



## Pancreatic Pseudocyst with Abdominal Wall Involvement: Insights from a Rare Case

Ettaoussi Abdelhak, Jamaledine Khalid, Khadiri Mohammed\*, Kamal Khadija, Majd Abdessamad, Bouali Mounir, Elbakouri Abdelilah and EL Hattabi Khalid

Department of General Surgery, IBN ROCHD University Hospital of Casablanca, Casablanca, Morocco

\*Corresponding Author: Khadiri Mohammed, Department of General Surgery, IBN ROCHD University Hospital of Casablanca, Casablanca, Morocco.

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### Abstract

Pancreatic pseudocysts are well-recognized complications of acute or chronic pancreatitis, typically located in the lesser sac or peripancreatic region. However, atypical or ectopic extensions are rare and can mimic other intra-abdominal or parietal lesions. We report the case of a 26-year-old male with a history of surgery for peritonitis secondary to a perforated gastric ulcer, presenting with a progressively enlarging swelling of the left flank that became painful shortly before admission. Imaging revealed large confluent cystic formations extending from the corpo-caudal portion of the pancreas through the left retroperitoneal space into the lateral abdominal wall muscles. Ultrasound-guided aspiration yielded brownish exudative fluid with a markedly elevated lipase level (39,725 IU/L), consistent with pancreatic origin. Bacteriological and parasitological studies were negative. These findings confirmed the diagnosis of a pancreatic pseudocyst ectopically extending into the left lateral abdominal wall. The patient was managed conservatively with close clinical and radiologic follow-up, resulting in gradual improvement. Ectopic pancreatic pseudocysts involving the abdominal wall are exceedingly rare and may present as parietal or soft-tissue masses. This case underscores the importance of comprehensive imaging and biochemical confirmation for accurate diagnosis and demonstrates that conservative management can be effective in stable, well-selected patients.

**Keywords:** Pancreatic Pseudocyst; Ectopic Pseudocyst; Abdominal Wall; Retroperitoneal Extension; Pancreatitis

### Introduction

A pancreatic pseudocyst is an encapsulated collection of enzyme-rich pancreatic fluid, surrounded by a non-epithelialized wall of granulation and fibrous tissue that usually develops several weeks after an episode of pancreatitis. It represents one of the most common delayed complications of acute or chronic pancreatitis, resulting from the leakage of pancreatic secretions due to ductal rupture or parenchymal necrosis [1,2].

Typically, pseudocysts are located in the lesser sac, in close relation to the pancreas. However, pancreatic secretions can dissect

along the retroperitoneal and peritoneal planes, leading to atypical or ectopic locations such as the mediastinum, spleen, liver, pelvis, or even the scrotum. These unusual extensions may present with non-specific symptoms and can easily mimic neoplastic, inflammatory, or infectious processes, making diagnosis challenging [3–6].

The management of pancreatic pseudocysts has evolved remarkably over the past decades. Classical open surgical drainage procedures have largely been replaced by minimally invasive and endoscopic approaches, while conservative management remains appropriate for small, uncomplicated collections [9,10].

Despite these advances, ectopic pseudocysts remain rare and can present in unexpected sites, including the abdominal wall. We report here a rare case of a pancreatic pseudocyst ectopically extending into the left lateral abdominal wall, highlighting the complex anatomical pathways through which pancreatic fluid may spread and the importance of comprehensive imaging for accurate diagnosis [11,12].

