CASE REPORT

Severe Pancreatitis Following Endoscopic Ultrasound and Fine Needle Aspiration in an Elderly Patient with Comorbidities: A Case Report

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ABSTRACT

In modern medicine, imaging and intervention have become so advanced it is tempting to give it little thought before use. Yet, providers still carry the responsibility of knowing when and if to intervene with novel, invasive techniques. We present a 73-year-old male with type 2 diabetes, coronary artery disease, rheumatoid arthritis, and bladder carcinoma who underwent EUS-FNA for a 15 × 14 mm hypoechoic, heterogeneous pancreatic mass. Post-procedure, he developed acute interstitial edematous pancreatitis, progressing to fulminant pancreatitis complicated by acute respiratory distress syndrome, cholecystitis, and gallbladder empyema. This case highlights the elevated risk of complications in elderly patients with comorbidities undergoing EUS-FNA of cystic lesions, emphasizing the need for robust risk stratification and vigilant post-procedure monitoring.

Keywords: Pancreatitis; Acute necrotizing; Respiratory distress syndrome; Endoscopic ultrasound-guided fine needle aspiration; Sepsis; Abscess

INTRODUCTION

Endoscopic Ultrasound (EUS) with Fine Needle Aspiration (FNA) or Biopsy (FNB) is a cornerstone for diagnosing pancreatic masses, offering high sensitivity and specificity while being less invasive than surgical approaches. The risk of pancreatitis following EUS-FNA is low, ranging from 0%-2% [1], compared to 1%-30% for ERCP, particularly in high-risk groups [2]. However, the risk increases to approximately 3.5% when cystic lesions are biopsied, due to potential leakage of cystic fluid or disruption of pancreatic ductal integrity [3]. Elderly patients with comorbidities, such as immunosuppression or cardiovascular disease, are particularly susceptible to complications. This case describes a 73-year-old male who developed severe pancreatitis post-EUS-FNA, complicated by ARDS, sepsis, and gallbladder empyema, underscoring the importance of careful patient selection and post-procedure care.

CASE PRESENTATION

A 73-year-old male with a history of type 2 diabetes mellitus (insulin-treated), coronary artery disease (post-percutaneous coronary intervention, on clopidogrel), rheumatoid arthritis (on prednisone 11 mg daily and methotrexate), hypertension, hyperlipidemia, benign prostatic hyperplasia, and bladder carcinoma (post-resection in 2020 and 2022) presented for evaluation of a pancreatic mass. A CT scan on April 4, 2025, incidentally identified a 1.5 cm well-circumscribed cyst in the mid-pancreatic body, suggestive of a pancreatic epithelial cyst or side-branch Intraductal Papillary Mucinous Neoplasm (IPMN). On April 14, 2025, EUS revealed a 15 × 14 mm hypoechoic, heterogeneous peripancreatic mass with poorly defined borders and a 15 mm cyst in the pancreatic genu. FNB (one pass, 22- gauge SharkCore needle) and FNA (five passes, 22- and 25-gauge needles) yielded benign pancreatic acinar and ductal tissue, but the specimen was non-diagnostic.

On April 16, 2025, the patient presented to the emergency department with fever (101.8°F), tachypnea (26 breaths/min), hypoxia (O_2 saturation 92% on 6 L, dropping to 86% on 6 L, improving to 99% on BiPAP at 60% FiO_2), and confusion. Vitals included blood pressure of 145/68 mmHg and heart rate of 91 bpm. Laboratory findings showed leukocytosis (WBC 13.31 × 10^3/μL), elevated lipase (109 U/L, later 54 U/L), elevated troponin (32 ng/L, likely demand-related), and proBNP (1008 pg/mL). Chest X-ray revealed right lower lobe atelectasis versus infiltrate and a small left pleural effusion. CT angiography and abdominal/pelvic CT confirmed acute interstitial edematous pancreatitis involving the pancreatic body and tail, without necrosis, a 1.5 cm hypodense cyst, superior mesenteric artery

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stenosis, pulmonary hypertension, and right lower lobe atelectasis. The patient received 2.5 L of lactated ringer's, vancomycin, cefepime, and metronidazole, and was admitted to the ICU for acute hypoxic respiratory failure (PaO_2/FiO_2 ratio 165, indicating severe ARDS).

Over the following days, chest x-rays showed worsening bilateral consolidations, interstitial edema, and pleural effusions. An echocardiogram (April 18, 2025) revealed cardiomegaly, mild left atrial dilation, and normal systolic function (ejection fraction 60%-65%). By April 28, 2025, a CT scan identified a 13 cm multiloculated peripancreatic fluid collection/abscess. Interventional radiology performed CT-guided drainage, placing two 14 French catheters (perigastric and infrasplenic collections). A follow-up CT on April 29, 2025, showed significant improvement in fluid collections but persistent bilateral basilar consolidations and pleural effusions.

On May 1, 2025, due to worsening respiratory symptoms and persistent pancreatic complications, the patient underwent exploratory laparotomy. Intraoperative findings included pancreatic tail necrosis, a residual abscess, and acute cholecystitis with gallbladder empyema. Procedures included cholecystectomy, pancreatic cyst excision, necrosectomy, and placement of two 24-French drainage catheters. Pathology confirmed chronic cholecystitis and benign pancreatic tissue, with no malignancy. Splenic vein thrombosis was suspected. The patient stabilized postoperatively and was discharged to a physical therapy facility.

