

The Combined Use of Endoscopic and Percutaneous Drainage in Treatment of Acute Necrotizing Pancreatitis: A Case Report

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ABSTRACT

Acute pancreatitis commonly presents with abdominal pain and gastrointestinal symptoms. Accompanying fever could be a sign for necrosis and high risk for infection can be easily complicate the clinical picture. We are evaluating a case of acute necrotizing pancreatitis from positive and negative aspects of the approach. The management options we sought for our 50-year-old case had required us to involve different techniques and working with different disciplines of medicine. This report shows a case of acute necrotizing pancreatitis and the clinical solutions that our multidisciplinary team had followed via a dynamic decision-making process and the interventions that suited for such unique features and clinical course of the patient.

Keywords: Acute pancreatitis, endoscopic ultrasonography, necrotizing pancreatitis

INTRODUCTION

Acute pancreatitis is one of a common, complex gastrointestinal (GI) conditions that requires hospitalization. Even though the majority of the cases are mild, acute pancreatitis is prone for complications and still has high mortality and morbidity [1]. According to the revised Atlanta classification, graded as mild moderate and severe. A complication of acute pancreatitis is necrotizing pancreatitis, which can be sterile or infected [2].

Acute necrotizing pancreatitis has a strikingly high mortality rate. The management of necrotizing pancreatitis consists mainly of debridement, hydration-nutritional support, and antibiotic treatments, in certain cases. The fine tuning of treatment combinations, timing and the methods of interventions can drive the clinical outcomes.

Here in, we present a case of acute necrotizing pancreatitis referred to our center, by using combined medical and interventional methods by a multidisciplinary team.

CASE PRESENTATION

A 50-year-old male patient presented to a different clinic in October 2022 with fever, abdominal pain, nausea, and vomiting. He was first admitted in that GI clinic with epigastric pain complaints ongoing for 5 days. His investigations were resulted with white blood cell count (WBC) 12.700/ μ L, serum

amylase 4468 U/L, serum lipase 3730 U/L, C-reactive protein (CRP) 48 mg/dL, and abdominal computerized tomography (CT) with intravenous contrast concluding peripancreatic edema without any mass lesion. He was diagnosed with mild edematous pancreatitis in October 2022 and was admitted for medical management. Upon his continuing symptoms, he was re-evaluated with abdomen CT, which yielded with a 60x40 mm lesion compliant with necrosis on the body of the pancreas (Figure 1a). The patient was started on piperacillin-tazobactam due to spiking 38.5°C fever. The patient was consulted with general surgery on day 5 of antibiotics due to continuing fever and decision was made to continue with medical management with upscaling antibiotics to meropenem and tigecycline. The patient was consulted with interventional radiology due to enlarging necrosis area to 120x90 mm on his 30th day on admittance (Figure 1b). It was learned that he was not found suitable for percutaneous drainage and his medical treatment was continued in the prior center. He presented to our clinic on November 2022 for necrosectomy and further medical treatment, with his continuing symptoms and complaints after 30 days of prior admission history. The necrosis area was drained with an endoscopic ultrasonographic (EUS) cystogastrostomy via 4 cm-biliary stent (Figure 1c, d). Simultaneous drawn fluid culture was later resulted with *Candida glabrata*, and his antibiotic treatment was renewed with antimycotic



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agent. Despite medical treatment and drainage, his fever was continued, being above 38.5°C with CRP 360 mg/dL WBC 19.000/μL was observed, and the cystogastrostomy was replaced with a distinct necrosectomy stent (3 cmx16 mm) (Figure 1e). At the same session, two pelvic percutaneous drains were placed through the right pelvic site by interventional radiology. On his following inpatient days, drain irrigation and

endoscopic necrosectomy sessions made 2 to 3-day-period, a total number of 13 endoscopic necrosectomies, were made with continuous percutaneous drainage. Antibiotics and antimycotics were terminated on post-stent replacement day 5. After a total of 95 days of hospital stay, he was discharged with a single percutaneous drain to continue his outpatient clinical follow-ups (Figure 2).