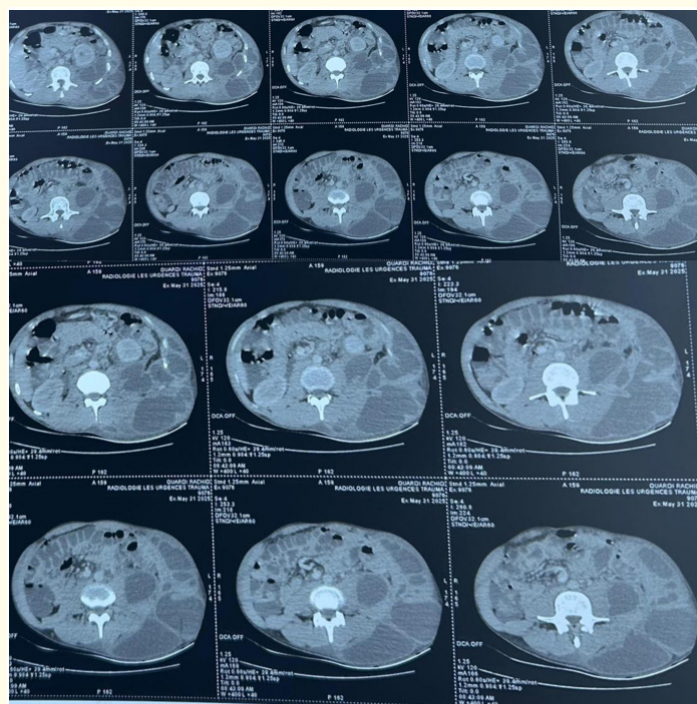
### Presentation of case

A 26-year-old male patient, with a past medical history of surgery eight years earlier for peritonitis secondary to a perforated gastric ulcer, presented to our department with a progressively enlarging swelling of the left lumbar region and the left flank. The swelling had initially been painless but became painful a few days prior to admission, associated with left flank pain and back pain and non-bloody diarrhea, without jaundice or digestive hemorrhage. The symptoms occurred in a context of intermittent epigastric pain radiating to the back for the past eight months, associated with subjective fever, asthenia, and a weight loss of 10 kg over the same period.

On examination, the patient was in good general condition but appeared asthenic. Inspection and palpation revealed a firm, tender, poorly mobile mass measuring approximately 10 cm in diameter, located in the left flank and left hypochondrium extending to the left lumbar region, fixed to the posterior plane. No palpable hepatomegaly or splenomegaly was noted. Digital rectal examination was unremarkable.

### Radiological findings

CT and ultrasound revealed large confluent cystic formations in the left retroperitoneal and pararenal spaces, extending along the paracolic gutter ( $\approx 91 \times 80$  mm). These cysts partially encased the left kidney, reached the spleen's lower pole, and displaced adjacent bowel loops, forming a left postero-lateral pseudo-mass ( $\approx 180 \times 68 \times 175$  mm). The liver was normal in size but showed multiple small, mildly enhancing hypodense lesions (largest  $22 \times 15$  mm in segment IVa), hyperechoic on ultrasound. The pancreatic body and tail were enlarged, heterogeneous, and contained a focal calcification (39 mm thick) (Figure 1).



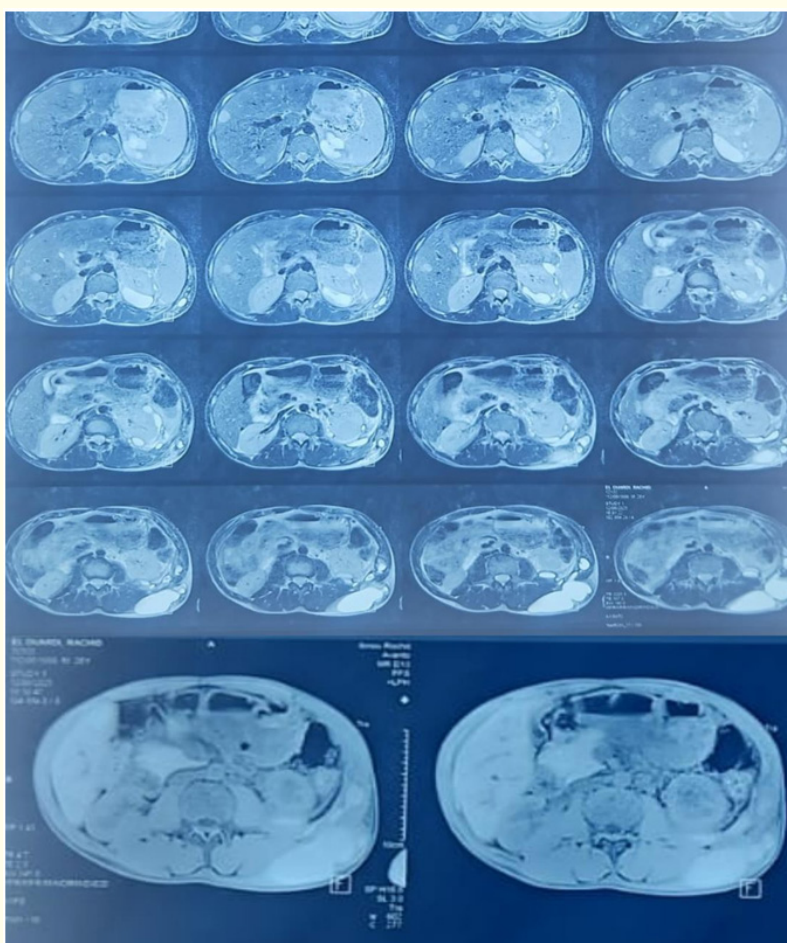
**Figure 1:** CT scan slides showing the large confluent cystic formations.

