

Endoscopic Cyst Esophagostomy Using a Lumen-Apposing Stent for a Large Mediastinal Pancreatic Pseudocyst Compressing the Left Atrium

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ABSTRACT

Pancreatic pseudocysts and peripancreatic fluid collections extending into the mediastinum are unusual. Endoscopically, intra-abdominal pseudocysts can be drained transmurally through the stomach or duodenum depending on the location. An endoscopic ultrasound-guided esophageal approach for mediastinal pseudocysts has not been reported commonly in the literature. We report a rare case of a large mediastinal pseudocyst that was drained through the distal esophagus with eventual complete resolution of symptoms and pseudocyst.

INTRODUCTION

Pancreatic pseudocysts and peripancreatic fluid collections are common complications of acute pancreatitis.^{1,2} The incidence rate of pseudocyst after chronic pancreatitis is also high at around 20%–40%.² The occurrence of a pancreatic pseudocyst extending into the mediastinum and causing compression of chambers of the heart is unusual and requires drainage.

CASE REPORT

A 44-year-old white woman presented to the outpatient gastrointestinal clinic for evaluation of recurrent pancreatitis. The patient started having recurrent bouts of pancreatitis 3 years before presentation, which necessitated multiple emergency department visits and hospitalizations for intravenous fluids and analgesia. The patient had a total of 12 attacks of pancreatitis during this time frame. The exact etiology of pancreatitis was unclear; however, alcoholic pancreatitis (previous history of binge drinking around 12–14 standard drinks per weekend) was the leading cause of the attacks. Six months before presentation, the patient started complaining of abdominal distension and dyspnea. Abdominal and pelvic computed tomography revealed a large pseudocyst measuring 15.9 × 7.2 × 5.2 cm in size extending to the gastroesophageal junction and above the diaphragmatic hiatus into the mediastinum producing a mass effect on the left atrium (Figures 1 and 2). Multiple small pseudocysts were also demonstrated on the tail of the pancreas.

Given the dyspnea and compression of the left atrium by the pseudocyst, the patient was admitted to the hospital for endoscopic ultrasound (EUS) and possible drainage of the largest pseudocyst. EUS revealed a large pseudocyst around the proximal stomach extending through the diaphragmatic hiatus into the thoracic cavity where it compressed the left atrium. Because there was no definite bulge in the stomach and because of easy accessibility of the pseudocyst through the transesophageal route under ultrasound, the best window to drain this cyst was determined to be above the gastroesophageal junction in the distal esophagus. A 10 × 10-mm lumen-apposing stent (LAMS, Hot AXIOS; Boston Scientific, Marlborough, MA) through a transmural approach was inserted and deployed into the pseudocyst through the distal esophagus, and this resulted in copious outpouring of pseudocyst fluid. A total of 300 cc of fluid was aspirated. The left atrium was seen to expand immediately after the aspiration. The patient improved symptomatically, and her dyspnea resolved and was discharged in stable condition after 2 days.

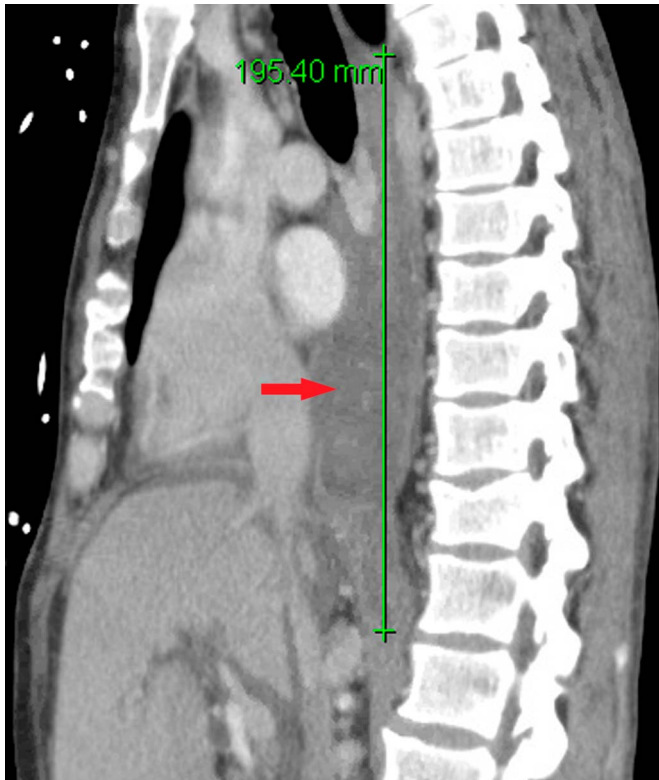


Figure 1. Longitudinal section computed tomography demonstrating a pancreatic pseudocyst (arrow) extending above the diaphragm and causing a mass-like effect on the heart.