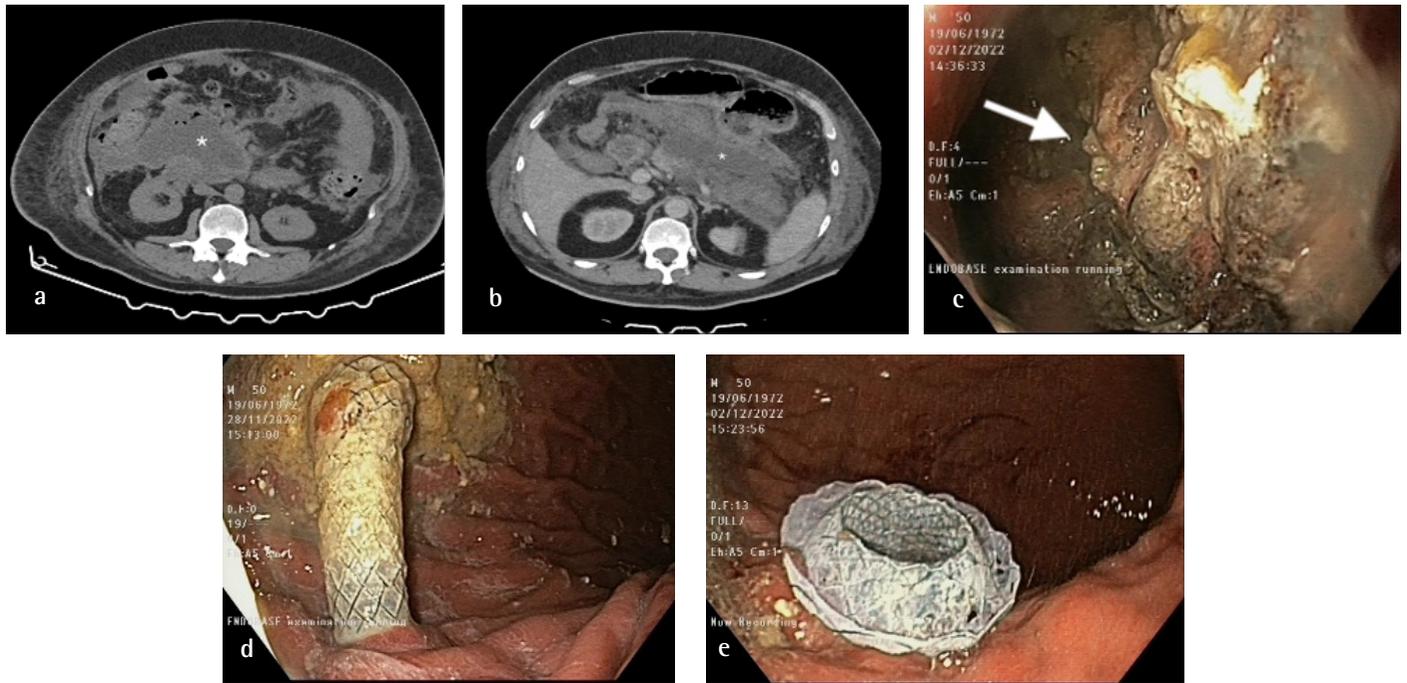


Figure 1. Endoscopic, EUS and abdominal CT image evaluations of the acute necrotizing pancreatitis. (a) Abdominal CT image of necrotizing pancreatitis lesion (marked with asterixis), (b) enlarging necrosis area prior necrosectomy (marked with asterixis), (c) endoscopic view of necrotic lesion site (arrow pointing the necrotic lesion), (d) endoscopic view of biliary stent, (e) endoscopic view of LAMS

EUS: Endoscopic ultrasonographic, CT: Computerized tomography, LAMS: Lumen apposing metal

