

Large pancreatic pseudocyst penetrating into posterior mediastinum

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B – Data Collection
C – Statistical Analysis
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Adam Roman Markowski¹, Elżbieta Brodalka^{1DEF}, Katarzyna Guzinska-Ustymowicz^{2BD},
Konrad Zaręba^{3BF}, Dariusz Cepowicz^{3BF}, Bogusław Kędra^{3BEF}

¹Department of Internal Medicine and Gastroenterology, Polish Red Cross Memorial Municipal Hospital, Białystok, Poland; Head of the Department: Dr n. med. A. R. Markowski

²Department of General Pathomorphology, Medical University of Białystok, Poland; Head of the Department: Prof. dr hab. n. med. A. Kemona

³2nd Clinical Department of General and Gastroenterological Surgery, Medical University of Białystok, Poland; Head of the Department: Prof. dr hab. n. med. B. Kędra

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ABSTRACT:

We report a rare case of a large mediastinal pancreatic pseudocyst compressing the left atrium and the esophagus and causing dyspnea, palpitations, and emesis. Chest radiograph was non-diagnostic, esophagogastroduodenoscopy showed diffuse extrinsic compression of the distal esophagus and gastric corpus, but a definitive diagnosis was confirmed by computed tomography. We decided to perform surgery due to the recurrence of the pancreatic pseudocyst, a history of unsuccessful radiologically guided external drainage a few years earlier, and a very large diameter of the pseudocyst causing acute cardio-pulmonary distress syndrome.

KEYWORDS:

Pancreatic pseudocyst, posterior mediastinum, pancreatitis, alcohol abuse.

INTRODUCTION

Pancreatic pseudocyst formation is a common complication of acute or chronic alcohol-related pancreatitis. Pancreatic pseudocysts have a high amylase concentration and are surrounded by a fibrous capsule without a true epithelial lining. They are most frequently located in the peripancreatic region and extension into the chest is uncommon.

We report a rare case of a large mediastinal pancreatic pseudocyst causing acute cardio-respiratory failure which was treated surgically to provide definitive management.

CASE REPORT

A 30-year-old woman was admitted to the Department of Internal Medicine and Gastroenterology because of dyspnea for a week, left upper quadrant pain, and recurrent vomiting. The patient had a documented medical history of ethanol-induced pancreatitis, and underwent computed tomography-guided percutaneous drainage of the abdominal pancreatic pseudocysts 2 years prior to admission. Perforation of the transverse colon occurred as a result of the procedure and segmental resection was then necessary.

On admission, physical examination revealed a weakened respiratory murmur at the base of the left lung, heart rate of 120/min, and distention of the upper half of the abdomen. Oxygen saturation was 80% on room air. Resting electrocardiogram was normal except for sinus tachycardia. Chest radiograph revealed a raised dome of the left diaphragm.

Following stabilization of the patient, esophagogastroduodenoscopy was performed. It showed diffuse external compression in the middle and lower esophagus and in the gastric corpus with a narrowing of the esophageal and gastric lumen, not susceptible to insufflation.

Abdominal contrast-enhanced computed tomography (CE-CT) revealed a very large (150 mm), multi-chamber fluid collection with a low density content (20 Hounsfield units) located near the body and tail of the pancreas. The pancreatic pseudocyst extended to the upper abdomen, close to the spine, spreading towards the liver and stomach, then penetrating the posterior mediastinum through the esophageal hiatus of the diaphragm. CT confirmed significant progression of the abdominal fluid collections over the previous 2 months. Chest CE-CT identified a left-sided pleural effusion and a large fluid collection reaching the level of the tracheal bifurcation, extending towards mediastinal structures and deforming the esophagus and the left atrium. The mediastinal pancreatic pseudocyst (MPP) seemed to be connected with the pseudocyst adjacent to the pancreatic tail. The size of the MPP was 110 x 70 x 100 mm (Fig. 1).

