



Evaluation & Management of a Patient with Severe Acute or Necrotizing Pancreatitis

Description of the Activity	<p>General surgeons are often called to evaluate patients with severe acute or necrotizing pancreatitis and its sequelae in the emergency department or inpatient setting. The surgeon must be able to evaluate and manage patients who present in the acute setting as well as those who present with complications of acute or necrotizing pancreatitis, such as abdominal compartment syndrome, infected necrosis, bleeding, pseudocyst, or walled-off pancreatic necrosis (WOPN).</p>
Functions	<ul style="list-style-type: none">❖ Evaluation<ul style="list-style-type: none">➤ Perform an initial evaluation and form a diagnosis for a patient presenting with severe or necrotizing pancreatitis, including interpreting imaging.➤ Recognize severe and necrotizing pancreatitis.➤ Determine and describe the severity of acute pancreatitis using published scoring systems.➤ Demonstrate knowledge of the most common etiologies of pancreatitis (alcohol and gallstones) as well as less common etiologies (hypercalcemia, hypertriglyceridemia, iatrogenic post–endoscopic retrograde cholangiopancreatography [ERCP], medications).➤ Differentiate sterile pancreatic necrosis from infected pancreatic necrosis.➤ Identify complications associated with severe and necrotizing acute pancreatitis, such as abdominal compartment syndrome, biliary obstruction, and gastric outlet obstruction.❖ Management<ul style="list-style-type: none">➤ Initiate resuscitation and organ failure management in a patient with severe acute pancreatitis.➤ Provide early enteral nutritional support, reserving parenteral nutrition for feeding intolerance.➤ Manage gastric outlet obstruction associated with severe/necrotizing pancreatitis.➤ Develop a management plan for complications associated with severe and necrotizing acute pancreatitis, such as abdominal compartment syndrome, biliary obstruction, bleeding (pseudoaneurysm), and gastric outlet obstruction.➤ Identify indications for and appropriate timing of cholecystectomy for complicated gallstone pancreatitis.➤ Use published evidence-based guidelines to guide management decisions, including antibiotic use.➤ Manage a patient with infected pancreatic necrosis using a “step-up approach.”<ul style="list-style-type: none">▪ Select antibiotic therapy for a patient with infected necrosis.▪ Communicate and coordinate care with other specialties.▪ Employ escalating degrees of invasive interventions for infected pancreatic necrosis/WOPN with demonstrated knowledge of the roles of:<ul style="list-style-type: none">• Laparoscopic/endoscopic strategies (video-assisted retroperitoneal debridement, transgastric debridement)• Open surgery• Percutaneous drainage▪ Delay surgical intervention in infected necrosis until mature, walled-off collections develop.▪ Prepare a patient for operative pancreatic debridement.➤ Communicate recommendations and use shared decision-making for proposed interventions to a patient/caregiver(s).➤ Manage a postoperative patient after pancreatic debridement.



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	<ul style="list-style-type: none">➤ Anticipate the potential for long-term complications of severe pancreatitis (eg, associated vitamin deficiencies, chronic pancreatic fistula, diabetes mellitus, disconnected pancreatic tail syndrome, pancreatic exocrine insufficiency), and refer for management as indicated.
Scope	<ul style="list-style-type: none">❖ In scope<ul style="list-style-type: none">➤ Abdominal compartment syndrome➤ Acute necrotizing pancreatitis➤ Biliary obstruction secondary to severe pancreatitis➤ Gastric outlet obstruction➤ Infected necrosis➤ Nutrition management➤ Step-up approach to care for severe pancreatitis➤ Timing of cholecystectomy (when indicated)➤ WOPN❖ Out of scope<ul style="list-style-type: none">➤ Acute edematous pancreatitis➤ Chronic pancreatitis➤ Pancreatic debridement



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<p>1</p> <p><u>Limited Participation</u></p> <p>Can perform and articulate an H&P but lacks the knowledge to complete the evaluation or perform basic management</p> <p><u>Framework:</u> What a learner directly out of medical school should know</p> <p>The attending guides most evaluation and management decisions.</p>	<ul style="list-style-type: none">● Obtains an H&P with cultural humility and identifies pancreatitis, including common causes (gallstones, EtOH), but may not be able to determine etiology or grade the severity of pancreatitis● Needs support to evaluate a critically ill patient requiring resuscitation for end-organ failure, and demonstrates limited knowledge of systemic pathophysiologic responses to severe/necrotizing pancreatitis (eg, SIRS, fluid sequestration)● Respectfully communicates basic facts about the condition to a patient/caregiver(s) but inconsistently uses applicable language services and audio/visual aids	<ul style="list-style-type: none">● Initiates basic initial therapies for a patient with acute pancreatitis such as IV fluids and pain control, requiring assistance for most aspects of management for severe/necrotizing pancreatitis, including strategies for nutritional support and critical care resuscitation/support for a patient with end-organ failure● Identifies guidelines for management of infected pancreatic necrosis such as the “step-up approach,” using a least invasive to most invasive strategy, requiring assistance to apply these guidelines● Respectfully communicates with a patient/caregiver(s) but does not consider the importance of addressing alcohol use disorder if applicable● Requests consultation from specialty services with assistance and performs handoff regarding the basic elements of care but has difficulty coordinating and communicating with multiple specialties regarding complex care
<p>2</p> <p><u>Direct Supervision</u></p> <p>Demonstrates understanding of the evaluation in straightforward cases but requires direction through principles and does not know the nuances of basic patient care</p>	<ul style="list-style-type: none">● Uses lab data such as base deficit, creatinine, WBC count, and LFTs to determine the degree of severity of acute pancreatitis; identifies evidence of end-organ failure● Evaluates a patient with necrotizing pancreatitis, including interpretation of CT imaging (eg, lack of pancreatic enhancement); identifies the etiology and severity of pancreatitis using the Balthazar score; identifies a critically ill patient with SIRS/fluid sequestration● Demonstrates understanding of potential complications (eg, bleeding, gastric outlet obstruction, biliary obstruction, abdominal	<ul style="list-style-type: none">● Demonstrates knowledge of timing and benefit of early enteral feeding strategies in a patient with severe/necrotizing pancreatitis and resuscitates a patient presenting with hemodynamic instability using endpoints of resuscitation (eg, lactate, base deficit, UOP); requires guidance for ongoing management of a critically ill patient with end-organ failure (eg, management of ventilator, AKI) and feeding intolerance● Demonstrates understanding of evidence-based consensus guidelines for management of infected pancreatic necrosis (eg, step-up approach) and applies guidelines in a patient with straightforward anatomic considerations (eg, fluid collections accessible percutaneously or surgically)



