Experts build crab-like robot to remove stomach cancer

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By Tan Ee Lyn

SINGAPORE (Reuters) - Inspired by Singapore's famous chilli crab dish, researchers have created a miniature robot with a pincer and a hook that can remove early-stage stomach cancers without leaving any scars.

Mounted on an endoscope, it enters the patient's gut through the mouth. It has a pincer to hold cancerous tissues, and a hook that slices them off and coagulates blood to stop bleeding.

With the help of a tiny camera attached to the endoscope, the surgeon sees what's inside the gut and controls the robotic arms remotely while sitting in front of a monitor screen.

"Our movements are very huge and if you want to make very fine movements, your hands will tremble ... But robots can execute very fine movements without trembling," said enterologist Lawrence Ho, who helped design the robot.

Professor Ho, who works at Singapore's National University Hospital, said the robot helped remove early-stage stomach cancers in five patients in India and Hong Kong, using a fraction of the time normally taken in open and keyhole surgeries that put patients at higher risk of infection and leave behind scars.

Stomach, or gastric, cancer is the second leading cause of cancer deaths worldwide and is particularly common in east Asia. Diagnosis of gastric cancer usually occurs at a late stage of the disease when treatment is difficult and often unsuccessful.

Louis Phee, associate professor at Singapore's Nanyang Technological Institute's school of mechanical and aerospace engineering, helped design the robot with Ho.

They developed the robot after a seafood dinner in Singapore in 2004 with top Hong Kong surgeon Sydney Chung, who suggested they fashioned their device after the crab. Chung is best known for fighting SARS in Hong Kong in 2003.

"He (Chung) suggested we used the crab as a prototype. The crab can pick up sand and its pincers are very strong," said Ho.

"Many things are a certain way because they have evolved and adapted to certain functions ... we created something that followed the human anatomy and borrowed ideas from nature and incorporated the two," Ho said.

The researchers formed a company last October and hope to make the robot commercially available in three years.

(Reporting by Tan Ee Lyn; Editing by Sanjeev Miglani)