

Cancer screening made more accurate

Improving the detection of early cancers and precancerous lesions

by Dr Jarrod Lee, Gastroenterologist

About 1,400 Singaporeans die each year from digestive tract cancers. In the latest report from the Singapore Cancer Registry for 2008–2013, digestive tract cancers account for three out of the top six cancer deaths in both males and females. Symptoms are typically non-specific, and generally appear at more advanced stages. Likewise, blood tests for tumour markers are notoriously unreliable. Although these cancers have a high rate of death, many can be cured if detected early.

Gastrointestinal endoscopy is a minimally invasive procedure that is widely used for digestive tract cancer screening. A small flexible tube the diameter 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. Endoscopy allows digestive tract cancers to be detected at an early stage before symptoms even develop.

Endoscopy has been available in Singapore for over 20 years. An increasing number of Singaporeans undergo endoscopy for digestive cancer screening. Despite this, the proportion of such cancers detected at an earlier stage has not increased significantly over the last 10 years. It is increasingly recognised 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, while gastroscopy has been shown to miss up to a staggering 19% of early stomach cancers. The limitations of endoscopy today have drawn attention to new advanced imaging technology to improve diagnostic endoscopy for the future.

Advanced imaging

Image enhanced endoscopy (IEE) enables accurate examination of the surface features and blood vessels of the digestive tract. There are two types of IEE: chromoendoscopy, which uses special dyes to look for specific features and cell types, and digital chromoendoscopy, which uses light filters and computer enhancement. IEE allows the detection of early cancers and pre-cancerous areas that routine endoscopy would miss altogether.

Endoscopic ultrasound (EUS) enables detailed examination of the digestive tract beneath its surface, and is ideal for assessing any growth seen within or adjacent to the 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. EUS 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 endoscopy to provide a more thorough and detailed endoscopic examination. This allows an unprecedented level of diagnostic accuracy, and earlier detection of cancers and even pre-cancerous growths. Doctors performing such advanced endoscopy need to undergo additional years of specialised training in order to perform them with high accuracy. Hence, the biggest limitation at the moment is the small number of suitably trained doctors, and limited facilities with suitable equipment. For the moment, it should certainly be considered for patients with indeterminate findings on routine endoscopy or radiology scans, and in patients with high cancer risk.



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