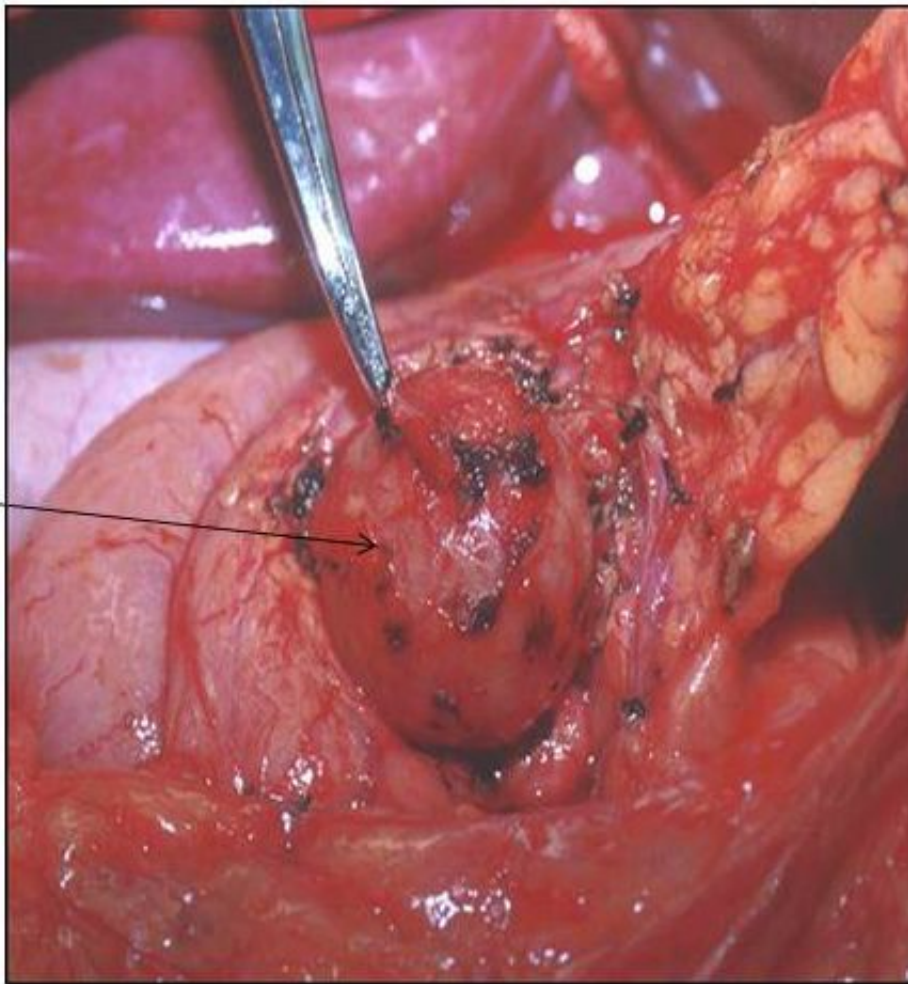


Game changer: Biomarker identified for noncancerous pancreatic cysts

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A benign pancreatic cyst is evident at the tip of the clamp in this photo. Credit: Indiana University School of Medicine

Researchers at the Indiana University School of Medicine have discovered a highly accurate, noninvasive test to identify benign pancreatic cysts, which could spare patients years of nerve-racking trips to the doctor or potentially dangerous surgery.

The findings are reported in "Vascular Endothelial Growth Factor, a Novel and Highly Accurate Pancreatic Fluid Biomarker for Serous Pancreatic Cysts" online in the *Journal of the American College of Surgeons*.

The test, which analyzes fluid from pancreatic cysts, can identify a common type of benign cyst that can't be differentiated by imaging alone from cysts that may progress to [pancreatic cancer](#).

Pancreatic cyst fluid is tested for a biomarker, a specific isoform of vascular endothelial growth factor A, or VEGF-A. Pancreatic cyst fluid is often obtained in patients with pancreatic cysts as a part of standard testing during endoscopy. High levels of VEGF-A indicate with 99 percent accuracy that the cyst will not become malignant, the researchers found after analyzing the results of 87 patients.

First author Michele T. Yip-Schneider, Ph.D., associate research professor of [surgery](#), and senior author C. Max Schmidt, M.D., Ph.D., MBA, professor of surgery, biochemistry and molecular biology, report this is the first cyst fluid protein biomarker that can differentiate serous cystic neoplasms, a benign type of cystic lesion, from all other cancerous or precancerous cystic lesions without surgery.

Pancreatic cancer is one of the deadliest cancers in part because it is frequently diagnosed late and treatment options are somewhat limited. According to the National Cancer Institute, about 45,220 people will be diagnosed this year with pancreatic cancer and about 38,460 will die from the disease.

Treatments may include chemotherapy, radiation and surgery, but few patients are cured.

"Only 15 percent of pancreatic cancer patients will benefit from surgery, and of those, only about 20 percent will survive five years," said Dr. Schmidt, who is a researcher with the Indiana University Melvin and Bren Simon Cancer Center and director of the IU Health Pancreatic Cyst and Cancer Early Detection Center.

Complications from [pancreatic surgery](#) are common and can be life threatening, so sparing a patient unnecessary surgery is important, Dr. Schmidt said.

"As scientists, we have tried to figure out which cystic lesions are benign, which are pre-cancerous and which are malignant," Dr. Yip-Schneider said. "Although pancreatic cysts are best seen on pancreatic MRI-MRCP, making a diagnosis of which type of cyst and how likely cancer will develop is not usually possible through imaging alone."

Surgery is not the panacea that patients frequently hope for, and the majority of pancreatic cancer patients aren't even eligible due to the advanced stage of the disease at presentation.

Pancreatic cysts and cancer are becoming more common in the American population. It is unclear why, but pancreatic cancer is clearly associated with obesity, smoking and a family history of pancreatic cancer.

Today, about 3 percent of the U.S. population has pancreatic cysts, although many are asymptomatic and go undiagnosed. Most of these cysts are pre-cancerous, but some are completely benign while others are cancerous. Patients go through extensive follow-up medical visits, invasive biopsies and sometimes unnecessary surgery to determine the

true nature of their pancreatic cyst. The novel marker VEGF-A can completely eliminate the need for this extensive follow-up and potential harm for patients with unrecognized benign cysts, the researchers said.

"Many of my [patients](#) when initially told they have pancreatic cysts are very fearful and ask for surgical removal of the cyst or the entire pancreas before they even learn their options," Dr. Schmidt said. "Now, physicians will have an outpatient procedure to offer that can take some of the guesswork out of the equation."

More information: www.ncbi.nlm.nih.gov/pubmed/24491241

Provided by Indiana University

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