

Systematic Review of Endoscopic Cyst Gastrostomy



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KEYWORDS

- Pancreatic fluid collection • WOPN • LAMs • Cyst gastrostomy • Necrosis
- Necrosectomy • Pseudocyst

KEY POINTS

- Accurate typification of fluid collection is paramount, as it allows accurate prediction of endoscopic outcome and clinical course.
- Endoscopic ultrasound has become the main therapeutic option for cyst gastrostomy/duodenostomy formation with lower morbidity and higher resolution rates than surgical interventions.
- Pseudocysts without solid debris can be safely and effectively drained using plastic stent placement over the current trend of metal stent insertion.
- Transpapillary drainage may be indicated only if cross-sectional imaging suggests pancreatic duct disruption.
- With the advent of lumen-apposing metal stents, repeated necrosectomy can be carried out, thereby increasing resolution rates of walled-off necrosis.

INTRODUCTION

Since the original description of pancreatic fluid collection (PFC) in 1761 by Morgagni,¹ the diagnosis, description, and management have continued to evolve. The mainstay of therapy for symptomatic PFCs has been the creation of a communication between a PFC and the stomach (duodenum, jejunum), to enable drainage. Surgical creation of these drainage conduits (cyst gastrostomy, duodenostomy, or jejunostomy) had been the gold standard of therapy; however, there has been a paradigm shift in recent years with an increasing role of endoscopic drainage. The techniques of endoscopic

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drainage have evolved from blind fluid aspiration to include endoscopic necrosectomy and the placement of lumen-apposing metal stents (LAMS).

REVISED ATLANTA CLASSIFICATION

The Atlanta Classification, originally published in 1992, attempted to offer a global consensus on the classification of acute pancreatitis and PFCs. Understanding that treatment success may differ based on the type of fluid collection, changes to the classification were made in 2012.²

The distinction between the 2 forms of acute pancreatitis, interstitial and necrotizing, discerned by cross-sectional imaging, remained. Additional discriminators in the revised classification were the categorizations of PFC in relation to time of onset of symptoms as well as the presence or absence of necrosis within the collection. In a patient who may be classified as having interstitial edematous pancreatitis, a collection that develops less than 4 weeks after symptom onset would be considered an acute PFC and more than 4 weeks a pseudocyst. In a patient with necrosis present, early collections less than 4 weeks are acute necrotic collections (ANC) and more than 4 weeks can be considered walled-off necrosis (WON or WOPN).²

The distinction about timing of development also helps delineate the timing of drainage, if indicated. If drainage of a PFC is required, it should be undertaken after at least 4 weeks to allow for encapsulation potentially reducing the risk of adverse events. A study of 242 patients found that mortality was reduced as the time from hospital admission to intervention of the PFC was increased (0–14 days: 56% to >29 days: 15%; $P < .001$).³

Approximately 10% to 20% of patients with acute pancreatitis will develop pancreatic necrosis. A third of these patients will become infected.^{2,3} There is no clear correlation among the extent of necrosis, the risk of infection, and duration of symptoms.⁴ Although it may be difficult to differentiate between ANC and acute PFC at initial presentation, sequential imaging may be useful to characterize the evolution or stability of these acute collections. ANCs may appear loculated, with variable amounts of debris within the fluid. Although acute PFCs appear more homogeneous, WON, which appears more than 4 weeks after the initial pancreatitis, typically will have a mature enhancing wall formed from reactive tissue. These distinctions allow for proper classification of PFCs.²

Accurate typification of fluid collection is paramount, as it allows accurate prediction of endoscopic outcome and clinical course. A study of 211 patients who underwent endoscopic drainage of PFCs noted that pseudocysts have a higher drainage success rate and a lower adverse event rate than those patients with WON (93.5% vs 63.2%, $P < .0001$, and 15.8% vs 5.2%, $P = .02$, respectively).⁵

INDICATIONS FOR CYST GASTROSTOMY

Most acute PFCs will remain sterile and resolve spontaneously without intervention. As such, PFCs of recent onset that lack a mature encapsulation should not be drained. These collections are considered high risk for peritoneal spillage if drainage is attempted, thus should be managed expectantly. ANCs carry similar risk of adverse event if drainage is carried out before the development of a mature enhancing wall. Overall, the risk associated with the drainage of PFCs decreases with increasing remoteness from the onset of the initial pancreatic injury.³

Before considering drainage of a PFC, a thorough radiologic and/or endosonographic examination should be performed. A multimodality approach will help confirm that the PFC does not represent a cystic neoplasm. Cyst neoplasms should not be

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