

# Mediastinal Pseudocyst in a Case of Chronic Pancreatitis: A Rare Presentation

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## ABSTRACT

Pancreatic pseudocysts are collections of fluid localised within the pancreas or in the peripancreatic space, which can occur following acute pancreatitis or in patients with a history of acute pancreatitis and chronic pancreatitis. They are well-known complications of pancreatitis. The pathogenesis of pancreatitis depends on its etiology, where enzyme-rich fluid and products of autoregulation accumulate in acute pancreatitis, and cysts are formed due to obstructed ducts in chronic pancreatitis. The development of pancreatic pseudocysts is more commonly associated with chronic pancreatitis than acute pancreatitis. Unless ruptured, pancreatic pseudocysts are usually not hazardous. Diagnosis of pseudocysts has become easier with advanced diagnostic techniques such as ultrasound and Computed Tomography (CT) scans. Patients presenting with abdominal pain and elevated pancreatic enzymes should be suspected of having pseudocysts. Approximately one-third of these cases resolve spontaneously. In the past, surgery was the only management method, but recently, with newer techniques such as percutaneous drainage and endoscopic cyst enterostomy, management has become easier. Percutaneous drainage, performed under local anaesthesia, is a cost-effective procedure with very low complications. The recurrence rate is higher with single-needle treatment, so catheters are used to decrease recurrence. Drainage should be the first choice of management, but with advancing technology and endoscopic techniques, it may become more useful in the future with skilled practitioners. In this case report, we will examine the case of a 30-year-old male who presented with symptoms of pain in the epigastric region and was diagnosed with a pancreatic pseudocyst. This case demonstrates a rare presentation where the pseudocyst extends into the mediastinum and thorax.

**Keywords:** Acute pancreatitis, Autoregulation, Cysts, Drainage, Peripancreatic space

## CASE REPORT

A 30-year-old male patient presented to the casualty department with complaints of chest pain, which was of a constricting type and radiated to the back, accompanied by breathlessness for the past eight days. He also reported weight loss. There was no history of vomiting, loose stools, cough, cold, or abdominal pain. The patient did not have a known history of hypertension, diabetes mellitus, bronchial asthma, or tuberculosis. He was a chronic alcoholic and had been consuming alcohol, 300-400 mL daily, for the past 10 years, but had stopped five days ago. On physical examination, his pulse was 78 beats per minute, blood pressure was 110/70 mmHg in the supine position, and respiratory rate was 16 breaths per minute. No pallor, icterus, cyanosis, clubbing, lymphadenopathy, or edema was observed. The patient was then referred to the Department of Medicine, where all relevant investigations, such as Complete Blood Count (CBC), Liver Function Test (LFT), and Kidney Function Tests (KFT), were performed [Table/Fig-1]. Additionally, a COVID-19 swab test for RT-PCR was conducted, which was found to be negative. Contrast-Enhanced Computed Tomography (CECT) revealed findings consistent with subacute to chronic pancreatitis, with multiple pseudopancreatic cysts adjacent to the head and tail

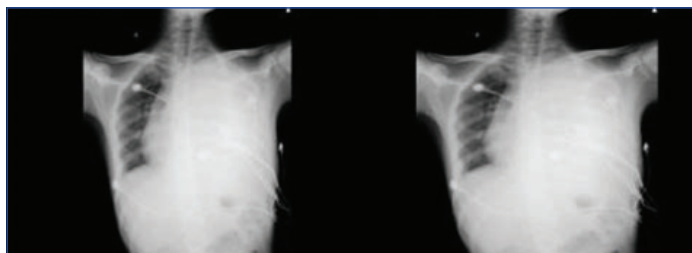
of the pancreas. Mediastinal implants of pseudopancreatic cysts and small pseudopancreatic cysts around the spleen were also noted. Chronic portal vein thrombosis with cavernoma formation at the porta with perfusion was observed. Left-sided pleural effusion, along with collapsed left lower lung, and multiple splenorenal and gastric varices were also appreciated. A gastroenterologist was consulted, and endoscopy was recommended. Endoscopy findings indicated early oesophageal varices with a large fundal varix and oedematous pylorus. Medications were initiated, including Injection (Inj.) Meropenem 1 gm i.v. TDS for 14 days, inj. Optineuron 1 AMP in 100 mL of normal saline, Inj. Octreotide 25 mg i.v. TDS for 10 days, along with Inj. Pan 40 mg i.v. OD and inj. Emset 4 mg i.v. TDS for five days.

