CASE REPORT

Endoscopic transluminal debridement of the pancreas

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ABSTRACT

Most patients with acute pancreatitis will develop edematous pancreatitis with a mild course and spontaneous resolution within several days to a few weeks. However, about 20% of patients will develop necrotizing pancreatitis, which carries a high mortality. This case report focuses on a patient with infected necrosis of the pancreas, which is managed with endoscopic transluminal debridement, a safe alternative to open surgery.

Keywords: acute pancreatitis, edematous pancreatitis, endoscopic surgery, endoscopic transluminal debridement, necrotizing pancreatitis, necrosis

CASE

A 72-year-old man presented to the ED feeling unwell, weak, and with diffuse abdominal pain.

History Two months ago, the patient was hospitalized for 3 days with presumed gallstone pancreatitis, which was treated with laparoscopic cholecystectomy. The pathology report confirmed gallstones and the patient recovered without complications.

In an outpatient follow-up 4 weeks later, the patient reported increasing epigastric pain and poor appetite. A CT scan revealed a large, mature pancreatic pseudocyst and splenic vein thrombosis. Oral anticoagulation and antibiotics were started and the patient underwent an elective open cystogastrostomy for drainage of the pseudocyst. Intraoperative findings included large amounts of debris and necrotic pancreatic tissue, which was surgically debrided. Minimal bleeding was encountered intraoperatively. After 2 weeks, patient was discharged home on anticoagulation and did well until he presented to the ED. The patient is otherwise healthy, with no comorbidities.

Physical examination The patient had a fever of 38.5° C (101.3° F) and epigastric pain that he rated as a 10 on a 0-to-10 pain intensity rating scale.

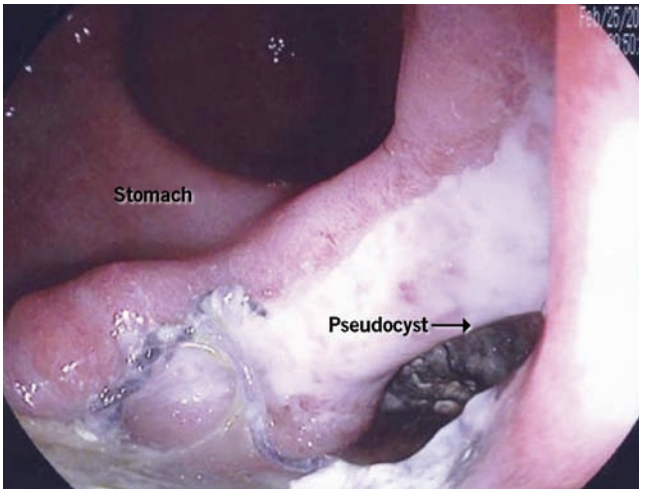

FIGURE 1. Debris in the pancreatic pseudocyst after cystogastrostomy

Diagnostic testing A complete blood cell count showed leukocytosis and a basic metabolic panel showed severe hypoalbuminemia. A CT scan revealed that the patient's pseudocyst had persisted but decreased in size compared with the image taken a month earlier; gas was present in the peripancreatic collection and no common biliary duct dilation was found.

Diagnosis The patient was diagnosed with necrotizing pancreatitis, based on gas in the peripancreatic collection on CT scan, clinical deterioration with increasing pain, failure to thrive, leukocytosis, and fever.

Treatment The patient was admitted and administered IV fluids, antibiotics, and total parenteral nutrition (TPN) through a peripherally inserted central catheter. His evening anticoagulant dose was held pending the endoscopic treatment planned for the next day. His clinical condition and laboratory values failed to improve in the week after his admission.

The patient was not a candidate for surgery because of his severe hypoalbuminemia, leukocytosis, and splenic vein thrombosis with ongoing anticoagulation, so an endoscopic transluminal debridement (ETD) was performed on day 7 of his admission. Sedation with fentanyl 100 mcg and midazolam 6 mg was used during the procedure.

Surgeons were able to identify the anterior gastrostomy and thick debris and necrotic tissue were found at the

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Key points

- About 20% of patients with acute pancreatitis will develop necrotizing pancreatitis, which carries a high mortality.
- Patients with necrotizing pancreatitis are at risk for infected necrosis of the pancreas.
- For patients who cannot undergo open surgery, endoscopic transluminal debridement is a safe alternative.

gastropancreatic anastomosis (**Figure 1**). Debridement was performed using forceps with pressure irrigation. The next day, day 8 of his admission, another ETD was performed, using the same sedation protocol. Again, necrotic tissue was found blocking the gastropancreatic junction. Debridement was performed using forceps and pressure irrigation, with no bleeding before withdrawal of the endoscope.

On day 10, a third ETD was performed. Minimal debris was removed with forceps. No necrotic tissue was visualized, and the patient had no bleeding; the endoscope was withdrawn after copious irrigation. After the third ETD, the patient showed great clinical improvement (resolving pain, fever, and leukocytosis), was able to tolerate a solid diet, and was discharged 4 weeks later. Before his discharge, his albumin increased and his white blood cell count reached normal range. His final CT scan showed minimal residual peripancreatic fluid with marked improvement of the pseudocyst's appearance. With the endoscopic approach, the total hospital stay was reduced compared with open surgery. Since then, the patient has been treated as an outpatient, demonstrating sustained improvement and weight gain.

DISCUSSION

Acute pancreatitis is seen fairly frequently in clinical practice. Up to 80% of patients will develop edematous pancreatitis, with a mild course and spontaneous resolution within several days or a few weeks. However, 20% of patients with acute pancreatitis will develop necrotizing pancreatitis, which carries a high mortality (about 15%).[1] Of patients with necrotizing pancreatitis, up to 30% will present with infected necrosis of the pancreas.

Necrotizing pancreatitis can lead to sepsis and multiple organ failure, and constitutes a clear indication for prompt intervention to reduce patient mortality. Allowing the collection to become organized (encapsulated, well defined; this is also called walled-off necrosis) optimizes conditions for intervention. One study suggests delaying intervention if possible until 4 weeks after initial presentation to encourage walled-off necrosis.[2]

Treatment paradigms for infected pancreatic fluid collections are changing. Until a few years ago, this condition was managed primarily through surgery.[3] ETD after cystogastrostomy is a safe alternative because most patients are very malnourished at this stage of the disease, and surgery has an extremely high mortality.

Bleeding is the most common complication of ETD. In 93% of patients, bleeding was successfully treated endoscopically by coagulation, epinephrine injections, or clips.[4] Although bleeding can be a complication of the procedure itself, it also can be caused by therapeutic anticoagulation. Providers should withhold anticoagulation before ETD (the evening dose the day before and the morning dose the day of the procedure) because of the risk of major bleeding.[5]

Given the patient's clinical deterioration at the time of admission, he was not a candidate for surgery, and an endoscopic approach was deemed the only safe and effective alternative. Results from a multicenter, randomized controlled trial comparing the complication rates between ETD and minimally invasive surgery are expected but were not available at press time.[6]

The patient began with a conservative approach to treatment. His healthcare team tried to alleviate his malnutrition through TPN while controlling the infection with broad-spectrum antibiotics. The first EGD was performed on day 7 after healthcare providers confirmed the maturity of the pseudocyst via CT scan but multiple EGDs were needed to resolve the issue. The number of EGD sessions needed to successfully treat this condition can vary from 1 to more than 10.[5]

CONCLUSION

ETD is emerging as an effective and safe approach for patients with organized pancreatic necrosis, and moderate evidence favorably compares this treatment with traditional, open surgery. **JAAPA**

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