

Severe Acute Pancreatitis and Necrotizing Pancreatitis



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KEYWORDS

• Acute pancreatitis • Necrotizing pancreatitis • Mortality • Morbidity

KEY POINTS

- Acute pancreatitis varies widely in its clinical presentation, from clinically negligible to precipitously fatal despite any intervention.
- Necrotizing pancreatitis is a manifestation of severe acute pancreatitis and is associated with significant morbidity and mortality.
- Having established the diagnosis of pancreatic necrosis, goals of appropriately aggressive resuscitation should be established and adhered to in a multidisciplinary approach involving medical and surgical intensive care.
- In all cases of necrotizing pancreatitis, a multidisciplinary approach is needed, using endoscopic techniques and/or percutaneous drainage.
- Open surgery should be reserved for failure of less invasive techniques.

INTRODUCTION

Acute pancreatitis results in nearly 250,000 annual admissions at a cost of approximately \$2.2 billion.^{1,2} In most cases, acute pancreatitis represents a mild, self-limited disease, but in 15% to 25%, severe acute pancreatitis (SAP) develops, manifested with pancreatic parenchymal and/or peripancreatic tissue necrosis.³ Pancreatic necrosis accounts for substantial additional morbidity, with mortality remaining as high as 10% to 20% despite advances in critical care.^{4,5}

Severe Acute Pancreatitis

Acute pancreatitis is best defined clinically by a patient presenting with 2 of the following 3 criteria: (1) symptoms (eg, epigastric pain) consistent with pancreatitis;

Disclosures: None.

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(2) a serum amylase or lipase level greater than 3 times the laboratory's upper limit of normal; and (3) radiologic imaging consistent with pancreatitis, usually computed tomography (CT) or MRI. Once the diagnosis of acute pancreatitis is established, patients are classified based on disease severity. The Atlanta Criteria revision of 2012 (**Box 1**)⁶ classifies severity as mild, moderately severe, or severe. Severe acute pancreatitis is defined by persistent single or multiorgan failure (lasting >48 hours). Local complications include peripancreatic fluid collections, pancreatic and peripancreatic necrosis (sterile or infected), pseudocyst, and wall-off necrosis (sterile or infected; **Figs. 1** and **2**).⁶

Other acceptable markers of severe pancreatitis include 3 or more of Ranson's II criteria for non-gallstone pancreatitis, and an Acute Physiology and Chronic Health Evaluation score greater than 8. It is important to use precise terms in describing the anatomic complications of acute pancreatitis. Although patients with interstitial pancreatitis have a normally perfused gland, manifesting on contrast-enhanced CT as normal, bright appears as an indication of flow throughout the gland; patients with necrotizing pancreatitis (NP) have greater than 30% of the gland that is not perfused, with low attenuation. Pancreatic necrosis is consistent with focal or diffuse nonviable pancreatic parenchyma and is usually accompanied by peripancreatic fat necrosis. Pancreatic necrosis can be sterile or infected. Peripancreatic necrosis describes necrotic fatty and tissue debris around the pancreas; it is more important to surgeons because this is typically not appreciated on imaging. NP (pancreatic necrosis) is defined, in the absence of laparotomy or autopsy, by the presence of greater than 30% of nonenhancement of the pancreas on a contrast-enhanced CT (or MRI with gadolinium). The determination that a patient has pancreatic necrosis has clinical implications because the morbidity and mortality of NP are higher than that associated with interstitial pancreatitis. Patients with NP may seem ill with single- or multiorgan failure or may seem well with no evidence of organ failure.

More recently, the 2012 revised Atlanta classification for acute pancreatitis addressed several lingering deficiencies and further developed consistent terminology for acute pancreatitis and its sequelae as highlighted in **Table 1**.⁷ The term mild acute pancreatitis is now defined as pancreatitis without organ failure (defined in later discussion, such as renal or pulmonary failure), or complications (such as necrosis or

Box 1

2012 Atlanta classification revision of acute pancreatitis

Definitions of grades and severity of acute pancreatitis

Mild acute pancreatitis

- No organ failure
- No local or systemic complications

Moderately SAP

- Transient organ failure (<48 hours) and/or
- Local or systemic complications^a without persistent organ failure

Severe acute pancreatitis

- Persistent organ failure (>48 hours)—single organ or multiorgan

^a Local complications are peripancreatic fluid collections, pancreatic necrosis, and peripancreatic necrosis (sterile or infected), pseudocyst, and WON (sterile or infected).

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