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New AI system can detect bowel cancer in less than a second

30 October 2017 | News

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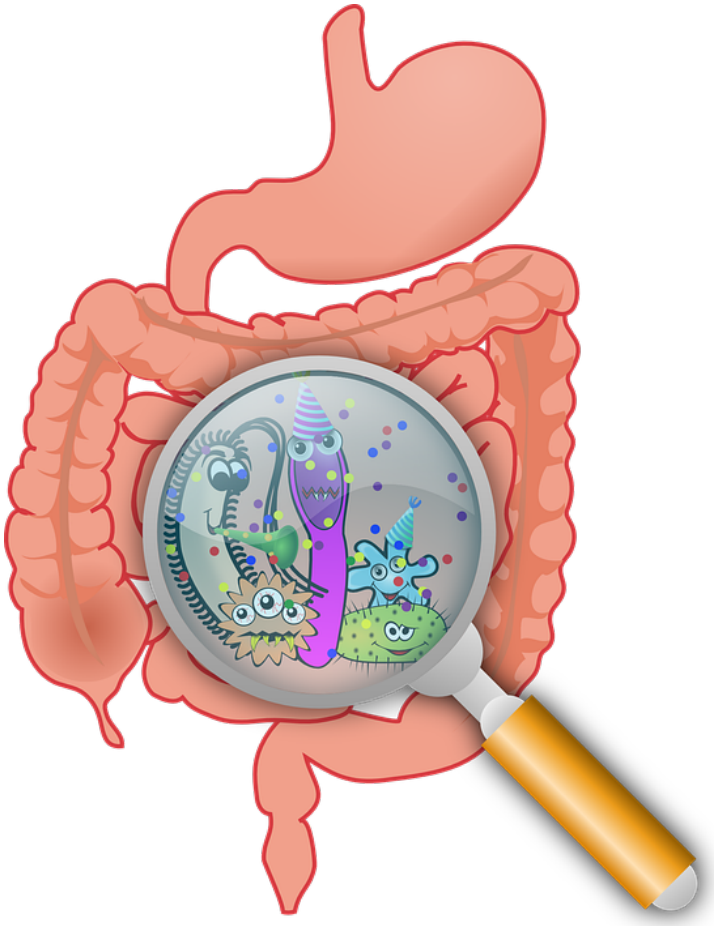

Scientists have developed an artificial intelligence (AI) system that can automatically detect colorectal cancer in less than a second.

Researchers from Showa University in Yokohama, Japan developed the computer-aided diagnostic system that uses an endocytoscopic image - a 500-fold magnified view of a colorectal polyp - to analyse about 300 features of the polyp after applying narrow-band imaging (NBI) mode or staining with methylene blue.

The system compares the features of each polyp against more than 30,000 endocytoscopic images that were used for machine learning, allowing it to predict the lesion pathology in less than a second.

Researchers studied 250 men and women in whom colorectal polyps had been detected using endocytoscopy.

The AI-assisted system was used to predict the pathology of each polyp and those predictions were compared with the pathological report obtained from the final resected specimens.

The team assessed 306 polyps in real-time by using the AI-assisted system, providing a sensitivity of 94 per cent, specificity of 79 per cent, accuracy of 86 per cent, and positive and negative predictive values of 79 per cent and 93 per cent respectively, in identifying neoplastic changes.

"We believe these results are acceptable for clinical application and our immediate goal is to obtain regulatory approval for the diagnostic system," said Yuichi Mori from Showa University in Yokohama.

The team is now undertaking a multi-centre study for this purpose and is also working on developing an automatic polyp detection system.

"Precise on-site identification of adenomas during colonoscopy contributes to the complete resection of neoplastic lesions," said Mori.

"This is thought to decrease the risk of colorectal cancer and, ultimately, cancer-related death," Mori added.

Source: PTI