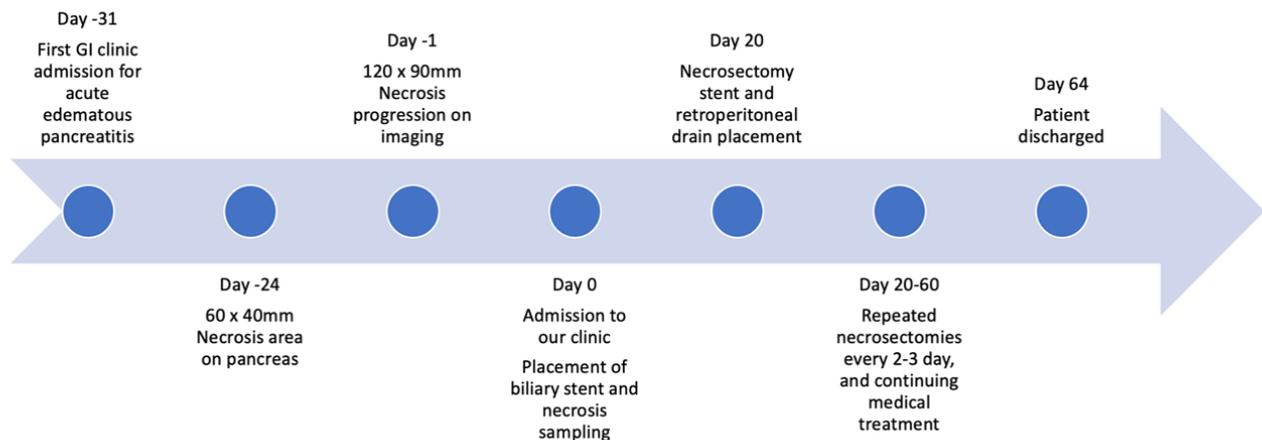


Figure 2. Timeline of clinical course
GI: Gastrointestinal

DISCUSSION

Acute necrotizing pancreatitis should not be treated with antibiotics unless there is an infection detected via either proven culture or imaging result [3]. For this reason, the detected necrosis area should be sampled with EUS/percutaneous intervention to determine the need and type of antibiotic treatment. This case was treated with broad-spectrum antibiotics for a long time without prior culture results. This case report revealed that the culture result of the necrosis sample yielded with *Candida glabrata* due to his history of broad-spectrum antibiotic use.

As the step-up approach in debridement of necrosis in acute pancreatitis studies suggested, an ideal intervention for symptomatic acute necrotizing pancreatitis patients (resistant fever, sepsis, feeding problems despite nasogastric medical treatment) is endoscopic necrosectomy under EUS [4-6]. For effective drainage of the necrosis area, large-diameter lumen apposing metal (LAMS) stents should be preferred. We first used a small-diameter biliary stent for drainage but then we should replace the stent with 16 cm diameter LAMS because the small-diameter stent was deemed inadequate and was unfavorable for necrosectomy. The number of endoscopic necrosectomy sessions needed for these patients is usually low, but in our case, the patient needed endoscopic necrosectomy for 13 times. The risk of necrosis spread from the retroperitoneal area to the pelvis is rather high in acute necrotizing pancreatitis, which usually requires percutaneous drainage [7]. For this case, the need for percutaneous drain was foreseen during the first endoscopic necrosectomy even though it was deemed not necessary by interventional radiology. Alongside with endoscopic necrosectomies, the need for percutaneous drainage became more evident on the following day; thus, the drains were placed on inpatient day 51.

In conclusion, step-up debridement approach alongside with proactive clinical follow-up is the keystone in the management of acute necrotizing pancreatitis. This case underlines that acute pancreatitis can be complicated with necrosis that can enlarge within the retroperitoneal area, and if there is clinical evidence for infection, the correct antimicrobial agent should be used according to culture results. The necrosectomy method

for this patient was chosen as endoscopic, and percutaneous drainage was used alongside. The most effective clinical intervention should be evaluated every day for the acute necrotizing pancreatitis cases, and the correct timing for an appropriate intervention method should be used for the best clinical outcome.

Ethics

Informed Consent: The patient's consent was obtained.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: D.M.Ö.G., A.B.A., E.A., Concept: D.M.Ö.G., E.A., Design: D.M.Ö.G., E.A., Data Collection or Processing: D.M.Ö.G., A.B.A., E.A., Analysis or Interpretation: D.M.Ö.G., A.B.A., E.A., Literature Search: D.M.Ö.G., A.B.A., E.A., Writing: D.M.Ö.G., A.B.A., E.A.

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