Nebulisation was performed with Duolin 2-4 mg/dose every eight hours, and Budecort 0.5-1 mg/dose every 12 hours. A high protein diet was initiated. Abdominal CECT was conducted, revealing findings consistent with chronic pancreatitis, including multiple pseudocysts in the head and tail of the pancreas extending into the posterior mediastinum, left hemithorax, and left hypochondrium, along with multiple collaterals and splenic infarct. A chest X-ray showed a massive left-sided pleural effusion [Table/Fig-2]. Pigtail catheterisation was performed, and the pleural fluid was sent for investigation. Despite daily drainage, there was a massive collection of fluid. Therefore, Magnetic Resonance Cholangiopancreatography (MRCP) was planned to assess the presence of any pleuro-pancreatic fistula tract. MRCP revealed chronic pancreatitis with multiple pseudocyst formation, extending into the mediastinum and left hemithorax [Table/Fig-3]. Endoscopic Retrograde Cholangiopancreatography (ERCP) was then planned, but cannulation of the pancreatic duct with a PD stent could not be achieved due to fibrosis. Nasogastric tube feeding was attempted, but due to the distorted abdominal anatomy, repeated attempts to insert the nasogastric tube resulted in it coiling in the stomach. Consequently, the patient was discharged with a pigtail catheter in place and advised to continue inj. Octreotide at

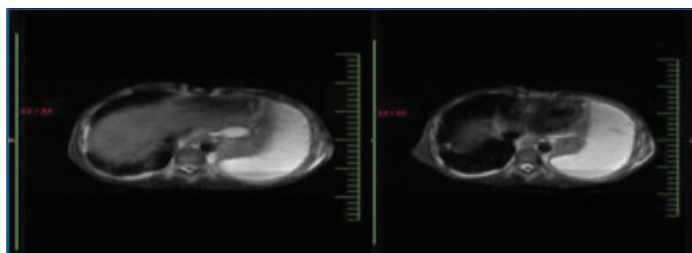
Laboratory parameters	Values	Reference range
Platelet count	99000	1,50,000-4,50,000/mcL
Mean Corpuscular Volume (MCV)	108.2	80-100 fL
Aspartate Transaminase (AST)	56	<37 u/L
Alanine Transaminase (ALT)	92	<42 u/L
Serum albumin	2.2	3.5-5.0 g/dL
Serum sodium	141	137-145 mmol/L
Amylase	483	30-220 U/L
Lipase	686	0-160 U/L
Calcium	6.5	8.5 to 10.5 mg/dL

[Table/Fig-1]: Laboratory parameters.