### MRI findings

MRI revealed an enlarged corpo-caudal portion of the pancreas containing an irregular ovoid lesion (35 × 31.5 × 40 mm), hypointense on T1, slightly hyperintense on T2, with mild diffusion restriction and faint late gadolinium enhancement. The lesion was in close contact with the stomach anteriorly and the left kidney posteriorly, with partial loss of the intervening fat planes, but without dilation of the main pancreatic duct. A celiomesenteric lymph node measured 13 mm in short axis. Multiple confluent cystic formations were observed in the left perirenal retroperitoneal space

(largest 65 × 21 mm), showing low T1/high T2 signal intensity, thin enhancing walls, and no diffusion restriction. These formations displaced the left kidney anteriorly without altering its function or nephrogram.

Additional confluent cystic lesions were also noted in the paravertebral and subcutaneous soft tissues of the left postero-lateral abdominal wall (largest 95 × 40 mm), hyperintense on T1 and T2, without diffusion restriction, and associated with mild infiltration of adjacent soft tissues (Figure 2).



**Figure 2:** MRI slides showing the cystic formations in the left abdominal wall.

### Ultrasound-guided aspiration and laboratory findings

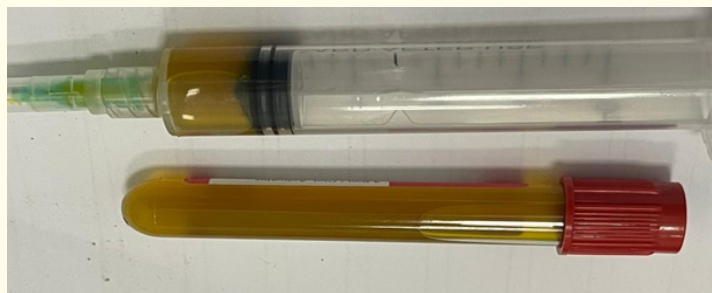
Ultrasound confirmed that the hepatic lesions were hyperechoic and avascular on Doppler study.

The pancreatic lesion appeared echogenic and heterogeneous relative to the normal parenchyma, with poor vascularization on color Doppler.

The subcutaneous cystic formations of the left postero-lateral abdominal wall contained slightly echogenic fluid, while the perirenal cysts were anechoic. A small perisplenic intraperitoneal fluid collection was also noted.

- Aspiration of the cystic content yielded a brownish fluid (Figure 3). Biochemical analysis: exudative fluid with protein level of 57 g/L.
- **Parasitological study:** Negative for Echinococcus granulosus (no scolices or hooklets). Bacteriological culture: sterile.
- **Anatomopathological examination:** Consistent with inflammatory changes and absence of neoplastic cells.
- **Serum lipase:** Markedly elevated at 39,725 IU/L.

Based on the clinical presentation, markedly elevated serum lipase, radiologic findings of a cystic multilocular process arising from the corpo-caudal portion of the pancreas and extending through the retroperitoneal space into the left postero-lateral abdominal wall, and the absence of infectious or parasitic etiology, the final diagnosis of an ectopic pancreatic pseudocyst extending into the left lateral abdominal wall muscles was established. The patient was managed conservatively with close clinical and radiological monitoring.



**Figure 3:** An image of the brownish fluid yielded from the cyst aspiration.

## Discussion

Pancreatic pseudocysts form when disruption of the pancreatic ducts allows enzyme-rich fluid to escape into surrounding tissues, resulting in localized inflammation, digestion of tissue planes, and eventual encapsulation by fibrous tissue. While most pseudocysts remain confined to the peripancreatic region, pancreatic enzymes can track along retroperitoneal fascial planes such as the pararenal or paracolic gutters, giving rise to distant or ectopic collections [1,2].

