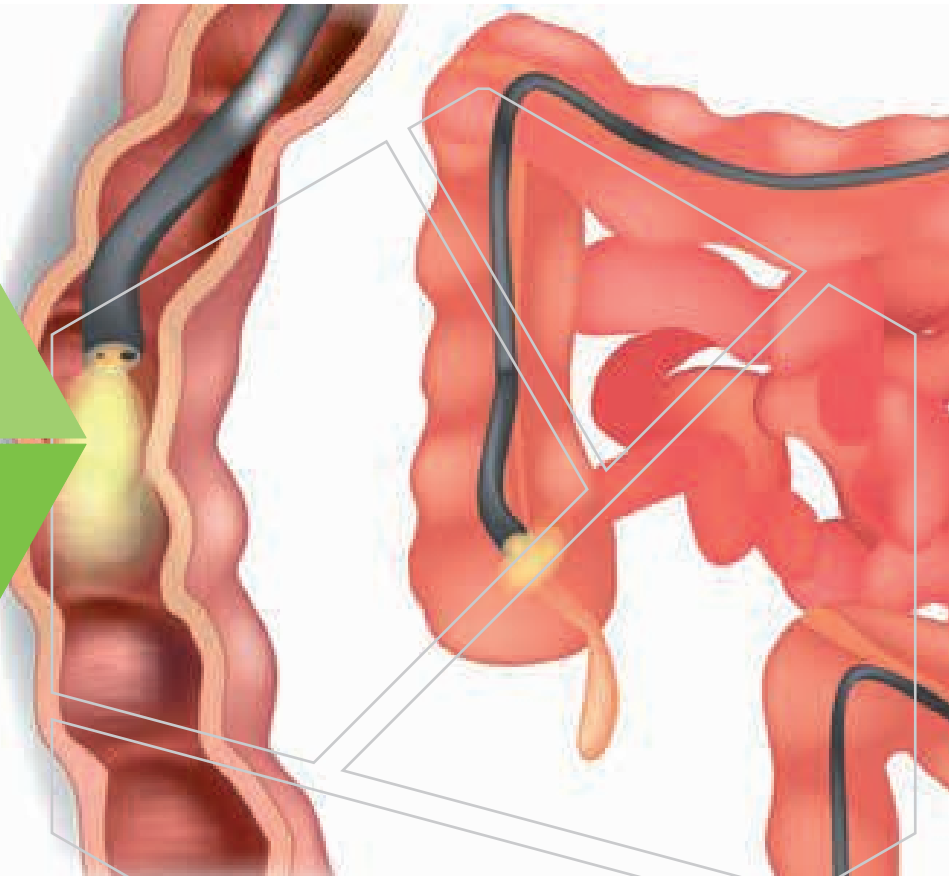


ENDOSCOPY USER'S VOICE

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Endoscopy

How (good) AI is revolutionising colonoscopy

Prof. Emmanuel Coron

Professor Emmanuel Coron, a physician in Gastroenterology and Hepatology at the Digestive Diseases Institute of Nantes



Introduction

Professor Emmanuel Coron, a physician in Gastroenterology and Hepatology working at the Digestive Diseases Institute of Nantes, looks at a new piece of technology from Fujifilm, which helps physicians detect cancer during colonoscopy, and it has received a CE mark.

Colorectal cancer is the second most common cause of cancer death – and the third most common cancer overall. We all know that the key to preventing cancer and improving outcomes for patients is improving the early detection rate of difficult to discover lesions, which is where artificial intelligence has the potential to play a critical role.

There are currently significant gaps in diagnostic capability. Indeed, some studies have shown that an endoscopist's experience can impact adenoma detection rates by as much as 40%, but the learning curve for a junior endoscopist to become good at both detecting and characterising lesions is a long one. While it is incredible how far endoscopy has progressed in the 23 years I have been specialising in this field, this remains one of our greatest challenges. That's why our goal must be to standardise practice at the highest level, so that no patient's care and treatment options are a matter of luck.

For any gastroenterologist, the priority on being presented with a patient is doing all we can not to miss small lesions in difficult areas of the colon, or overlook subtle changes in the mucosa. Research has shown each 1% increase in adenoma detection rate could mean a 3% decrease in the risk of colorectal cancer, and so early and accurate detection is critical. From a practical point of view, this means having the right tool for the situation with the best possible optical quality. It also means that effective measures to mitigate negative human factors among endoscopists such as inexperience and fatigue, could hold significant potential

benefits for patient outcomes.

In recent years we've seen some exciting technological innovations aimed at achieving this. I have tried and tested several AI-supported devices which unfortunately have mostly resulted in disappointment, but there is one that is more mature than the rest, which makes me extremely excited for the future of innovation in this field.

Unlike others, CAD EYE, a new AI software based on deep-learning from Fujifilm provides support for both the accurate detection and characterisation of colorectal polyps in one device. When a suspicious polyp is detected within the endoscopic image, a detection box indicates the area and is accompanied by a sound signal. The scope's characterisation mode then displays a histological prediction highlighting whether the polyp identified is either hyperplastic or neoplastic.

While there is currently not enough data to definitively say how far this technology, which was launched commercially this week, might improve the adenoma detection rate, I can say with certainty that even as an experienced endoscopist, the CAD EYE system recognised small lesions of 1-2mm that I otherwise would have missed. Now if I do a colonoscopy without CAD EYE, it feels like driving without a seatbelt, and for my patients, it is a re-assuring option to have a second pair of eyes in the room, able to provide support in picking up more difficult to detect abnormalities; they almost most always opt for its use.

The potential future benefits of this technology for healthcare services are also very exciting. The dual detection and characterisation modes which are supported by Linked Color Imaging and Blue Light Imaging, could help to reduce the learning curve of less experienced endoscopists, improving efficiency and accuracy, while the characterisation mode could decrease the cost of histopathology by reducing unnecessary biopsies taken during procedures.

AI technology is developing all the time and therefore CAD EYE will only continue to improve the more it is used by clinicians. I have no doubt that in time AI of this quality will not only be desired, but seen as necessary to deliver the best care for every patient in every theatre.