

# A Rare Complication of Atypical Pancreatic Pseudocysts: A Case of Psoas Abscess with Renal Abscess

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## ABSTRACT

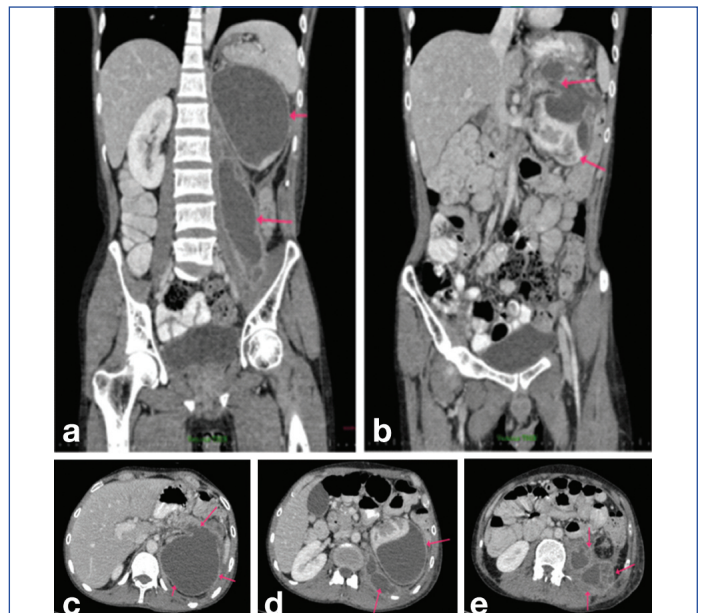
Pancreatic pseudocysts can extend beyond the boundaries of the pancreas due to the enzymatic nature of the fluid they contain. However, the extension of a pseudocyst beyond the retroperitoneum, into the psoas muscle, and within the subcapsular space of the left kidney is extremely rare, with only a few documented cases in the medical literature. In this report, authors present a case of a 36-year-old male with chronic pancreatitis and atypical pseudocysts that were left untreated due to his negligence. Secondary infection led to the formation of a psoas abscess, perinephric abscess, and a renal abscess. Complications such as intracystic haemorrhage, infection, and rupture of a pseudocyst are uncommon and can be fatal, if treatment is delayed. Pseudocysts in atypical locations, complicated by a secondary infection, are extremely rare and must be timely and effectively managed.

**Keywords:** Fluid, Infection, Intracystic haemorrhage, Pancreatitis

## CASE REPORT

A 36-year-old male arrived at the Emergency Department with complaint of persistent pain in the right lumbar region for 10 days. The pain radiated to his thigh and worsened with hip movements, making it difficult for him to walk. He had also experienced multiple episodes of fever over the past 10 days. The patient was a known case of chronic pancreatitis, diagnosed with atypical pseudocysts of the pancreas in three different anatomical locations in the intra-abdominal cavity nine months ago, after which he was discharged against medical advice. He had no history of substance abuse or other pertinent past medical and surgical history. Upon presentation, the patient appeared emaciated, febrile, with an elevated heart rate of 110 beats per minute and rapid breathing at a rate of 32 breaths per minute. Physical examination revealed severe tenderness upon deep palpation in the left lumbar region along with local warmth. Additionally, the patient showed limited extension at the hip joint on the same side. Laboratory tests indicated severe anaemia with a haemoglobin level of 5.80 g/dL and a total white blood cell count of 9700/mm<sup>3</sup>. Serum amylase, lipase, and liver function tests were all within normal ranges. Ultrasonography revealed signs of chronic pancreatitis, including atrophy of the pancreatic head and body. Well-defined collections were observed in the left renal fossa and the iliopsoas region. The left kidney appeared displaced, smaller in size, and distorted in shape, as it could not be visualised in its usual anatomical location. Previous Computed Tomography (CT) scans had indicated the presence of an atypical pancreatic pseudocyst in the patient's medical history, raising suspicion of abscess formation [Table/Fig-1a-e]. An Outside MRI report revealed a large abscess measuring approximately 22×6×4 cm along the left paraspinal muscles. This abscess extended into the left posterior abdominal wall, and the left kidney was completely replaced by a thick-walled cystic collection measuring about 6×4 cm, indicating the presence of a renal abscess [Table/Fig-2a-d]. No neurological impairment was noted.

The patient received prompt treatment with broad-spectrum antibiotics, underwent a blood transfusion to correct his anaemia, and underwent an ultrasound-guided percutaneous aspiration of the collection. Approximately 200 cc of pus-like fluid was initially drained, and repeat ultrasound of the abdomen revealed residual collection, leading to the repositioning of the pigtail drain. Subsequently, an additional 100 cc of pus was drained, and a Double