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<p>Framework: The learner may not know next steps or have a clear understanding of best diagnostic techniques or decision-making.</p> <p>The attending gives active help throughout the evaluation and management to maintain forward progression.</p>	<p>compartment syndrome), requiring guidance to complete the evaluation</p> <ul style="list-style-type: none"> Respectfully communicates basic facts about the diagnosis and treatment for severe pancreatitis to a patient/caregiver(s), customizing communication to overcome barriers and cultural differences and using applicable language services and audio/visual aids 	<ul style="list-style-type: none"> Identifies the importance of engaging in discussions about managing alcohol use disorder in relevant settings Requests individual consultation from specialty services (eg, IR consultation for drain placement) but needs guidance in a complex clinical situation requiring coordination across services; needs guidance regarding key elements to emphasize during handoff of a complex patient
<p>3</p> <p>Indirect Supervision</p> <p>Can do a basic evaluation and perform management but will not recognize subtle abnormalities or understand the nuances of a complex case</p> <p>Framework: The learner can perform evaluation and management in straightforward circumstances.</p>	<ul style="list-style-type: none"> Demonstrates understanding that air/gas in the pancreatic bed on CT imaging is indicative of possible infection Demonstrates understanding of the signs and symptoms of acute bleeding (eg, pseudoaneurysm), abdominal compartment syndrome, and end-organ failure associated with severe acute pancreatitis and adapts management for this evolving clinical situation Respectfully communicates with a patient/caregiver(s) across barriers and cultural differences to elicit a personalized care plan in a shared decision-making process for a straightforward presentation 	<ul style="list-style-type: none"> Demonstrates understanding that percutaneous drainage is the preferred drainage approach for infected necrosis within 4 weeks of initial presentation and that debridement should not be performed in this time frame Engages IR as indicated for assistance in managing acute arterial bleeding in the setting of necrotizing pancreatitis Demonstrates understanding of the step-up approach for management of acute necrotizing pancreatitis and that the initial step is placement of a percutaneous drain into the collection but is unsure of patient selection criteria for endoscopic vs surgical necrosectomy Uses evidence-based guidelines to guide use of antibiotics, route and timing of nutritional support, and management of infected pancreatic necrosis Identifies when a patient with necrotizing pancreatitis is worsening or not progressing and adjusts the approach as indicated



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<p>The attending gives passive help. This help may be given while present for more complex patient care or during a check-in for more routine patient care.</p>		<ul style="list-style-type: none"> • Discusses options for engaging in a program of recovery or therapy with a patient with alcohol use disorder • Provides comprehensive information when requesting interdisciplinary consultations and uses closed-loop feedback and active listening to incorporate feedback from all team members when coordinating care
<p style="text-align: center;">4</p> <p style="text-align: center;"><u>Practice Ready</u></p> <p>Can manage more complex patient presentations and operations and take care of most cases</p> <p><u>Framework:</u> The learner can treat all patients with severe acute or necrotizing pancreatitis and has a strong understanding of surgical options and techniques for less common scenarios.</p> <p>The supervisor is available at the request of the learner but is not routinely needed for common presentations, though input may be needed for more complex presentations.</p>	<ul style="list-style-type: none"> • Demonstrates comprehensive knowledge of the varying patterns of disease presentation and progression (eg, acute necrotizing pancreatitis, WOPN, infected necrosis) • Determines the etiology and severity of pancreatitis, interprets CT imaging, and synthesizes clinical data, differentiating and managing acute peripancreatic fluid collections, pseudocysts, sterile necrotizing pancreatitis, infected necrosis, and WOPN • Identifies and manages complications associated with severe/necrotizing acute pancreatitis (eg, abdominal compartment syndrome, gastric outlet obstruction, biliary obstruction, pseudoaneurysm bleeding) • Customizes communication based on individual patient characteristics and preferences across barriers and cultural differences in a complex or critical situation 	<ul style="list-style-type: none"> • Demonstrates understanding of considerations for timing of laparoscopic cholecystectomy for complicated biliary pancreatitis, such as resolving pancreatitis, ensuring absence of infected necrosis, and delaying invasive interventions for pseudocysts until there is a mature thickened pseudocyst wall • Demonstrates understanding of patient selection for endoscopic or operative options (MIS or open) for necrosectomy or pseudocyst drainage, such as video-assisted retroperitoneal debridement, transperitoneal debridement, or transgastric debridement • Applies evidence-based guidelines but can adapt to a complex and nuanced situation as required (eg, fistula to duodenum or colon, failure of step-up approach) • Manages a critically ill patient with end-organ failure (eg, ventilator and AKI management) • Addresses social barriers to successful discharge related to alcohol use disorder or access to care after discharge and engages a patient/caregiver(s) in these difficult discussions • Coordinates interdisciplinary care with colleagues in other disciplines (eg, GI, IR, social work, home health)