In the present case, the pseudocyst originated from the corpo-caudal portion of the pancreas and extended posteriorly through the left pararenal space into the postero-lateral abdominal wall, dissecting between the muscle layers [3-6,11]. This unusual pathway can be explained by the continuity of retroperitoneal fascial spaces and the erosive capacity of pancreatic enzymes, which facilitate tissue dissection and extraperitoneal spread [8,12]. Previous surgery or chronic inflammatory changes may further weaken these planes, favoring such atypical extensions [11,13].

## Diagnostic considerations

Ectopic pseudocysts present a diagnostic challenge because their clinical manifestations are often nonspecific. Symptoms such as abdominal pain, swelling, or digestive disturbances may overlap

with other pathologies. Imaging plays a key role in establishing the diagnosis. Contrast-enhanced CT and MRI allow precise characterization of the lesion's extent, morphology, and relationship with the pancreas, while ultrasound-guided aspiration provides valuable biochemical confirmation [5-7].

In this patient, imaging revealed a multilocular cystic process arising from the pancreatic body and tail, extending along the retroperitoneum to the left lateral abdominal wall. The aspirated brownish exudative fluid, with a markedly elevated lipase concentration and sterile culture, confirmed the pancreatic origin of the collection. The absence of infectious or parasitic agents, together with imaging features of a mature fibrous wall, supported the diagnosis of a pancreatic pseudocyst.

## Management and outcome

Management of pancreatic pseudocysts depends on their size, clinical presentation, and the presence of complications [9]. Small or asymptomatic pseudocysts may resolve spontaneously under conservative treatment. Intervention is indicated in cases of persistent pain, infection, hemorrhage, rupture, or compression of adjacent structures.

For pseudocysts with typical intra-abdominal locations, endoscopic ultrasound-guided internal drainage is now considered the treatment of choice due to its safety and high success rate. However, for pseudocysts located in atypical or extraperitoneal sites—such as the abdominal wall—internal drainage is often not feasible. In such cases, percutaneous drainage or conservative management can be effective, provided the cyst is mature, sterile, and not causing significant compression [10,13].

In the present case, conservative management with close clinical and radiologic monitoring was adopted, resulting in gradual improvement and stabilization of the pseudocyst. This favorable outcome demonstrates that a non-invasive approach can be appropriate in well-selected cases.

### Clinical significance

This case illustrates a rare and unusual manifestation of pancreatic pseudocyst disease. The extension of pancreatic fluid into the abdominal wall through retroperitoneal and subfascial planes demonstrates the potential for pancreatic secretions to reach distant locations. Clinicians should consider this possibility when evaluating unexplained parietal or flank masses, especially in patients with a history of pancreatitis or pancreatic pathology.

Early recognition of such atypical pseudocysts is essential to avoid misdiagnosis and inappropriate surgical interventions. Comprehensive imaging, supported by biochemical confirmation through cyst fluid analysis, remains the cornerstone of accurate diagnosis and effective management.

### Conclusion

Ectopic pancreatic pseudocyst extending into the abdominal wall is an exceptionally rare manifestation of pancreatic pathology. It results from the migration of enzyme-rich pancreatic fluid along retroperitoneal fascial planes, leading to extraperitoneal collections that may mimic soft-tissue or parietal tumors.

In this case, the pseudocyst originated from the body and tail of the pancreas and dissected into the left lateral abdominal wall, forming a palpable mass. Diagnosis was established through characteristic imaging findings and confirmation of pancreatic origin by fluid analysis.

This observation underscores the importance of considering pancreatic pseudocyst in the differential diagnosis of atypical parietal swellings, especially in patients with a history of pancreatitis or upper abdominal pain. Comprehensive imaging studies com-

bined with biochemical evaluation are crucial for diagnosis, and management should be tailored according to cyst location, size, and complications.

Conservative treatment remains an appropriate and effective option for well-contained, non-infected collections.

### Provenance and Peer Review

Not commissioned, externally peer reviewed.

### Consent

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

### Ethical Approval

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

### Conflicts Interests

Authors have declared that no competing interests exist.

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