

## ERCP and Pancreatic Disease

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Endoscopic retrograde cholangiopancreatography (ERCP) has been used for the diagnosis and treatment of pancreatic diseases for over 20 years. This procedure is performed on an outpatient basis under sedation (rarely under general anesthesia). Using a “side-viewing” endoscope, called a duodenoscope, the duodenal “papilla”-(a mound-like structure that houses the opening of the common bile duct and the pancreatic duct)-is identified and manipulated. The scope contains a working channel through which flexible instruments are passed into the bile and/or pancreatic ducts to diagnose and treat pancreatic diseases.

ERCP plays a role in gallstone pancreatitis and complicated acute and chronic pancreatitis. Randomized trials have proven that ERCP will decrease morbidity and have suggested a decrease in mortality for certain patients with gallstone pancreatitis. Groups benefiting from ERCP include patients with an impacted stone in the common bile duct and those in whom removal of the gallbladder will be delayed. ERCP is also valuable in detecting and treating main pancreatic duct leaks with transpapillary stenting (i.e. placement of a plastic tube across the papilla). Symptomatic pseudocysts, essentially walled-off pancreatic or peripancreatic fluid collections seen in either acute or chronic pancreatitis, may be drained via the papilla if they connect with the pancreatic duct. If they do not, drainage can be achieved by creating a cystogastrostomy or cystoduodenostomy (i.e. a hole connecting the stomach or small intestine with the cyst) utilizing a needle-knife papillotome. Pancreatic fistulas, connections between the pancreatic duct and other structures, also respond to transpapillary drainage. Pancreatic ascites, a large collection of abdominal fluid attributed to pancreatic duct rupture, is effectively treated through similar means.

In patients with recurrent acute or chronic pancreatitis, ERCP may detect common bile duct stones or duct narrowing not seen by other imaging modalities, focal narrowing of the pancreatic duct (termed a stricture), other manifestations of chronic pancreatitis suggesting that surgery may be of benefit (e.g. duct dilation), or evidence of a tumor. Common bile duct stones can be removed. Bile duct and pancreatic duct strictures are temporarily treated with a stent as a bridge to surgery. In certain cases, removal of stones from the pancreatic duct may alleviate abdominal pain in the setting of chronic pancreatitis.

Pancreatic cancer diagnosis and palliation (symptomatic treatment) can be achieved via ERCP as well. A variety of methods can achieve a tissue diagnosis of pancreatic cancer including brush cytology, intraductal biopsy and fine needle aspiration. However, due to the low sensitivity of duct brushings, and the potential morbidity associated with ERCP, endoscopic ultrasound-(where available)-has largely supplanted ERCP in the diagnosis of this malignancy. The palliative management of biliary obstruction with transpapillary stents has simplified management of this difficult problem.

The use of ERCP to detect occult anatomical or physiologic abnormalities (i.e. pancreas divisum and sphincter of Oddi dysfunction, respectively) and treatment with biliary and pancreatic sphincterotomy (i.e. cutting of the circular muscle controlling

ductal drainage) remains controversial. Pancreas divisum occurs when the ducts from the two embryonic portions of the pancreas, termed the ducts of Wirsung and Santorini, fail to completely fuse. Many people have this anatomic variant without pancreatitis. There is some inconclusive data suggesting that decompression of one of these ducts may reduce the risk of recurrent pancreatitis. The sphincter of Oddi is the circular muscle that controls drainage from the bile and pancreatic ducts. In some cases where the muscle exhibits high pressures, determined by measurement with a pressure-measuring catheter (i.e. manometry), there may be a benefit to sphincterotomy. The number of patients with this problem treated in published series is too small to draw definitive conclusions. With that said, we believe that sphincter of Oddi manometry should be considered in the patient with recurrent acute pancreatitis of otherwise unknown cause.

ERCP is associated with a 5%-10% risk of pancreatitis. The risk is increased in those cases where cannulation of the ducts is difficult, the pancreas is normal, or when a sphincterotomy is performed in the setting of sphincter of Oddi dysfunction. A prior history of ERCP-induced pancreatitis is also a risk factor. Other less common risks include bleeding, infection and perforation. Particularly in the setting of pancreatic disease, it is a specialized procedure that should be performed only by experienced endoscopists. Many of the techniques discussed above require special training and consistent use to maintain expertise. Such individuals tend to migrate to tertiary referral centers such as ours at the University of Cincinnati (see [www.ucpancreas.org](http://www.ucpancreas.org)). Improvements in technology and instrumentation target enhanced performance with reduced morbidity.

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