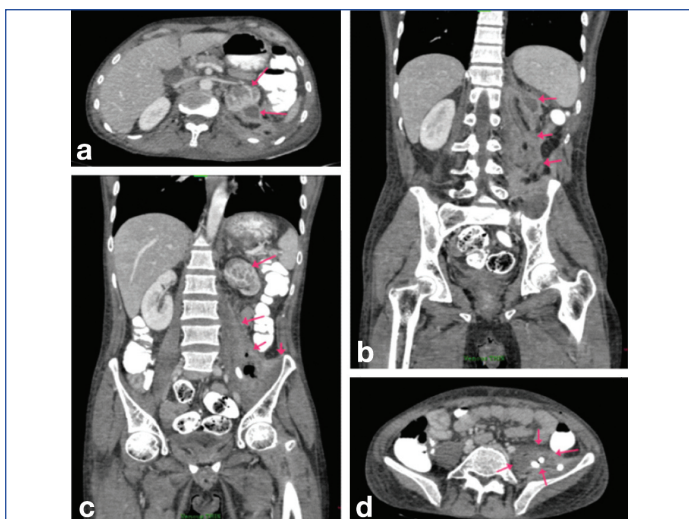


**[Table/Fig-1]:** Well-defined fluid density lesion in relation to the distal body and tail of pancreas (b- red arrows) extending into the iliopsoas muscle inferiorly up to the pelvic inlet (a- red arrows). Extension of the fluid density lesion into the left para-renal space (c- red arrows). Anteriorly displaced and compressed left kidney due to the pseudocyst with relatively faint nephrogram (d- red arrows). Multiple well-defined fluid density lesions in the iliopsoas muscle (e).

J ureteral stenting procedure was performed to facilitate drainage of the left renal abscess. Follow-up CECT of the abdomen and pelvis was conducted to assess the volume of residual collection [Table/Fig-2a-d]. The patient showed symptomatic improvement after the treatment, and the drain was removed under sterile conditions. The patient was discharged and scheduled for regular follow-ups every four weeks for a period of 12 weeks, with ultrasonography to monitor the resolution of the renal abscess.

## DISCUSSION

Pseudocysts can occur as a result of acute or chronic pancreatitis, where the pancreatic duct leaks and is surrounded by granulation tissue. Complications such as bleeding, rupture, mass effect, secondary infection, and fistula formation can result from these pseudocysts. The destructive nature of pancreatic enzymes allows pseudocysts to extend from various areas, including the neck, mediastinum, and



**[Table/Fig-2]:** Markedly distorted left kidney with thick-walled collection in the left posterior para-renal space (a) Similar thick-walled collections in the retroperitoneum extending inferiorly involving the left psoas and quadratus lumborum (b). Superiorly displaced left kidney with large psoas abscess (c). Pigtail catheter in-situ (marked with arrows- d).

groin [1]. However, it is uncommon and rare for pseudocysts to extend beyond the retroperitoneum into the psoas muscle and subcapsular space of the left kidney, leading to the formation of abscesses, as seen in our case. Aswani Y et al., described a case of the Page kidney phenomenon due to a renal pancreatic pseudocyst in a setting of pancreatitis. The patient was managed with medication, and the pseudocyst was externally drained via a pigtail catheter, following which symptomatic improvement was noted [2].

The management of pancreatic pseudocysts is primarily conservative since spontaneous resolution occurs in over 50% of cases. Therefore, the size of the pseudocyst alone is not a definitive criterion for drainage [3]. Invasive procedures like cystogastrostomy, cystoduodenostomy, or cystojejunostomy require certain prerequisites, such as the existence of a developed cyst wall, a minimum of 1 cm between the pseudocyst and the small intestine or stomach, and the absence of significant vessels that could impede the stent placement process [1,4]. The initial treatment for a primary psoas abscess involves the use of intravenous antibiotics that target *Staphylococcus aureus*, as it accounts for approximately 90% of cases. Effective choices include vancomycin, linezolid, or clindamycin, which provide coverage against most gram-positive organisms, including Methicillin-resistant *Staphylococcus Aureus* (MRSA). In secondary psoas abscess, a combination of enteric pathogens is predominant. Empirical antibiotic therapy should cover both gram negative bacteria and anaerobic organisms [4,5]. The antibiotic regimen can be adjusted based on culture and sensitivity results, typically continued for two weeks after abscess drainage. For definitive treatment, CT-guided Percutaneous Drainage (PCD) or surgical drainage are the two main modalities. PCD is the preferred choice, particularly for primary psoas abscess, as it is less invasive.

Surgical drainage is necessary if PCD fails, if contraindications to PCD exist, or if abdominal pathology requiring intervention is present. In cases of secondary abscess, surgical drainage has shown shorter hospital stays compared to PCD due to the higher incidence of concurrent intra-abdominal pathology [5-8]. Mortality rates for primary and secondary psoas abscesses are 2.4% and 18.9%, respectively [8]. Inadequate or delayed treatment is the primary cause of death, and patients who do not undergo drainage are at the highest risk, often succumbing to sepsis. Renal and perirenal abscesses are uncommon infections involving the kidneys or the surrounding areas. These conditions pose a diagnostic challenge for physicians, and a delayed diagnosis can result in higher morbidity and mortality rates [9]. Adequate drainage and appropriate antibiotic therapy are the key components of treatment for renal or perinephric abscesses. Traditional approaches involved surgical exploration, incision and drainage, or even nephrectomy. However, since the 1970s, minimally invasive treatments have emerged, and there has been a shift towards conservative management due to advancements in imaging techniques and the availability of new antibiotics. Intravenous antibiotics alone are an effective treatment for small renal abscesses. However, there have been conflicting results with conservative treatment for medium-sized renal abscesses (3-5 cm) [10].

## CONCLUSION(S)

Atypical pancreatic pseudocysts, over time, lead to the formation of multiple abscesses in different anatomical locations and can be managed with adequate clinical knowledge and with recent advancements in minimally invasive interventional radiology. In atypical locations, pseudocysts complicated by a secondary infection, are extremely vigorous and therefore must be managed timely and effectively.

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