The patient was eventually transferred to the 2nd Department of General and Gastroenterological Surgery, where elective surgery was performed to provide definitive management. First, cystotomy was performed through which the bloody-brown contents of the pancreatic pseudocyst were evacuated (fig. 2). Next, the pancreatic pseudocyst with pancreaticoperitoneal fistula located on the border of the body and tail was partially excised (Fig. 3). Then, left-sided pancreatectomy with splenectomy was performed. The final stage of the surgery involved drainage of the peritoneal cavity and mediastinum.

The postoperative course was uneventful. Two weeks after the procedure, the patient was discharged in good clinical condition and scheduled for outpatient observation.

DISCUSSION

Alcohol abuse is the principal cause of MPP formation in adults. Damage of the pancreatic duct due to inflammation leads to its perforation and subsequent fistulization. A minimal disruption can arise within the pancreatic capsule and therefore can be self-heal-

ing; such intrapancreatic pseudocysts are usually small in size. But sometimes the fistula can breach the capsule and lead to leakage of pancreatic juice into the retroperitoneal space or free peritoneal cavity (internal fistula). If the pancreatic duct communicates with the skin, pancreatic fistulas are classified as external, which leads to peripancreatic accumulation of fluid or formation of pancreatic ascites. The inflammatory process may lead to encapsulation of the fluid collection by fibrous tissue and pseudocyst formation. Pancreatic pseudocysts can extend to very distant organs or spaces, causing high mortality in the affected patients. A substantial amount of fluid can enter the low-pressure thoracic cavity through anatomical orifices (esophageal and aortic hiatus) or by direct permeation of the fluid through the left side of the diaphragm [1]. The most common route of pancreatic pseudocyst penetration into the mediastinum is via the aortic and esophageal hiatus, resulting in the common pancreatic pseudocyst location in the posterior mediastinum.

To date, several endoscopic and surgical procedures have been reported and the methods used have been chosen based on the severity of symptoms, etiology, nature, size, location, and connection of mediastinal pancreatic pseudocysts with the pancreatic duct system.

Complete resolution of asymptomatic MPPs is sometimes possible with conservative therapy by abstinence from alcohol, total parenteral nutrition, and octreotide injections [2]. However, drainage procedures are indicated for the treatment of symptomatic MPPs and those that continue to enlarge and could rupture. Endoscopic transpapillary drainage [3] or endosonography-guided transmural drainage [4] are the methods of choice. Transmural drainage is possible in the case of a pancreatic pseudocyst abutting the stomach or esophagus. Transpapillary drainage is more effective than transmural drainage, but requires pseudocyst communication with the pancreatic duct.

CT-guided external percutaneous drainage of MPPs involving the placement of a draining catheter by a radiologist [5] and use of videothoracoscopy [6] are other therapeutic options when endoscopic drainage is not available or impossible. Percutaneous drainage of chronic pancreatic pseudocysts is currently not recommended due to the persistent leakage and risk of persistent external pancreatic fistula development. This procedure appears to have an increased risk of complications and a higher mortality rate than endoscopic or surgical drainage. It is absolutely contraindicated if a patient is unable to cooperate during the procedure and cannot manage a catheter at home.

Sometimes, minimally invasive surgical techniques, which include laparoscopic surgery, may be beneficial for patients with an infection, obstruction, rupture, or hemorrhage. These procedures are usually performed in specialist centers with extensive experience and appear to have a decreased risk of complications than external drainage.

If the use of minimally invasive techniques is not possible or has failed, surgery is recommended. It currently includes internal drainage using the open method or laparoscopy, sometimes combined with resection of the pancreas [7]. Open surgery is the definitive treatment that is usually reserved for unstable patients and life-threatening cases with severe complications [5]. The type of

