

Acute Pancreatitis Disease

Acute pancreatitis presents with nausea, anorexia, and severe epigastric pain radiating to the back, with common etiologies including alcohol use and gallstones. Patients typically display labs of increased amylase and lipase. Though acute pancreatitis may resolve, complications may occur, and these are typically related to the highly potent nature of pancreatic enzymes in digesting tissues, which therefore instigate systemic inflammation. Complications include infection, pseudocyst, hemorrhage, disseminated intravascular coagulation (DIC), hypocalcemia, systemic inflammatory response syndrome (SIRS), and acute respiratory distress syndrome (ARDS).



PLAY PICMONIC

Autodigestion of Pancreas by Pancreatic Enzymes

Pancreas Eating-self with Enzymes

Acute pancreatitis is described by autodigestion of the pancreas by pancreatic enzymes, and is characterized by a sudden inflammation of the pancreas.

Symptoms

Epigastric Abdominal Pain Radiating to Back

E-pick-gas at Abdomen with Pain-bolts Spreading to Back

Patients present with severe epigastric abdominal pain that radiates to the back. This pain usually worsens after meals.

Anorexia

Anorexic-rex

Patients with acute pancreatitis develop a severe loss of appetite, or anorexia.

Nausea

Nauseated

With acute pancreatitis, patients feel nauseous and sometimes have severe vomiting.

Labs

Increased Amylase and Lipase

Up-arrow Animal-cracker-laser and Lip-laser

Elevated serum amylase and lipase levels, in combination with severe abdominal pain, often trigger the initial diagnosis of acute pancreatitis. However, enzymes have no role in assessing disease severity. Lipase is more sensitive for alcohol-induced pancreatitis, and if the lipase level is about 2.5 to 3 times that of amylase, it is suggestive of pancreatitis due to alcohol. Lipase is also more specific than amylase.

Complications

Disseminated Intravascular Coagulation (DIC)

Dice

Pancreatitis may progress to DIC (disseminated intravascular coagulation), which is a consumptive thrombotic-hemorrhagic disease. It may present with abnormal bleeding, kidney or liver failure, and shock.

Infection

Infectious-bacteria

Pancreatic necrosis can subsequently lead to infection. Pathogens are typically gut microflora such as E. coli or Klebsiella. Treatment includes antibiotics and/or surgical debridement.

Hypocalcemia

Hippo-calcium-cow

This is caused primarily by precipitation of calcium soaps in the abdominal cavity. When the pancreas is damaged, free fatty acids are generated by the action of pancreatic lipase. Insoluble calcium salts are present in the pancreas, and the free fatty acids avidly chelate the salts, resulting in calcium deposition in the retroperitoneum (saponification). Hypocalcemia can present with tetany.

Systemic Inflammatory Response Syndrome (SIRS)

Sir-knight

SIRS (systemic inflammatory response syndrome) is a serious complication of acute pancreatic disease and occurs due to cytokine activation and widespread systemic inflammation. SIRS is associated with multi-organ failure, notably ARDS (acute respiratory distress syndrome) and renal failure, as well as shock.

Acute Respiratory Distress Syndrome (ARDS)

Acute-angle Lungs Shooting Flare-gun

ARDS (acute respiratory distress syndrome) is a serious complication of acute pancreatic disease and occurs due to widespread systemic inflammation. It often manifests as dyspnea in patients with acute pancreatic disease.

Pancreatic Pseudocyst

Pancreas Sumo-sisters

Pancreatic pseudocyst is a circumscribed collection of fluid rich in pancreatic enzymes, blood, and necrotic tissue. It is lined with granulation tissue. Disruption of pancreatic parenchyma and the ductal system results in extravasation of pancreatic enzymes, which in turn digest the adjoining tissues. This results in a collection of fluid containing pancreatic enzymes, hemolyzed blood and necrotic debris around the pancreas usually around four weeks after the onset of pancreatitis. Treatment can include endoscopic drainage or surgery.

Hemorrhage

Hemorrhage-hammer

Acute necrotic destruction of pancreatic parenchyma, fat, or local vessels can lead to life-threatening hemorrhage. Rupture of a pancreatic pseudocyst can also lead to hemorrhage a few weeks after the initial presentation of pancreatitis.