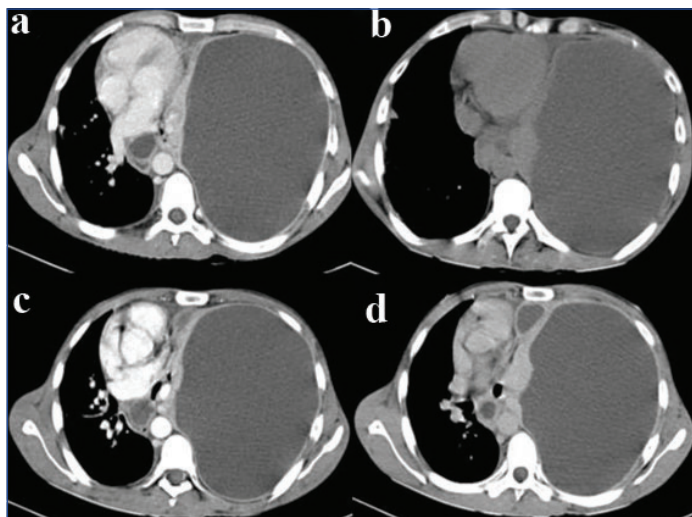
home. A follow-up appointment was scheduled after seven days. On follow-up, the patient was doing well, and symptoms were relieved. In [Table/Fig-4], a pseudocyst near the head of the pancreas was visible, extending through the hiatus into the posterior mediastinum, lying anterior to the oesophagus. The lesion further occupied the available space, extending into the entire left hemithorax and causing the collapse of the left lung. The lesion demonstrated peripheral enhancement on post-contrast imaging.



[Table/Fig-2]: X-ray shows left-sided pleural effusion with insertion of pig tail for drain.



[Table/Fig-3]: MRCP images of the whole abdomen.



[Table/Fig-4]: (a) Venous phase; (b) Plain phase; (c) Arterial phase; (d) Delayed phase.

## DISCUSSION

Pancreatic pseudocysts, a complication of pancreatitis, can develop in both acute and chronic pancreatitis. The disease may either remain asymptomatic or develop serious complications. Attacks of acute or chronic pancreatitis may precede pseudocysts. They can be classified based on different criteria. One classification is the Atlanta classification, which is based on the pathogenesis of pseudocyst formation [1]. Another classification by D'Egidio and Schein takes into account the underlying disease, as well as, the anatomy of the duct and pseudocyst-duct communication [2]. Nealon and Walser's classification considers the duct anatomy and the presence or absence of contact with the pseudocyst cavity [3]. Pancreatic pseudocysts are more commonly seen in patients with chronic pancreatitis compared to the acute form. In acute pancreatitis, the incidence of pseudocysts ranges from 5% to 16%. However, in chronic pancreatitis, the numbers are larger, with incidence rates ranging from 20% to 40% documented. Patients with chronic pancreatitis caused by alcohol consumption have the highest prevalence of pancreatic pseudocysts, with 5 to 12 per

100,000 people [4]. Other causes may include gallstone-induced pancreatitis, postsurgical pancreatitis, and rarely, hyperlipidaemia-induced pancreatitis and idiopathic causes [5].

In the present case, we observed how a patient with a pancreatic pseudocyst presented and received treatment based on their symptoms. Similar cases have been reported in the past. One case involved a 67-year-old female who presented with a three-month history of chest pain, dyspnoea, dysphagia, and weight loss. This patient had experienced an episode of acute alcoholic pancreatitis the previous year due to excessive alcohol intake, indicating regular alcohol consumption. Chest radiography upon admission revealed retrocardiac opacity. A CT scan showed the presence of a hypodense cystic mass extending from the body of the pancreas into the thorax, up to the subcarinal angle, exerting pressure on the distal oesophagus and possibly the cardiac chambers. ERCP was performed, revealing normal duct anatomy. An Endoscopic Ultrasound (EUS) guided drainage of the pseudocyst was performed, creating two paths with a 19-Gauge needle through the transoesophageal approach. The fluid was drained, and no drainage stent was left in place [6].

Another similar case involved a 46-year-old man with a history of alcohol consumption who was diagnosed with chronic pancreatitis. Additionally, multiple small and cystic lesions were found in the head of the pancreas, along with two large cystic lesions adjacent to the tail of the pancreas. CT examination revealed calcification of the pancreas, and these findings were confirmed on MRCP. Cholangiopancreatography revealed bile duct stenosis and proximal dilatation in the intra-pancreatic region, as well as, stenosis of the duct in the pancreatic head and dilatation of the distal part of the body and tail. The management involved placing a bile duct stent and a pancreatic duct stent. The patient was also given medication after surgery, and they recovered smoothly [7].

