Appendiceal mucinous neoplasms are the second most common tumors after carcinoid tumors in all excised appendices [1]. Low-grade appendiceal mucinous neoplasms are often found incidentally (~50%), first discovered on radiography, endoscopy, or during surgery [2]. On endoscopy, they often appear as submucosal tumor-like elevations at the appendicular orifice [3]; there are no reports of associated epithelial changes. Herein we report two cases of endoscopically observed epithelial changes in low-grade appendiceal mucinous neoplasms (▶Video 1).

Case 1: A 72-year-old woman underwent colonoscopy for contrast accumulation in the appendix on 18F-fluorodeoxyglucose positron emission tomography-computed tomography (▶Fig. 1a, b, c). Colonoscopy revealed a slightly elevated whitish lesion covered with a mucus cap in the cecum at the appendiceal orifice (▶Fig. 2a, b). Magnifying narrow-band imaging (NBI) showed no vessel pattern and regular, wavy, elongated surface structures (▶Fig. 2c). Using chromoendoscopy with indigo carmine, the boundary of the lesion was clearly visualized (▶Fig. 2d). Magnifying red dichromatic imaging with indigo carmine clearly showed regular, wavy, elongated, branched surface structures (▶Fig. 2e). Magnifying chromoendoscopy using crystal violet showed a wavy, branched pit, although the staining was not as clear as with other methods, probably owing to adherent mucus (▶Fig. 2f). Histopathological examination following ileocecal resection revealed a low-grade appendiceal mucinous neoplasm (▶Fig. 3a, b).

Case 2: A 74-year-old man underwent colonoscopy for appendiceal enlargement on computed tomography that showed a similar lesion as described in case 1 (▶Fig. 4a). Magnifying NBI, chromoendoscopy with indigo carmine, and magnifying chromoendoscopy using crystal violet showed the same findings as in case 1 (▶Fig. 4b, c, d). Following ileocecal resection, histopathology revealed a low-grade appendiceal mucinous neoplasm (▶Fig. 5a, b) with some adenocarcinoma components in the tail of the appendix.

In these cases, low-grade appendiceal mucinous neoplasms were observed as whitish, slightly elevated lesions covered with a mucus cap, and no blood vessels could be identified. The findings were
more similar to serrated lesions than adenomas.

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Competing interests

The authors declare that they have no conflict of interest.

The authors

Kengo Kasuga, Keigo Sato, Yu Hashimoto, Hirohito Tanaka, Hiroko Hosaka, Shiko Kuribayashi, Toshio Uraoka

Department of Gastroenterology and Hepatology, Gunma University Graduate School of Medicine

Corresponding author

Toshio Uraoka, MD
Department of Gastroenterology and Hepatology, Gunma University Graduate School of Medicine, 3-39-22 Showa-machi, Maebashi 371-8514, Japan
Fax: +81-27-220-8137
uraoka@gunma-u.ac.jp

Fig. 2 Endoscopic images showing a slightly elevated whitish lesion covered with a mucus cap in the cecum near the appendiceal orifice. a, b White light. c Magnifying narrow-band imaging. d Magnifying chromoendoscopy using indigo carmine. e Magnifying red dichromatic imaging with indigo carmine. f Magnifying chromoendoscopy using crystal violet staining.

Fig. 3 Histological examination (hematoxylin and eosin stained). a The distribution of lesions in the resection specimen is shown along with the boundary between normal mucosa and low-grade appendiceal mucinous neoplasm (the green line shows the area of low-grade appendiceal mucinous neoplasm with prominent mucous adhesion). b A magnified view of the area of low-grade appendiceal mucinous neoplasm; the mucinous epithelial cells are filiform with low-grade cytological atypia.
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Fig. 4 Endoscopic images showing a slightly elevated whitish lesion covered with a mucus cap in the cecum near the appendiceal orifice. a White light. b Magnifying narrow-band imaging. c Magnifying chromoendoscopy using indigo carmine. d Magnifying chromoendoscopy using crystal violet staining.

Fig. 5 Histological examination (hematoxylin and eosin stained). a The distribution of lesions in the resection specimen is shown along with the boundary between the normal mucosa and low-grade appendiceal mucinous neoplasm (the green line shows the area of low-grade appendiceal mucinous neoplasm). b A magnified view of the area of low-grade appendiceal mucinous neoplasm; the mucinous epithelial cells are villous with low-grade cytological atypia.