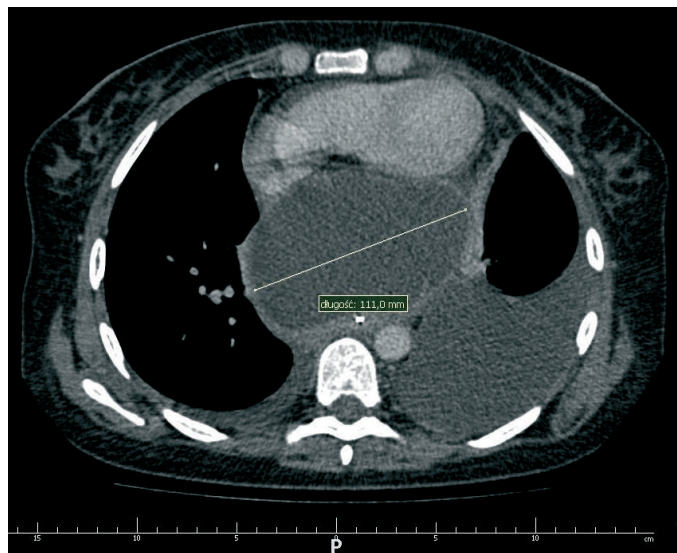


Fig. 1. Chest CE-CT: large mediastinal pancreatic pseudocyst.



Fig. 2. Intraoperative findings: dissected portion of the pancreatic pseudocyst before resection

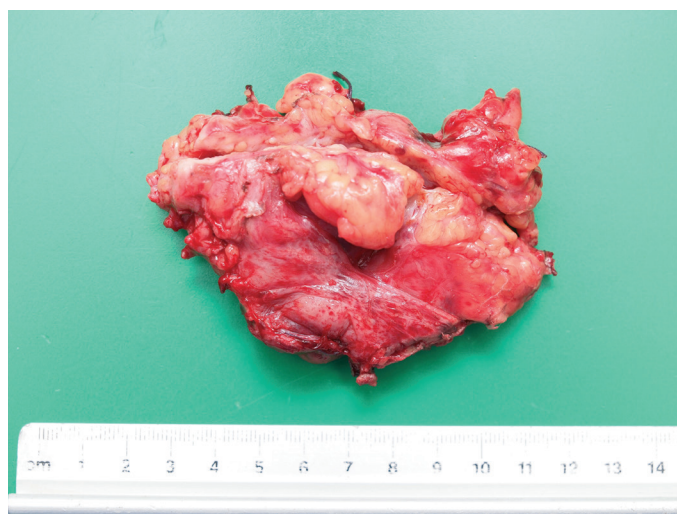


Fig. 3. Resected material: the tail of the pancreas with a fragment of the pancreatic pseudocyst.

surgical treatment must be adjusted individually to the clinical condition of the patient and depending on the location of MPP.

To date, fewer than 100 cases of mediastinal pancreatic pseudo-

cyst have been reported in the literature. For this reason, comparative evaluation of treatment efficacy of particular methods is very difficult. Non-homogeneous groups of patients and a number of different approaches to decompression are an additional impediment. The choice of procedure depends on clinical presentation and partly on the experience of the center. According to a recently published review, the success rate of percutaneous aspiration, endoscopic transpapillary drainage, EUS-guided drainage, and surgical drainage of pancreatic pseudocysts is 42-77%, 33-91%, 51-95%, and 73-100%, respectively [8]. Surgical drainage has a mortality of 5-9%, mean complication rate of 11-24% (12% - pancreatic fistula, 6% - infection, 4% - postoperative hemorrhage, 4% - non-surgical complications), and 5-8% recurrence [9]. According to the Cochrane Group, short-term health-related quality of life is worse in the open surgical drainage group than in the EUS-guided drainage group [10].

We decided on the open surgical intervention because of cyst enlargement despite previous treatment, history of unsuccessful radiologically guided external drainage a few years earlier, and a very large diameter of pseudocysts causing acute cardiorespiratory failure. Surgery was successful, and the patient was discharged in good clinical condition.

CONCLUSIONS

Pancreatic pseudocyst formation is a common complication of alcohol-induced pancreatitis with potentially catastrophic complications. Our case clearly demonstrates that surgery may be necessary to provide definitive management for a pancreatic pseudocyst penetrating into the mediastinum and causing acute cardiorespiratory failure.

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Corresponding author: Dr n. med. Adam R. Markowski, Oddział Chorób Wewnętrznych i Gastroenterologii, Samodzielny Szpital Miejski im. PCK, ul. Sienkiewicza 79, 15-003 Białystok, Polska, Tel.: +48 85 66 48 512, E-mail: markowski@szpitalpck.pl.

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