Endoscopic Management of Pancreatic Duct Disruption

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Introduction

Pancreatic duct disruptions are most commonly encountered as a complication of chronic or acute recurrent pancreatitis. However, duct disruptions also occur as a result of pancreatic trauma, such as in a motor vehicle accident in which the driver may strike the steering wheel compressing the pancreas between the wheel and the spine. In such cases, the duct is most often disrupted by the bony spinous process in the body of the pancreas where the duct crosses the spine. Surgery (not limited to pancreatic surgery) even when completed expertly, can also lead to pancreatic duct leakage. The management for duct disruption should be multidisciplinary including gastroenterologists, endoscopists, interventional radiologists and surgeons. Medical management relies on minimizing pancreatic function such as with nil per os status, intravenous fluids and if necessary, parenteral nutrition. The goal of endoscopic therapy is to promote drainage. This is most commonly accomplished by inserting a pancreatic duct stent.

Evaluation and management of pancreatic duct disruptions

The most important distinction that must be made when evaluating a pancreatic duct disruption is to determine whether the duct is partially or completely disrupted. Successful resolution of pancreatic duct disruption by transpapillary stenting depends on the type of disruption and the ability to bridge the disrupted duct was a stent (Varadarajulu A, et al. 2005). In a study of 97 consecutive patients with pancreatic duct disruption a transpapillary stent was inserted in 92 (95% technical success). The outcome of the stent insertion was successful in 52 patients (55%). Only two factors were associated with successful outcome, 1) a partially disrupted duct and 2) a stent positioned to bridge the disruption.

Complications of pancreatic duct disruptions

Fluid leakage from a pancreatic duct disruption most often collects as free fluid (ascites) or may become walled off over time (pseudocyst). However, the proteolytic nature of pancreatic secretions may render additional complications including fistuli. Although less common, pancreatic duct may fistulize to the skin.
(pancreaticocutaneous fistula), other organs such as the lung (pancreaticopleural fistula) or even the systemic vasculature (eg., portal vein). There have been at least 17 reported cases of pancreatic fistulization into the portal vein most commonly occurring in patients with chronic pancreatitis and most often requiring surgical management.

Conclusions

In summary, pancreatic ductal disruptions most often lead to pancreatic fluid collections and pseudocysts. Rarely, disrupted ducts may lead to fistulization including to the skin, other organs or systemic vasculature. Evaluation of disrupted ducts may be surmised from standard radiography but is best accomplished by MRCP or ERCP. Identification of pancreatic duct strictures or stones may provide an endoscopic target for treatment. The successful management of strictures (dilation, stenting) and stones (removal with or without prior lithotripsy) as well as the insertion of an endoprosthesis (pancreatic duct stent of a particular configuration and caliber) comprises the basis for the non-operative management of pancreatic duct disruption. Failure of medical management for symptomatic duct disruption is an indication for surgical intervention.

References