

Understanding Emphysematous Pancreatitis: Causes, Diagnosis, and Challenges

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Abstract: *Emphysematous pancreatitis is a rare and fatal complication of acute necrotizing pancreatitis. We report a radioclinical observation of a 38-year-old male patient who consulted for epigastric pain radiating to the back, associated with vomiting and elevated lipase more than 3 times the normal value. The abdominal computerized tomography (CT) scan carried out on the second day of hospitalization, based on worsening of the clinical condition, showed pancreatic necrosis associated with the presence of air bubbles. Percutaneous puncture of a peripancreatic collection was positive for Escherichia coli. A diagnosis of emphysematous pancreatitis was established. The clinical and biological evolution of our patient was favourable with antibiotic treatment.*

Keywords: Acute necrotizing pancreatitis, infection, emphysematous pancreatitis

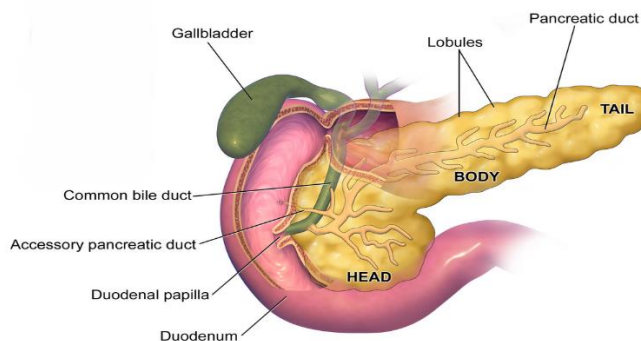
1. Introduction

Acute pancreatitis is a commonly seen emergency in daily clinical practice with a wide range of severity degrees. Emphysematous pancreatitis (EP) is an uncommon variant of acute necrotizing pancreatitis characterized by the gas within or around pancreatic necrosis. Prognosis is extremely poor and early radiological detection may influence survival. Diagnosis is established typically by computed tomography (CT) scanning in the appropriate clinical setting, which reveals characteristic findings of parenchymal nonenhancement with intrapancreatic or peripancreatic gas and fluid collections. CT scan shows gas inclusions within the pancreatic bed, as well as the degree of pancreatic inflammation and possible complications of this severe form of acute necrotizing pancreatitis.

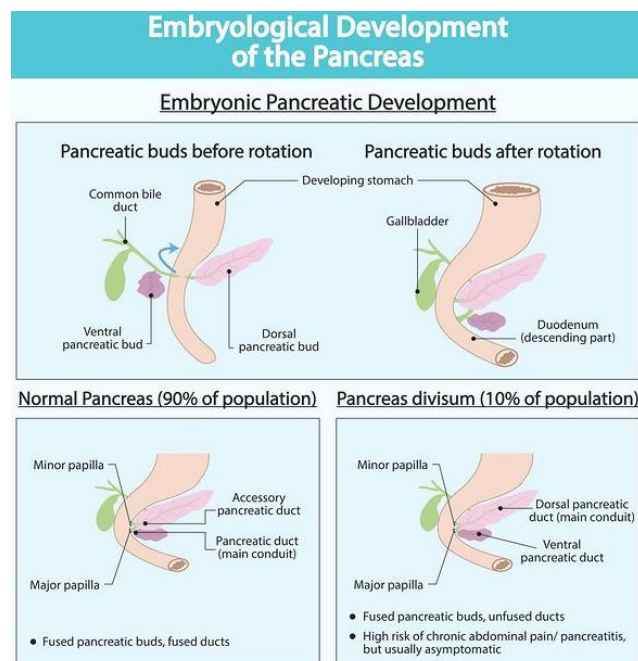
The aim of this report is to present a case of emphysematous pancreatitis as an unusual occurrence, as the early diagnosis of Emphysematous pancreatitis is critical and clinicians should consider this potentially fatal subtype of severe acute necrotizing pancreatitis when assessing patients with symptoms of acute pancreatitis and gas in the pancreatic bed. The overall prognosis of these patients remains poor, emphasizing the challenges in the management of these cases. We discuss disease features and treatment options in order to facilitate diagnostics, therapy, and to contribute our experience to the pool of data.

