

Digestive Tract Cancers: Next Generation Technology for Accurate Diagnosis and Early Cancer Detection

Dr Jarrod Lee

Consultant Gastroenterologist, Mount Elizabeth Novena Hospital

40,000 Indonesians are diagnosed with digestive tract cancers every year. Of the 10 most frequent cancer deaths, digestive tract cancers account for 5 out of 10 in males, and 4 in females. Although digestive tract cancers have a high rate of cancer deaths, many can be cured if detected early.

Gastrointestinal endoscopy is a minimally invasive procedure that is widely used for digestive tract cancer screening and diagnosis. A small flexible tube the size of a finger is inserted through the mouth or anus. It allows the internal lining of the digestive tract to be viewed on a video monitor. Samples can be taken through the tube for further analysis. Pre-cancerous growths can be removed to prevent their progress to cancer.

Endoscopy has been available in Singapore for over 20 years. An increasing number of Singaporeans undergo endoscopy for cancer screening in the digestive tract. Despite this, the proportion of such cancers detected at an earlier stage has not increased significantly over the last 10 years. It is increasingly recognized that routine endoscopy misses a significant number of cancerous and pre-cancerous growths. For example, colonoscopy has been shown to miss 20 to 30% of pre-cancerous polyps. The limitations of endoscopy today have drawn attention to new advanced imaging technology to improve diagnostic endoscopy for the future.

Enhanced imaging technology enables accurate examination of the surface features and blood vessels of the digestive tract. This allows detection of early cancers and pre-cancerous areas that general endoscopy would miss altogether. Enhanced imaging can be incorporated into general endoscopy to provide a more thorough and detailed endoscopic examination. This facilitates cancer risk assessment and prevention for every patient undergoing endoscopy.

Endoscopic ultrasound enables detailed examination of the digestive tract beneath its surface, and is ideal for assessing any growth seen in digestive tract. It can assess the depth of growth and the relationship to surrounding structures. It is considered the most accurate screening modality for organs adjacent to the digestive tract, such as the pancreas and biliary system. Endoscopic ultrasound can also guide a needle accurately into growths outside the digestive tract to enable precise sampling.

These 'next generation' endoscopic technologies can be conveniently performed together with routine general endoscopy, and are now available in Singapore. Doctors performing such advanced diagnostic endoscopy need to undergo an additional year of specialized training in order to perform them with high accuracy. Dr Jarrod Lee is one such doctor. He is based at Mount Elizabeth Novena Hospital, where the 'next generation' endoscopy systems are available. Dr Lee speaks widely around the region to advocate the use of these new technologies.

“The way doctors have performed endoscopy has not evolved much over the last 20 years,” Dr Lee shares. “The advent of advanced imaging may herald a fundamental change in the way endoscopy will be done in the future. It allows an unprecedented level of diagnostic accuracy, and earlier detection of cancers and pre-cancerous growths.”

Dr Lee relates a patient who saw him recently. She had seen multiple specialists for ‘gastric’ problem over a 10 year period. She underwent many endoscopies and radiology scans, all of which showed the same diagnosis of ‘gastritis’. She tried many ‘gastric’ medications, but none offered any relief. Dr Lee performed a gastroscopy with enhanced imaging, and determined that the stomach was actually normal. On the other hand, endoscopic ultrasound showed chronic pancreatitis. This was verified by endoscopic sampling of suspicious areas in the pancreas. Dr Lee stopped all the ‘gastric’ medication and started pancreas medication. The patient’s symptoms have since resolved completely.

According to Dr Lee, advanced imaging technology has only recently reached a mature enough stage for widespread use in Singapore. Hence, the biggest limitation at the moment is the small number of suitably trained doctors, and limited facilities with suitable equipment. However, the near future will see an increased availability of “next generation’ endoscopy systems and doctors trained in advanced imaging. When that happens, Dr Lee hopes that more digestive tract cancers can be detected at an early curative stage, and that these cancers will no longer be the top killers in Singapore. At the moment, endoscopy with advanced imaging should certainly be considered for patients with indeterminate findings on routine endoscopy or radiology scans, and in patients with high cancer risk.