



# Simultaneous Hydatid Cysts of the Liver and Pancreas: A Rare Case Report

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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**Case Report**

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## **ABSTRACT**

**Background:** Hydatidosis is a common, generally benign condition prevalent in endemic areas, presenting significant public health challenge, particularly in regions with traditional farming practices. In these endemic regions, hydatid disease can affect in various anatomical sites. Pancreatic hydatid cysts are rare, accounting for less than 1% of cases even endemic areas. This unusual location may present as chronic epigastric pain, the most common reason for consultation. While Ultrasound, computed tomography (CT), and magnetic resonance imaging (MRI) can easily detect pancreatic cystic lesion, determining their hydatid nature preoperatively is extremely challenging to recognize. The treatment involves surgical excision via pericystectomy. Prophylaxis remains the most effective strategy to control this parasitic disease in endemic areas.

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**Case Report:** We report a the case of a 38-year-old woman from an endemic region, presenting with chronic right hypochondriac pain. Imaging revealed multiple hepatic cysts and a well-defined cyst in the pancreatic tail. Positive hydatid serology confirmed the diagnosis. Surgical resection of the cysts was performed with an uneventful recovery, and no recurrence was observed at the six-month follow-up. This case underscores the diagnostic challenges due to the rarity of pancreatic hydatid cysts, with surgical resection and drainage being the preferred treatment to minimize complications.

**Keywords:** Hydatid cyst; Pancreatic hydatidosis; echinococcosis; infection; serology; albendazole.

## 1. INTRODUCTION

Hydatid disease, also known as echinococcosis, is a cyclozoonosis, a parasitic infection that requires more than one vertebrate host to complete its life cycle. It is a significant public health issue, particularly in countries within the Mediterranean region, where it is considered endemic. The most prevalent form of hydatid cyst, unilocular, is caused by the parasitic *Echinococcus granulosus* [1]. This condition, often associated with livestock farming, remains a pressing concern in public health due to its wide geographical distribution and its impact on human populations.

In Morocco, hydatid disease is especially problematic, with substantial consequences in terms of public health due to its high frequency, the morbidity and mortality it causes, and the associated economic losses, which further burden the healthcare system [2]. Despite preventive efforts, the disease continues to affect a significant portion of the population in rural areas, often due to close contact with infected animals.

Hydatid cysts can develop in nearly any tissue or organ in the human body, with a higher prevalence in organs such as the liver (50%-77%), lungs (15%-47%), spleen (0.5%-8%), and kidneys (2%-4%) [3]. These organs are frequently targeted by the parasite, but cases involving other, less commonly affected organs can present additional diagnostic challenges. One such rare occurrence is the localization of hydatid cysts in the pancreas.

Pancreatic hydatid cyst (PHC) disease is exceedingly rare, even in regions where hydatidosis is endemic. Although the reported incidence rates of PHC differ slightly across various studies, they consistently remain below 1% of all hydatid cyst cases [3]. This rarity contributes to the diagnostic and therapeutic

difficulties faced by healthcare professionals when encountering such cases.

Through this case report of pancreatic hydatid cysts, the authors aim to highlight the diagnostic and therapeutic challenges posed by this rare presentation. They will further discuss the various complexities involved in managing such cases, including appropriate diagnostic methods, treatment options, and potential outcomes.

## 2. CASE REPORT

A 38-year-old Moroccan woman, with no significant medical history and originating from an endemic hydatid region, was hospitalized due to right hypochondrial pain persisting for two years. Physical examination revealed a patient in good general condition, afebrile, with a palpable, mobile, and tender mass in the left hypochondrium, approximately the size of a large mandarin. An abdominal CT scan revealed multiple thin-walled, multilocular cystic formations in the liver. Additionally, a thin-walled cystic formation was noted in the pancreatic tail measuring 44.3 x 31 mm (see Fig. 1).

An abdominal MRI confirmed a well-defined cystic lesion in the tail of the pancreas, with a homogeneous content and no septation or wall thickening. This lesion did not communicate with the Wirsung duct and was in close contact with the splenic vascular pedicle at its posterior border, as well as with the posterior wall of the stomach anteriorly. Fig. 2 shows the cysts in the MRI.

A chest X-ray was normal, and laboratory tests showed positive hydatid serology. The patient underwent exploratory laparotomy via a right subcostal incision extended to the left there were also cysts in the liver, a right subcostal incision, extended to the left at the midline, was preferred to allow for better exposure. Intraoperative findings revealed three hydatid cysts in the liver (segments VII and VIII) and a mass in the tail of

the pancreas in close proximity to the posterior surface of the stomach. After protecting the viscera with 10% hydrogen peroxide-soaked sponges, the dome of the three cysts was resected, and the hydatid material was aspirated and lavaged with hydrogen peroxide,

with no biliary fistula observed. The cystic mass in the tail of the pancreas was also resected (Fig. 3). A technical issue occurred with the person in charge of taking photos in the operating room; no intraoperative images were taken.