RESULTS AND DISCUSSION

This case illustrates a rare but severe complication of EUS-FNA, where biopsy of a pancreatic cystic lesion triggered fulminant pancreatitis, ARDS, sepsis, and gallbladder empyema in an elderly patient with multiple comorbidities. The 3.5% pancreatitis risk associated with cystic lesion biopsy [1] is attributed to potential leakage of mucinous or serous fluid, causing local inflammation, or iatrogenic ductal injury [3]. The patient's advanced age (73 years), immunosuppression (chronic steroids and methotrexate), and comorbidities (diabetes, coronary artery disease, and prior malignancy) likely amplified the inflammatory response and susceptibility to infection, leading to abscess formation and sepsis.

The incidental finding of cholelithiasis on April 18, 2025, and subsequent gallbladder empyema suggest a possible underlying pancreaticobiliary inflammatory state. Gallstones are a common cause of acute pancreatitis, potentially contributing to subclinical pancreatic irritation or cyst formation [4]. The biopsy may have exacerbated this pre-existing condition, leading to fulminant pancreatitis. Empyema, a severe complication of cholecystitis, indicates prolonged biliary stasis [5], supporting the hypothesis that gallstones played a role in the patient's clinical course. However, no literature definitively links cholelithiasis to subclinical pancreatitis resulting in cyst formation, though this case raises the possibility.

The progression to ARDS (PaO_2/FiO_2 ratio 165) reflects systemic inflammation from severe pancreatitis, compounded by bilateral pleural effusions and atelectasis. The elevated proBNP (1008 pg/mL) and cardiomegaly suggest possible cardiac strain, though echocardiography confirmed normal systolic function, ruling out heart failure as the primary driver of pulmonary edema. Pulmonary hypertension, noted on CT, may have contributed to respiratory compromise. The multiloculated abscess and pancreatic necrosis necessitated surgical intervention, highlighting the aggressive nature of the complications.

Risk stratification is critical for EUS-FNA candidates. Proposed criteria include: (1) age >65 years, (2) >2 comorbidities, (3) history of pancreatitis, and (4) cystic lesion. A score >2 could indicate high risk, warranting alternatives like imaging surveillance or extended post-procedure monitoring (e.g., 24-48 hours). The patient's score of 4 (age, comorbidities, cystic lesion, and possible subclinical pancreatitis) underscores his high- risk profile. Immunosuppression from steroids and methotrexate likely increased infection risk, as methotrexate is known to impair immune responses [6]. Holding methotrexate during acute illness, as done here, was appropriate.

This case also highlights the importance of multidisciplinary management, involving gastroenterology, interventional radiology, and surgery. The initial conservative approach (fluids, antibiotics, BiPAP) stabilized the patient, but persistent complications necessitated invasive interventions (Figure 1). Future research should explore biomarkers (e.g., C- reactive protein, procalcitonin) to predict post-EUS complications and refine risk models [7].

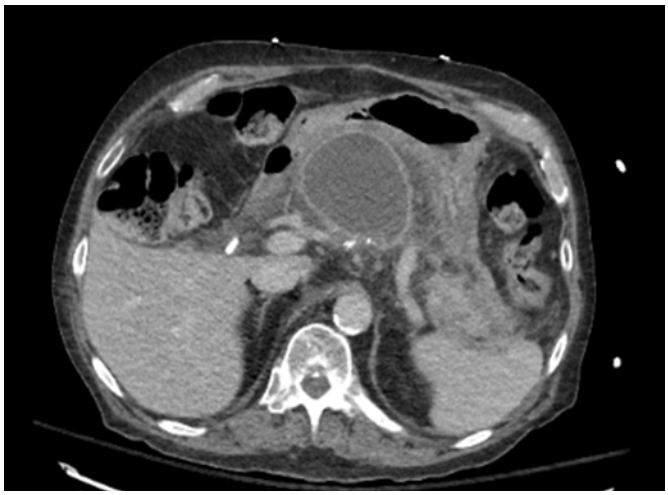

Figure 1. Axial CT showing walled-off fluid collection upon re-admission to hospital.

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CONCLUSION

case demonstrates the potential for severe, life-threatening complications following EUS-FNA of pancreatic cystic lesions in elderly patients with comorbidities. The patient's fulminant pancreatitis, ARDS, sepsis, and gallbladder empyema underscore the need for careful patient selection and post-procedure vigilance. Proposed risk stratification criteria (age >65, >2 comorbidities, history of pancreatitis, cystic lesion) could guide clinical decision-making, with high-risk patients requiring extended monitoring or alternative diagnostics like MRI or serial imaging. The interplay of cholelithiasis and immunosuppression likely exacerbated the clinical course, suggesting a need for comprehensive pre-procedure evaluation of pancreaticobiliary health. Further research is essential to validate risk models, identify predictive biomarkers, and optimize outcomes in this vulnerable population. Clinicians should approach EUS-FNA with caution in similar patients, balancing diagnostic benefits against the potential for catastrophic complications.

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