Pancreas: Anatomy and Embryology

Anatomy:



Embryology:



2. Case Report

A 38year - old man was admitted to our emergency department due to progressively worsening abdominal pain with propagation into the chest. The pain was initiated in the epigastrium and accompanied with vomiting and diarrhea of several days' duration.

CT Abdomen (Plain + Contrast) was performed.

CT Abdomen (Plain + Contrast):



Figure 1: Plain



Figure 2: Portal Phase

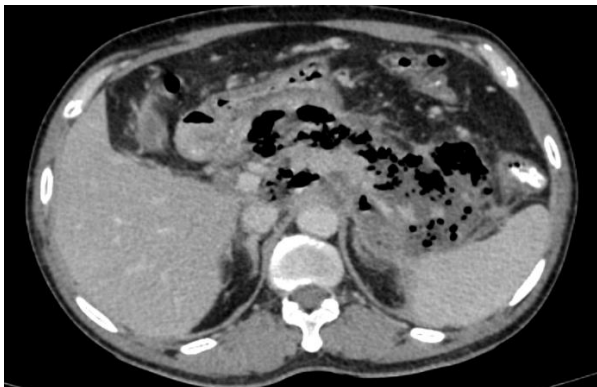


Figure 3: Venous Phase

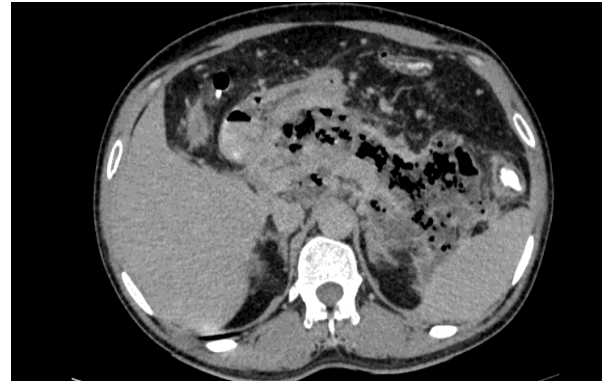


Figure 4: Delayed Phase

3. Report

Pancreas is significantly bulky and edematous with loss of normal lobulations. Pancreatic head measures 5.4 cm, body measures 4.2 cm and tail measures 3.9 cm. with moderate Peri pancreatic fat stranding.

Few ill defined hypodense fluid collections with extensive air foci are seen in the pancreatic and peripancreatic region extending into the lesser sac, hilum of splenium.

Findings are most likely suggestive of acute emphysematous pancreatitis.

4. Treatment

The management of emphysematous pancreatitis includes conservative therapy, such as administering fluids, electrolytes, and antimicrobial therapy to control septic shock. Depending on the response to conservative measures and clinical condition of the patient, surgical debridement or percutaneous drainage may also be feasible.

5. Conclusion

Emphysematous pancreatitis results from a superinfection of an acute necrotizing pancreatitis, occurring most often in immunocompromised patients. Abdominal CT is the examination modality of choice for suspicion of emphysematous pancreatitis, which is indicated by the presence of intra - or peripancreatic gas in an evocative clinical and biological context. The diagnosis is confirmed by isolation of the pathogen in the peripancreatic aspiration fluid. However, mortality remains at a high level despite adequate treatment, occurring usually in a sepsis context with multiorgan failure.

6. Discussion

Necrotizing pancreatitis is characterized by the finding of nonenhancing pancreatic tissue on the CT scan, indicating pancreatic necrosis. It carries a high rate of morbidity and mortality. In the majority of cases, the necrotic tissue remains sterile, but in about 10% to 40% of cases, the necrotic tissue becomes infected. The infection can be monomicrobial or polymicrobial, and organisms reach the pancreatic parenchyma via the bloodstream, lymphatic channels, translocation from adjacent colon, or reflux through the

ampulla of Vater.

Emphysematous pancreatitis is a rare, potentially fatal subtype of severe acute necrotizing pancreatitis. It represents the presence of gas within or around the pancreas on the ground of necrotizing pancreatitis due to superinfection with gas-forming bacteria. It is usually seen in debilitated patients with uncontrolled diabetes or poor immune function and has poor prognosis, with mortality rates up to 34.5%. Most cases have been attributed to infection with Gram-negative organisms, the most common being *Escherichia coli*, *Klebsiella* species, *Pseudomonas*, and *Enterobacter*, with *Clostridium perfringens* being the most common Gram-positive pathogen

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