**Fig. 1. Computed tomography scan showing cystic mass in tail region of pancreas**



**Fig. 2. Abdominal MRI showing two hydatid cysts**  
(indicated by arrows a. hydatid cyst in the pancreatic tail b. hydatid cyst in the liver).



**Fig. 3. Photograph showing the excised hydatid cyst from the tail of the pancreas**

Pathological examination of the pancreatic cystic mass confirmed a hydatid cyst. The postoperative course was uneventful, with a six-day hospital stay. Three months post-surgery, no recurrence of hydatidosis was detected.

### 3. DISCUSSION

Hydatidosis results from the development of the larval stage of *Echinococcus granulosus* in humans [4]. Pancreatic involvement accounts for less than 1% of hydatid cysts and only 0.2% of abdominal hydatidosis [5]. The most common location is the head of the pancreas (57% of cases), followed by the body (24%), and the tail (19%). Pancreatic infestation typically occurs through the arterial route, after passing through hepatic and pulmonary filters [6].

The size of the cyst varies, ranging from a few millimeters to over 20 cm [7].

Symptoms are often insidious and vary depending on the cyst's location and its prolonged development [8]. In this case, no revealing signs were observed. This unusual location can indeed be indicated by chronic epigastric pain, which is the most frequent

reason for consultation, as well as by obstructive jaundice (in the case of cephalic location) or an epigastric mass [6,7,9]. Certain complications associated with pancreatic hydatid disease, similar to those found in hepatic locations, may be indicative: suppuration and abscess formation of the cyst, leading to a deterioration of the general condition [10,11].

Intra- or retro-peritoneal rupture can result in hemorrhagic complications and severe peritoneal or allergic reactions [10]. Fistulization of the cyst into the biliary tract may cause jaundice [11]. Compression of the splenic vein by the cyst can lead to segmental portal hypertension in 14% of cases [11]. Pancreatic complications have also been reported, including the occurrence of obstructive chronic pancreatitis [12]. Ultrasound, computed tomography (CT), and magnetic resonance imaging (MRI) easily allow for the diagnosis of a pancreatic cystic lesion; however, the preoperative diagnosis of the hydatid nature of the cyst is extremely difficult to recognize, as seen in our patient [1].

However, the challenge lies in linking this lesion to hydatid disease. Nevertheless, certain signs can help suggest the diagnosis, including pericystic calcifications, the presence of intracystic vesicles, detachment of the hydatid membrane, or the association with other more obvious locations of hydatid cysts, particularly in the liver [7].

It is also important to use epidemiological arguments and hydatid serology to make a preoperative diagnosis.

In case of persistent diagnostic uncertainty, the use of endoscopic ultrasound is highly beneficial as it allows for a better examination of the cystic content [13].

The treatment of a hydatid cyst of the pancreas is surgical. The choice of surgical procedure will depend on the location of the cyst and whether or not there is a cystic duct fistula [10].

Many surgical procedures are available to remove the cyst. Partial or total cystectomy, marsupialization and external drainage have also been reported in the management of pancreatic hydatid cysts [6]. In our observation, we performed a resection of the cystic mass in the tail of the pancreas with the cyst being closed.

For body and tail cysts, a left pancreatectomy is often preferred as it allows for the cyst's removal and suturing of the pancreas on healthy tissue [14,15]. Conservative treatment, such as dome resection, is considered only for large cysts adhering to surrounding organs, making dissection difficult and risky. In the presence of a pancreatic fistula, a cystodigestive anastomosis is performed. For head cysts, treatment involves resection of the prominent dome, combined with a cystojejunostomy in the presence of a fistula [6,14,16]. Radical procedures, such as duodenopancreatectomy, are generally deemed excessive for benign parasitic conditions [17]. Postoperatively, drainage of the residual cavity and perioperative administration of somatostatin analogs like Sandostatin® are recommended to reduce the risk of pancreatic fistula [18].

#### 4. CONCLUSION

Primary hydatid cysts of the pancreas are exceptionally rare. Diagnosis is based on abdominal ultrasound, CT, and positive hydatid serology. MRI and endoscopic ultrasound are useful in cases of persistent diagnostic uncertainty. Surgical treatment typically involves resecting the cyst's prominent dome and extensive drainage of the residual cavity, with perioperative administration of somatostatin to reduce the risk of postoperative pancreatic fistula.

#### CONSENT

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

#### ETHICAL APPROVAL

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

#### DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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