

## CASE REPORT

# Emphysematous Pancreatitis: Reporting a Case of a Fatal Form of Pancreatitis

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### ABSTRACT

We report an extremely rare case of emphysematous pancreatitis in a 67 year old female patient suffering from bipolar disorder. The possible role of metabolic syndrome associated with atypical antipsychotic medication in the pathogenesis of emphysematous pancreatitis is discussed.

### INTRODUCTION

Emphysematous pancreatitis (EP) is a rare but severe form of acute pancreatitis with high mortality rates. The term refers to a necrotizing infection of an already inflamed pancreas associated with gas forming bacteria [1]. Radiologically it is characterized by the accumulation of gas within and around the pancreas.

### CASE PRESENTATION

A sixty-seven-year-old non-alcoholic, obese female (BMI 34) with a history of cholelithiasis and bipolar disorder under psychiatric medication, but not receiving herbal medicines, was admitted to the emergency department of our hospital with acute abdominal pain located mainly in the epigastric region. She was febrile but hemodynamically stable. Her serum amylase was 1487 UI/L so the diagnosis of acute pancreatitis was made at first. Abdominal ultrasound findings confirmed gallstones as the cause of pancreatitis which is also the most common cause of pancreatitis in our country. We didn't have any findings of bile duct lithiasis so we did not consider performing ERCP. After all ERCP is not of any use during the acute phase of pancreatitis unless there is cholangitis present that was not in our case. There Considering the Ranson criteria on the first 24 h she met all five, these being age: 67 years old, WBC: 23.300, LDH: 483 IU/L, AST: 253IU/L, serum glucose: 203 mg/dl. On 48 h she met three out of six Ranson criteria these being: 12% drop in hematocrit, BUN

increased by 6 mg/dl and serum calcium at 7 mg/dl. It is of note that her serum triglycerides were 182 mg/dl [normal triglycerides <150 mg/dL]. Her serum Hb1Ac and HDL were not measured. On the second day she underwent an abdominal CT scan with contrast that showed an enlarged edematous pancreas with free air inside and around it, so the diagnosis of EP was finally made **Figure 1**. There were also acute fluid collections. This CT was also negative for pancreatic malignancy.

Despite resuscitation and supportive care, her clinical condition deteriorated and she was transferred to the Intensive Care Unit (ICU). A second abdominal CT scan with contrast was performed 1 week after the initial that showed an increase in the accumulation of peripancreatic air **Figure 2**. Two weeks later since the patient failed to thrive clinically, a new abdominal CT scan with contrast was performed that revealed a large pancreatic abscess and profound necrosis of the pancreas **Figure 3**. Ultrasound guided abscess drainage was performed. The cultures from the drained abscess were positive for *klebsiella sp.* Despite the appropriate clinical management the patient's condition didn't improve. Her deterioration was made clear by multiorgan failure and the raising inflammatory markers due to sepsis. A new CT scan with contrast of the abdomen showed undrained loculations of the abscess. Operative intervention was decided. During laparotomy pancreatic necrosectomy, pancreatic abscess drainage and peritoneal lavage were performed. Her condition did not improved much and finally she died one week later due to multiorgan failure after a total of two months hospitalization.

### DISCUSSION

Emphysematous pancreatitis is a rare but very severe subtype of acute pancreatitis with reported mortality as high as 33% [2]. This entity hasn't been studied much with only 74 cases being reported so far (18 in the English

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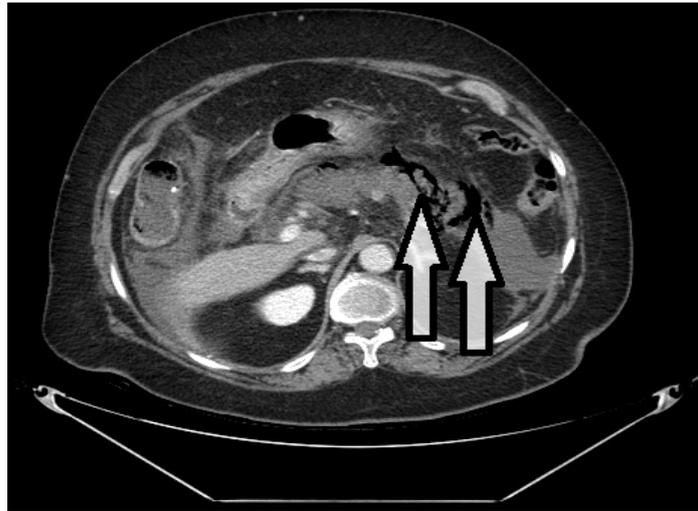


Figure 1. Emphysematous pancreatitis-Air in and around the pancreas.



