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## Real-time optical diagnosis of dysplasia with endocytoscopy in inflammatory bowel disease

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### Case Report

A 60-year-old male with ileocolic Crohn's disease diagnosed 36 years earlier (Montreal Classification: A2, L3, B1) underwent a surveillance colonoscopy. The examination revealed an 11 mm flat lesion (Paris 0-IIb) in the transverse colon, presenting as a reddish plaque with indistinct borders under white light (Fig 1a). Narrow band imaging (NBI) showed a regular vascular pattern and crypt distribution (NICE 2, Sano 2) (Fig 1b, 1e). Endocytoscopy, after staining with 0.05% crystal violet and 1% methylene blue, revealed elongated crypts and uniform fusiform nuclei, consistent with a tubular adenoma (EC2) (Fig 1c, 1f) (1). En bloc resection was performed using underwater

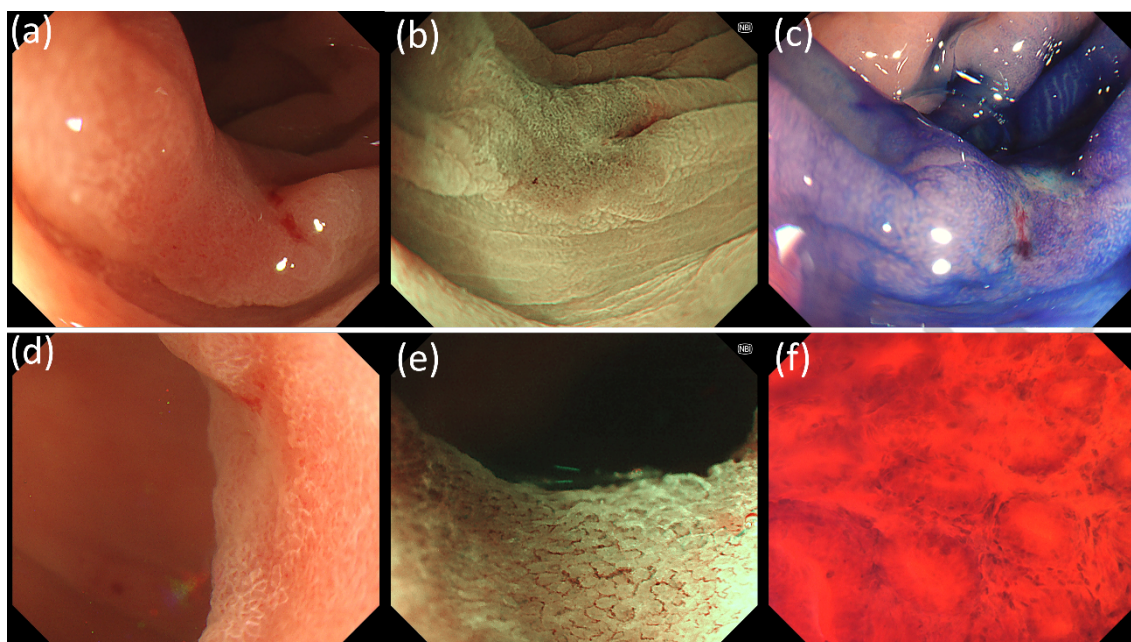
mucosal resection. Histology confirmed a tubular adenoma with low-grade dysplasia and clear resection margins.

## Discussion

Inflammatory bowel disease (IBD), including ulcerative colitis and Crohn's disease, is associated with chronic gastrointestinal inflammation and an increased risk of colorectal cancer (CRC) due to dysplasia development. As a result, endoscopic surveillance is recommended. However, distinguishing dysplastic from non-dysplastic lesions remains difficult, even for experts, due to overlapping features such as scarring and inflammation (2). Endocytoscopy offers real-time, high-resolution visualization of cellular architecture and microvasculature, supporting in vivo diagnosis (3). This case illustrates how endocytoscopy can improve dysplasia characterization in complex IBD cases, contributing to accurate, immediate decision-making during endoscopic surveillance.

