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# *News Release*

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> **VIDEO ALERT:** Video of Dr. Michael Wallace discussing the study can be found at the Mayo Clinic News Network, our new method for delivering embargoed media content. The network requires a username and password, which can be obtained at http://NewsNetwork.MayoClinic.org. Learn about this new network by watching this short video: http://bit.ly/NewsNetwork.

**Mayo Clinic: Pancreatic Cancer May Be Detected with Simple Intestinal Probe**

*A routine endoscopy can detect cancer in the pancreas in the nearby adjacent small intestine due to cancer's 'field effect'*

JACKSONVILLE, Fla. — By simply shining a tiny light within the small intestine, close to that organ's junction with the pancreas, physicians at Mayo Clinic's campus in Florida have been able to detect pancreatic cancer 100 percent of the time in a small study. The light, attached to a probe, measures changes in cells and blood vessels in the small intestine produced by a growing cancer in the adjoining pancreas.

This minimally invasive technique, called Polarization Gating Spectroscopy, will now be tested in a much larger international clinical trial led by the Mayo Clinic researchers. The preliminary study suggests it may be possible, one day, to use a less invasive endoscope to screen patients for early development of pancreatic cancer.

The findings are being highlighted in a special address by Mayo Clinic gastroenterologist Michael Wallace, M.D., at the international Digestive Disease Week 2012, the world's largest gathering of physicians and researchers who treat, and study, disorders of the gastrointestinal tract.

The pancreas is notoriously hard to reach and see due to its very deep location in the abdomen, surrounded by intestines. The study investigators theorized that there may

be changes in the nearby "normal appearing" tissue of the small intestine which is much more accessible.

"No one ever thought you could detect pancreatic cancer in an area that is somewhat remote from the pancreas, but this study suggests it may be possible," says Dr. Wallace, the chairman of the Division of Gastroenterology at Mayo Clinic in Florida. "Although results are still preliminary, the concept of detection field effects of nearby cancers holds great promise for possible early detection of pancreatic cancer."

Pancreatic cancer is one of the most deadly of human tumors. It is only curable in 5 percent of cases, and even when it is surgically removed, 70 percent of patients have a recurrence that is fatal, Dr. Wallace says. There are no ways currently to detect the cancer early enough to cure a substantial number of patients, he says.

Pancreatic cancer is now usually detected through an imaging scan, followed by an invasive biopsy. Tumors found in this way are usually at an advanced stage.

In this study, the Mayo Clinic physicians tested a light probe developed by their long-time collaborators at Northwestern University.

The light, attached to a small fiber-optic probe known as an endoscope, measures the amount of oxygenated blood as well as the size of blood vessels in tissue near the duct where the pancreas joins the small intestine. Because a growing tumor requires a heightened supply of blood, normal tissue in the vicinity of the cancer reveals evidence of enlarged blood vessels and changes in the amount of oxygen within the blood.

Such "field effects" from cancer can be measured in other areas of the GI tract, says Dr. Wallace. "With this technology, others studies have shown that cancerous polyps can be detected more than 11 inches from the polyp itself. Early studies are evaluating if esophageal cancers can also be detected remotely," he says.

The probe acts "a bit like a metal detector that beeps faster and louder as you get close to cancer," he says. The researchers are measuring within six to 10 inches of the pancreas in the small intestine immediately next to the pancreas.

Dr. Wallace and his team tested the probe on 10 patients who were later determined to have pancreatic cancer, and on nine participants who did not have pancreatic cancer.

They found that testing both measures — blood vessel diameter and blood oxygenation — detected all 10 pancreatic cancers. But the probe was less precise (63 percent accurate) in determining which of the healthy volunteers did not have pancreatic cancer.

"There is room for improvement in this instrument, and our group is working on that," he says. "If the studies confirm the early results, it would make the pancreas accessible to a much simpler upper endoscope and that would be a real advance in the treatment of pancreatic cancer."

Patients now often undergo an endoscopic examination of the upper intestine to search for the cause of heartburn or stomach pain, Dr. Wallace says. An endoscopic probe could be easily outfitted to explore for evidence of pancreatic cancer in patients at heightened risk, he says.

Mihir Patel, M.D., a gastroenterologist who worked with Dr. Wallace on the study, says that despite of intense research, we haven't been successful in significantly improving the overall survival associated with pancreatic cancer in the past several decades. That's because we haven't been able to detect the cancer early enough. Developing a technique to screen the patients and detect pancreatic cancer at an early stage would be a potential breakthrough. In our preliminary data, this technology has shown to hold similar potential.

The study's co-authors include Vadim Backman, Ph.D., a professor in the biomedical engineering department at Northwestern University and Hemant Roy, M.D., a gastroenterologist at Northwestern University.

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