 6-7-1 Nishishinjuku, Shinjuku-ku, Tokyo 160-0023, Japan
yohei_koyama_0217@yahoo.co.jp

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