## REFERENCES

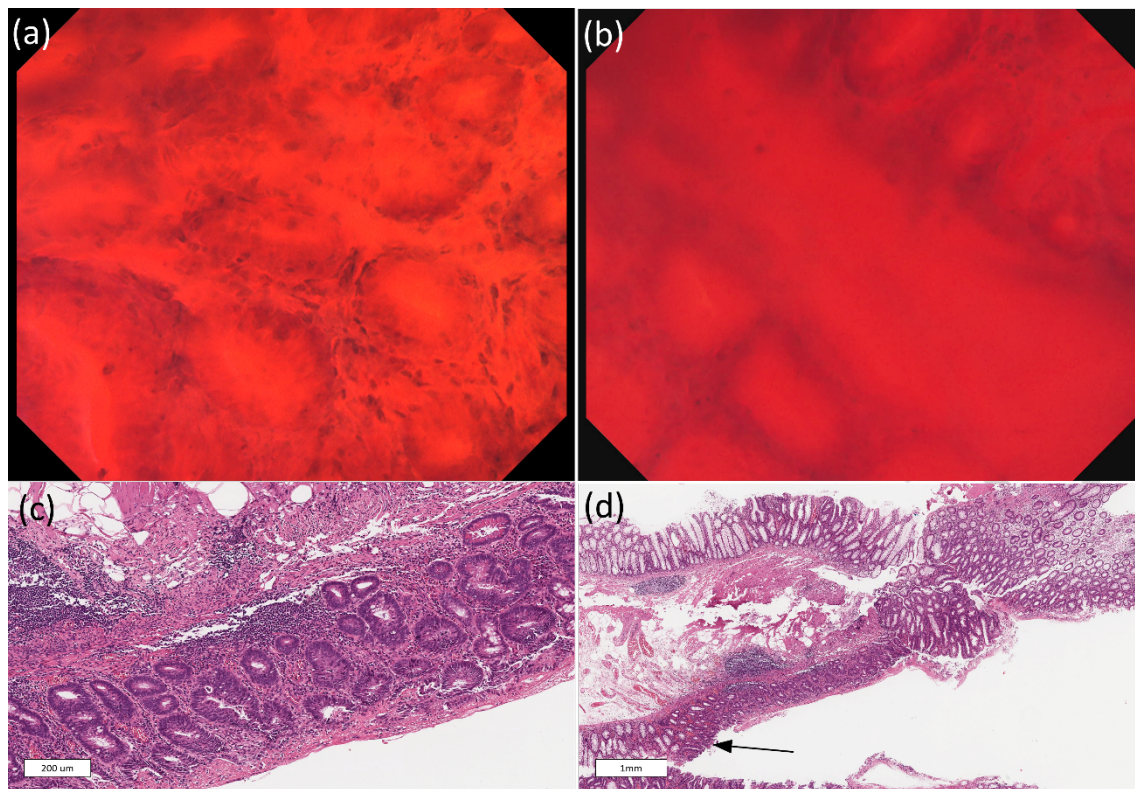
1. Kudo SE, Wakamura K, Ikehara N, et al. Diagnosis of colorectal lesions with a novel endocytoscopic classification a pilot study. *Endoscopy* 2011;43(10):869–75.
2. Al Bakir I, Kabir M, Yalchin M, et al. Optimising inflammatory bowel disease surveillance and dysplasia management—Where do we stand? *United European Gastroenterol J.* 2022 Dec 1;10(10):1054.
3. Kudo SE, Mori Y, Wakamura K, et al. Endocytoscopy can provide additional diagnostic ability to magnifying chromoendoscopy for colorectal neoplasms. *J Gastroenterol Hepatol.* 2014 Jan;29(1):83–90.



**Figure 1**

Lesion visualized with white light, NBI, and after staining with methylene blue and crystal violet (a, b, and c respectively); Lesion visualized under magnification with white light and NBI (d, e, respectively). Lesion visualized with endocytoscopy (f).





**Figure 2**

Equivalence between endoscopic and pathological analysis. (a) Elongated crypts (EC2) correlating with tubular adenoma with low-grade dysplasia (c). (b) The limit of the lesion shown in the endoscopic image corresponds to the area marked with an arrow in the microscopic image (d).