Flat colorectal adenocarcinoma: a worrisome false negative of artificial intelligence-assisted colonoscopy

The development of artificial intelligence (AI) systems in the field of colorectal endoscopy is currently booming, colorectal cancer being, by its frequency and severity, a serious public health concern. In terms of image analysis, AI is indeed able to perform many tasks automatically, including lesion detection, classification, and segmentation, and to combine them [1]. Lesion detection is thus the starting point of the whole chain to eventually choose the most appropriate patient treatment. Large-scale studies have demonstrated the superiority of AI-assisted detection over the usual detection by gastroenterologists, mainly for the detection of sub-centimeter polyps [2, 3]. However, we have shown that a recent computer-aided detection (CADe) system such as the ENDO-AID software in combination with the EVIS X1 video column (Olympus, Tokyo, Japan) may have difficulties in the detection of flat lesions such as sessile serrated lesions (SSLs) and non-granular laterally spreading tumors [4, 5]. This represents a major challenge, because in addition to their shape being difficult for the human eye to identify in practice and where AI assistance would thus be of great value, these rare lesions are associated with advanced histology.

Herein we report the case of a patient with a 2.5-cm pseudo-depressed non-granular laterally spreading tumor of the transverse colon not detected correctly by CADe (▶ Video 1). This lesion included a 15-mm Kudo VI demarcated area (▶ Fig. 2, ▶ Fig. 3). Pathological examination suggested an adenocarcinoma invading the muscularis mucosae (▶ Fig. 4, ▶ Fig. 5). It is essential for endoscopists to continue to properly analyze the colonic mucosal surface. It remains a major challenge for diagnostic endoscopy not to miss such flat lesions, which may be invasive cancers and for which endoscopic treatment could allow the patient to be cured.

Endoscopy_UCTN_Code_CPL_1AJ_2AB

Competing interests

The authors declare that they have no conflict of interest.
The authors

Pierre Lafeuille1, Clara Yzet1, Jérôme Rivory1, Guillaume Pontarollo2, El Houcine Latif3, Adrien Bartoli3, Mathieu Pioche1
1 Department of Endoscopy and Hepatogastroenterology, Pavillon L, Edouard Herriot Hospital, Lyon, France
2 Institute of Pathology Est, Hospices Civils de Lyon, Lyon, France
3 Yansys Medical, Vichy, France
4 EnCoV, Institut Pascal, UMR 6602, CNRS/ UCA/CHU, Clermont-Ferrand, France

Corresponding author

Pierre Lafeuille, MD
Endoscopy Unit, Digestive Disease Department, Pavillon L, Edouard Herriot Hospital, 69437 Lyon Cedex, France
pierre.lafeuille@chu-lyon.fr

References


Bibliography

Endoscopy
DOI 10.1055/a-1738-9632
ISSN 0013-726X
published online 2022
© 2022. Thieme. All rights reserved.
Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany

ENDOSCOPY E-VIDEOS
https://eref.thieme.de/e-videos

Endoscopy E-Videos is an open access online section, reporting on interesting cases and new techniques in gastroenterological endoscopy. All papers include a high quality video and all contributions are freely accessible online. Processing charges apply (currently EUR 375), discounts and waivers acc. to HINARI are available.

This section has its own submission website at https://mc.manuscriptcentral.com/e-videos

Fig. 4 Microscopic examination of the resection specimen (hematoxylin eosin saffron staining, ×70 magnification). Red asterisk shows adenocarcinomatous gland; solid-line red arrow shows intact muscularis mucosae; dotted-line red arrow shows fragmented muscularis mucosae.

Fig. 5 Same examination with immunohistochemistry staining, ×70 magnification.