A 22-year-old female patient with recurring upper stomach pain linked to chronic pancreatitis was referred to the hepatobiliary unit. She had a history of long-term alcohol consumption. A CT scan revealed a large fluid buildup in the lesser sac, extending beyond the oesophagus and into the lower mediastinum, up to the level of the carina. The majority of the cyst was located in the mediastinum and was connected to a left-sided pleural effusion. Additionally, the CT scan accidentally revealed a left gastric artery pseudoaneurysm along with pancreatic calcifications. Cyst aspiration was performed, followed by a surgical cystogastrotomy. Three months later, the cyst completely resolved [8].

A 52-year-old man was admitted to the hospital with complaints of severe abdominal pain radiating to his back, which had been ongoing for the past two months. The patient had a history of chronic alcoholism, consuming 100 g of alcohol per day for the last 28 years. Ascites was noted upon examination, and a contrast-enhanced CT scan of the abdomen and chest revealed calcification of the head of the pancreas. Endoscopy showed extrinsic compression of the oesophagus without any varices. The diagnosis of acute-on-chronic pancreatitis was made, and the patient was treated conservatively [9].

A 56-year-old patient with a history of chronic alcoholic pancreatitis was presented. She reported consumption 2-3 drinks per day for 25 years. CT findings of the upper abdomen were consistent with chronic pancreatitis, with posterior mediastinal fluid extending into the peripancreatic area. There was also evidence of mass effect on the oesophagus. MRCP confirmed the diagnosis of acute-on-chronic pancreatitis with a peri pancreatic fluid collection extending into the mediastinum. The patient was managed conservatively and discharged with instructions for regular follow-up [10].

All the cases discussed above share a common history of excessive alcohol consumption. Various diagnostic techniques have been employed, including CT scanning, transcutaneous and EUS, endoscopic retrograde cholangiopancreatography, cyst aspiration, chemistry, and cytology, all of which are used to diagnose pancreatic

pseudocysts [11]. Rapid advancements in diagnostic instrument development have enabled high sensitivity and specificity in detection [11]. Transabdominal ultrasonography should be used as the initial step in identifying pancreatic pseudocysts due to its relatively affordable and non-invasive nature. CT imaging is crucial for treatment planning and has the highest sensitivity [12]. The size of the pseudocyst also affects its management, with a higher risk of complications observed in necrosed pseudocysts. Surgical treatment has been the standard approach for pancreatic pseudocysts for nearly 40 years and is still commonly used today [13]. With advancements in surgical skills, newer treatments such as cyst gastrostomy and gastrojejunostomy have become well-established. However, some scientists suggest that a non-surgical procedures like endoscopic drainage are preferable [14]. Endoscopic drainage is a minimally invasive treatment with surgical-like efficacy, achieving a cyst clearance rate ranging from 60% to 90% [14]. The objective of endoscopic drainage is to establish a connection between the pseudocyst and the digestive tract, which can be accomplished through transmural or transpapillary drainage. Endoscopic retrograde cholangiopancreatography is used for transpapillary drainage when the pseudocyst cavity communicates with the pancreatic duct [15].

## CONCLUSION(S)

Although, there are different types of treatment modalities, in recent years, the endoscopic approach with surgery has gained importance for patients who have failed endoscopic and percutaneous drainage techniques. A complete and thorough history, examination, and diagnosis should be conducted as accurate recognition of the disease will help plan the treatment course. Neglecting symptoms can lead to further complications that may pose a threat to the patient's life. Therefore, timely diagnosis and treatment are crucial for saving patients' lives. A proper therapeutic approach involving

a team of therapeutic endoscopists, interventional radiologists, and pancreatic surgeons should be considered in all cases, regardless of the technique used. The treatment should be tailored to the patient, and timely follow-up is necessary.

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