She presented with worsening pleuritic chest pain 3 weeks later. Repeat abdominal/pelvic computed tomography showed a significant decrease in the size of the pseudocyst to 1.1×1.7 cm. The previously seen large pocket of fluid extending into the mediastinum surrounding the esophagus and compressing the left atrium appeared completely resolved (Figure 3). The patient underwent another EUS that showed the AXIOS stent in good position and re-expansion of the left atrium. The pleuritic chest



Figure 2. Computed tomography displaying a pancreatic pseudocyst in the posterior mediastinum (arrow) pushing the heart anteriorly. Also notice multiloculated pleural effusion worse on the right side compared with the left.

pain was thought to be due to mechanical irritation of the parietal pleura by the stent as a result of resolution of the pseudocyst. Therefore, the AXIOS stent was removed during endoscopy. The pleuritic-type chest pain improved, and she was discharged from the hospital in stable condition. Follow-up computed tomography in 4 months demonstrated complete resolution of the pseudocyst (Figure 4).

DISCUSSION

We present a case of a large mediastinal pancreatic pseudocyst that was drained endoscopically through a transesophageal approach by performing a cyst esophagostomy and placement of a lumen-apposing stent. We performed an extensive review of literature and found only 2 other case reports of mediastinal pseudocysts that were drained through the transesophageal route.^{3,4}

The first case was reported by Săftoiu et al.³ The patient was a 30-year-old man with known alcoholism who presented with acute pancreatitis, and imaging revealed a 15-cm pancreatic pseudocyst extending into the posterior mediastinum. An EUS-guided cyst esophagostomy was created using a diathermic catheter, and a 5-cm, 10-Fr stent was placed. The patient had complete resolution of the mediastinal pseudocyst in 1 month, and the stent was removed.³

Similarly, Gornals et al reported a case of a 37-year-old man with recurrent pancreatitis who was referred for drainage of his mediastinal pancreatic fluid collection.⁴ The collection that was 80×50 mm was accessed through the lower esophagus, and an AXIOS stent (10×10 mm) was placed with drainage of fluid. The procedure was, however, complicated with a large pneumothorax, which required immediate drainage. The patient improved symptomatically over the next few days, and the stent was removed on day 7. Follow-up imaging after 6

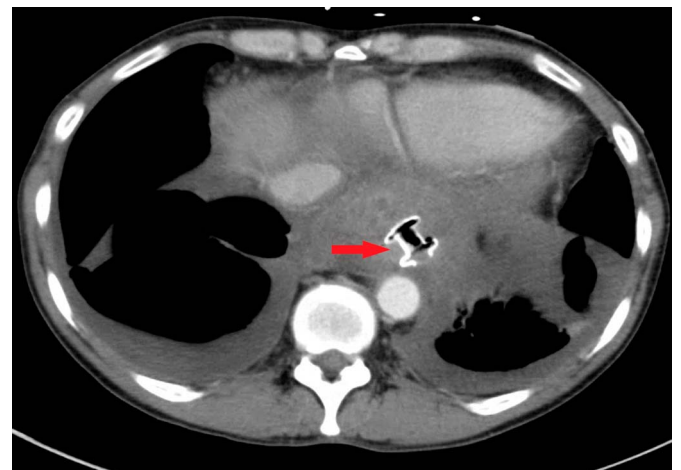


Figure 3. Computed tomography performed 3 weeks later demonstrating interval placement of the AXIOS stent (arrow) in the pseudocyst. There is some re-expansion of the heart; however, there is persistent pleural effusion.

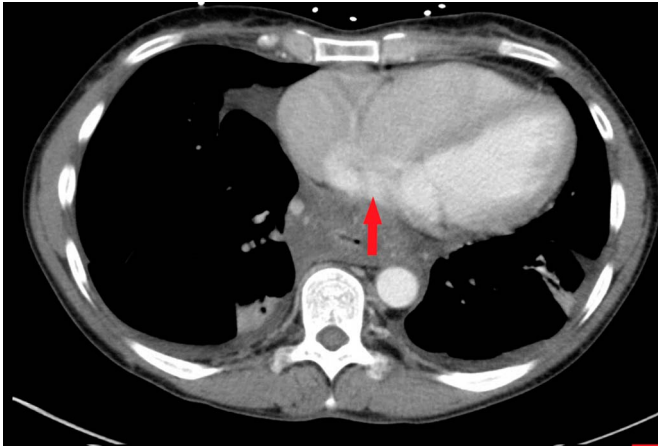


Figure 4. Computed tomography 4 months after the procedure with minimum pleural effusion and re-expansion of the heart (arrow).

weeks showed completed resolution of the pseudocyst and the pneumothorax.⁴

The potential complications for draining a mediastinal pancreatic pseudocyst and peripancreatic fluid collection through the esophageal route are incomplete drainage and persistent fluid collection, infection, massive hemorrhage in case a major artery is perforated, pneumothorax, pneumomediastinum, fistula, and cardiac tamponade. Given the technical success of the procedure in the current case and previous cases described earlier, we feel that this is a reasonable approach if an appropriate window for drainage is not seen from the stomach. Transesophageal drainage by creation of an EUS-guided cyst esophagostomy and placement of a lumen-apposing stent is an

effective approach for the management of a large mediastinal pseudocyst.

DISCLOSURES

Author contributions: M. Aziz wrote the manuscript, searched the literature, and is the article guarantor. All authors critically reviewed the manuscript and searched the literature.

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Informed consent was obtained for this case report.

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