Figure 2. One week later-Increased accumulation of air in and around the pancreas.

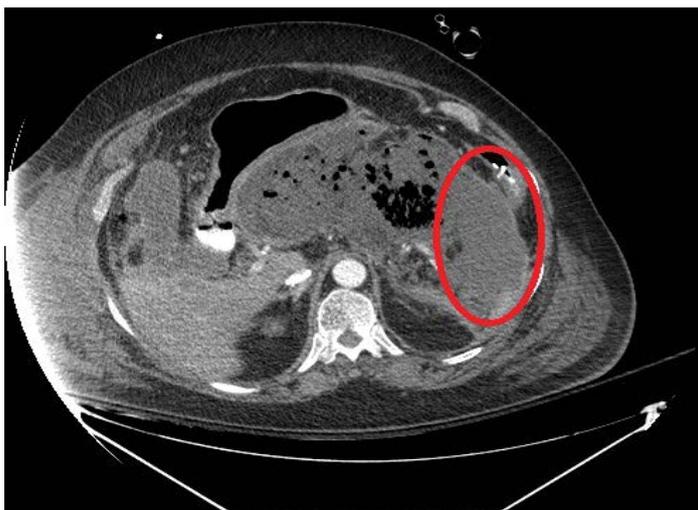


Figure 3. Pancreatic abscess.

literature [3]). Associated microorganisms that have been isolated by cultures of percutaneously drained fluids or surgically resected necrotic tissues include *Escherichia coli*, *Clostridium perfringens*, *Staphylococcus* sp., *Streptococcus* sp., *Klebsiella* sp. (as in our case) and *Pseudomonas* sp. [4]. The routes these bacteria follow in order to reach the pancreas could be hematogenous, lymphatic, directly through the

ampulla of Vater or an enteropancreatic fistula, and lastly transmural through the adjacent transverse colon [5].

Usually patients that develop a disease of such severity have other comorbidities such as heart failure, atherosclerosis and diabetes. Diabetes has also been associated with higher susceptibility to developing EP as is with other severe infections due to their impaired host

vascular and tissue response and their hyperglycemic state which allows gas producing organisms to ferment glucose into carbon dioxide and hydrogen gas [2]. Our patient didn't have any known history of diabetes but she had on admission hyperglycemia which persisted throughout the whole course of her hospitalization. Patients who developed hyperglycemia during acute illness had 100% mortality [2].

Furthermore, atypical antipsychotics that are one of the treatments for bipolar disorder are associated with metabolic disorders such as obesity, metabolic syndrome and insulin resistance [6]. Metabolic syndrome and obesity are predisposing factors for pancreatitis due to hypertriglyceridemia and increased risk for gallstone formation which are two of the causative factors for acute pancreatitis with diabetes increasing the risk for severe infections. Our patient was on atypical antipsychotics for bipolar disorder these being Quetiapine and Olanzapine. Possibly, our patient suffered from adverse effects of these medications since she was obese, had hypertriglyceridemia and hyperglycemia, the latest could also be attributed to acute illness. There is one more case report in the literature of a patient with bipolar disorder treated with olanzapine who developed metabolic syndrome which predisposed for EP [7]. This patient was successfully managed with conservative measures followed by percutaneous drainage and in the long run he received dietary and antipsychotic medication changes. There is also another report of three mild acute pancreatitis cases that were under olanzapine treatment [8]. In our case we hypothesize that olanzapine was the cause of metabolic syndrome that in itself was responsible for causing hypertriglyceridemia and gallstone disease which are both predisposing factors for pancreatitis. We also hypothesize that hyperglycemia could be attributed to the metabolic syndrome caused by olanzapine and was responsible for leading to the development of such a severe form of pancreatitis.

Regarding the management, there are no studies focusing on the most appropriate management of EP due to the rarity of the condition. Treatment is that of infected pancreatic necrosis [2]; Non-operative measures, accompanied by interventional methods of draining peripancreatic fluid collections and necrotic tissues [1] leaving surgery as a last resort when all the above have failed as was with our case. Operative drainage and necrosectomy should be delayed preferably for at least 4 weeks to allow for liquefaction of the contents and the development of walled-off necrosis [9]. The main predictor

of mortality is multiorgan failures that also lead to the death of our patient [10, 11]. We also had to perform four CT scans all with contrast media because either the patient failed to show any important improvement throughout her hospitalization, or worse, she deteriorated.

## CONCLUSION

Our case adds in the scarce literature regarding EP. It's a clinical entity we should suspect especially in patients with comorbidities such as diabetes. The role of atypical antipsychotics remains to be studied more thoroughly.

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## Conflict of Interest

There are no conflicts of interest.

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