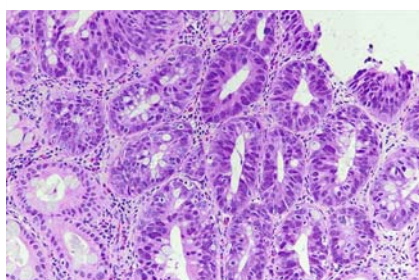


## Is artificial intelligence a superior diagnostician in ulcerative colitis?

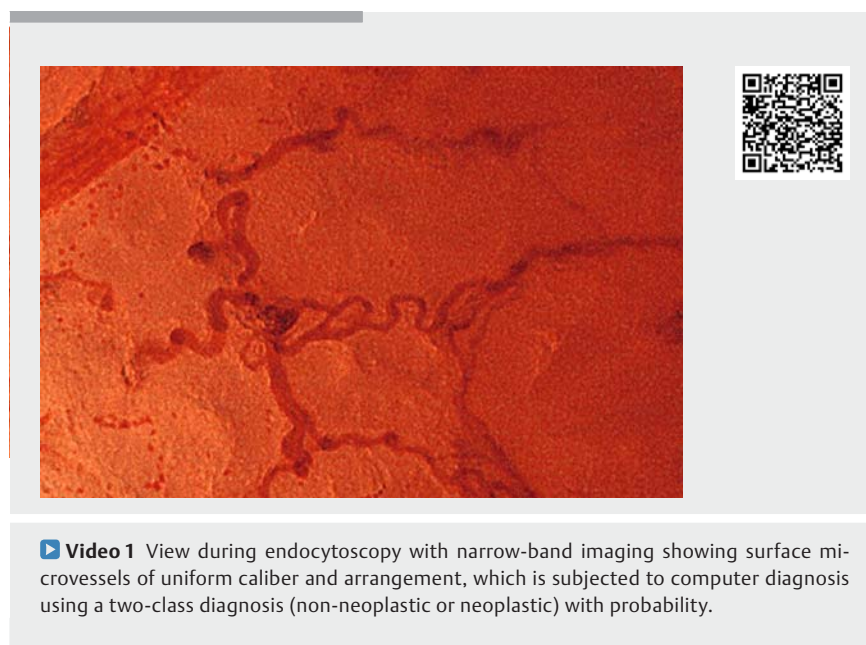


► **Fig. 1** Colonoscopic image revealing a slightly elevated reddish lesion in the lower rectum (yellow arrows).



► **Fig. 2** Histologic appearance showing an atypical tubular gland with high grade dysplasia in the mucosa.

A 46-year-old woman with a 26-year history of pancolitis visited our hospital regularly. She had remained in remission for the past 5 years and was taking oral mesalamine. Annual endoscopy examination showed a slightly elevated reddish lesion (5 mm) in the lower rectum (► **Fig. 1**). Endocytoscopy (CF-H290ECI; Olympus, Tokyo, Japan) with narrow-band imaging revealed surface microvessels of uniform caliber and arrangement (► **Video 1**). An artificial intelligence-based system (EndoBRAIN; Cybernet Systems, Tokyo, Japan) diagnosed the lesion as a neoplasm. On the basis of biopsy findings, we diagnosed the lesion as being high grade dysplasia (► **Fig. 2**) and performed



► **Video 1** View during endocytoscopy with narrow-band imaging showing surface microvessels of uniform caliber and arrangement, which is subjected to computer diagnosis using a two-class diagnosis (non-neoplastic or neoplastic) with probability.

endoscopic submucosal dissection. After treatment, she was discharged on post-operative day 7, without any complications.

The risk of developing colorectal cancer (CRC) is significantly elevated in patients with ulcerative colitis. Surveillance colonoscopy is usually performed to identify colitis-associated CRC. Endocytoscopy is a novel type of ultramagnification endoscopy that enables microscopic cellular observation, and evaluation of the endocytoscopic microvasculature has been used for the diagnosis of colorectal lesions [1]. The EndoBRAIN system accurately differentiates neoplastic from non-neoplastic lesions in endocytoscopic narrow-band images, when pathological findings are used as the standard [2]. However, its application in the diagnosis of colitis-associated CRC has not previously been reported. Our findings suggest that endocytoscopy can be used to obtain information regarding the endocytoscopic vascular pattern and that EndoBRAIN can help detect colitis-asso-

ciated CRC. Furthermore, colitis-associated CRC is often difficult to diagnose because of the effects of inflammation and the use of EndoBRAIN can help non-expert endoscopists to identify colitis-associated CRC, thereby helping to avoid unnecessary biopsies.

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### Competing interests

The authors declare that they have no conflict of interest.

### The authors

**Shuhei Fukunaga, Yoshio Kusaba, Akihiro Ohuchi, Tsutomu Nagata, Keiichi Mitsuyama, Osamu Tsuruta, Takuji Torimura**

Division of Gastroenterology, Department of Medicine, Kurume University School of Medicine, Fukuoka, Japan

## Corresponding author

**Shuhei Fukunaga, MD**

Division of Gastroenterology, Department of Medicine, Kurume University School of Medicine, 67 Asahi-machi, Kurume, Fukuoka 830-0011, Japan

Fax: +81-942-342623

fukunaga\_shyuhei@med.kurume-u.ac.jp

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