

## Acute Pancreatitis as an Uncommon Complication of Hydatid Cyst of the Liver: A Case Report

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## Abstract

## Case Report

Hydatid disease, a globally distributed zoonotic infection, exhibits endemicity in numerous countries. Hepatic echinococcosis constitutes the majority of cases, ranging from 60% to 75%, and can lead to a diverse range of complications in approximately one-third of affected individuals. A subset of these complications possesses the potential to be life-threatening, necessitating swift diagnosis and immediate medical intervention [1]. Acute pancreatitis is a rare complication of hydatidosis. It occurs as a consequence of the rupture of a hydatid cyst into the biliary tract. We present a case of a 19-year-old female patient, who has undergone surgery for pulmonary hydatid cyst in 2018. She presented to the emergency department with a recent worsening of atypical epigastric pain persisting for the past 15 days, along with cholestatic jaundice. This is occurring in the context of fever and general asthenia. Lipase was elevated and an Abdominal CT scan showed hepatic cystic lesions and infiltration around the pancreas.

**Keywords:** Acute pancreatitis; Hepatic hydatid cyst; Intrahepatic rupture, Computed tomography.

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### INTRODUCTION

Hydatid disease, also referred to as echinococcosis, is a global zoonotic ailment induced by the larvae of the Echinococcus tapeworm. According to estimates from the World Health Organization (WHO), over 1 million individuals are afflicted with hydatid disease. The two main forms of the disease in humans include cystic echinococcosis—due to *E. granulosus* and, less commonly, alveolar echinococcosis—due to *E. multilocularis*. Echinococcosis due to *E. granulosus* mainly affects the liver and lungs and less frequently the bones, kidneys, spleen, muscles, and central nervous system [1, 2].

Liver echinococcosis constitutes 60-75% of cases, with approximately 80% of hydatid cysts located within the right hepatic lobe [2]. Typically, liver echinococcosis remains asymptomatic and exhibits a broad spectrum of imaging characteristics at the time of diagnosis, such as uniloculated cysts, cysts containing daughter cysts, a coarse cyst wall, or intracystic calcifications, primarily contingent on the disease's stage. The course of liver echinococcosis can give rise to an array of complications in roughly one-third of patients. Certain complications possess the potential to be life-threatening, necessitating expeditious diagnosis and immediate medical intervention [2-4].

Rupture of a hydatid cyst into the biliary tract is rare. The clinical presentation is that of obstructive jaundice or cholangitis. Only a few cases of acute pancreatitis as a complication of a ruptured hydatid cyst have been described [5, 6].

Radiologists' role depends fundamentally on computed tomography (CT), that allows visualization of hepatic cystic formations, a rupture in biliary tract, classification of the pancreatitis and to predict its clinical severity by applying imaging severity indices. Furthermore, CT- or ultrasound-guided drainage is, together with endoscopy, the current technique of choice in the initial approach to collections that appear as a complication.

### CASE REPORT

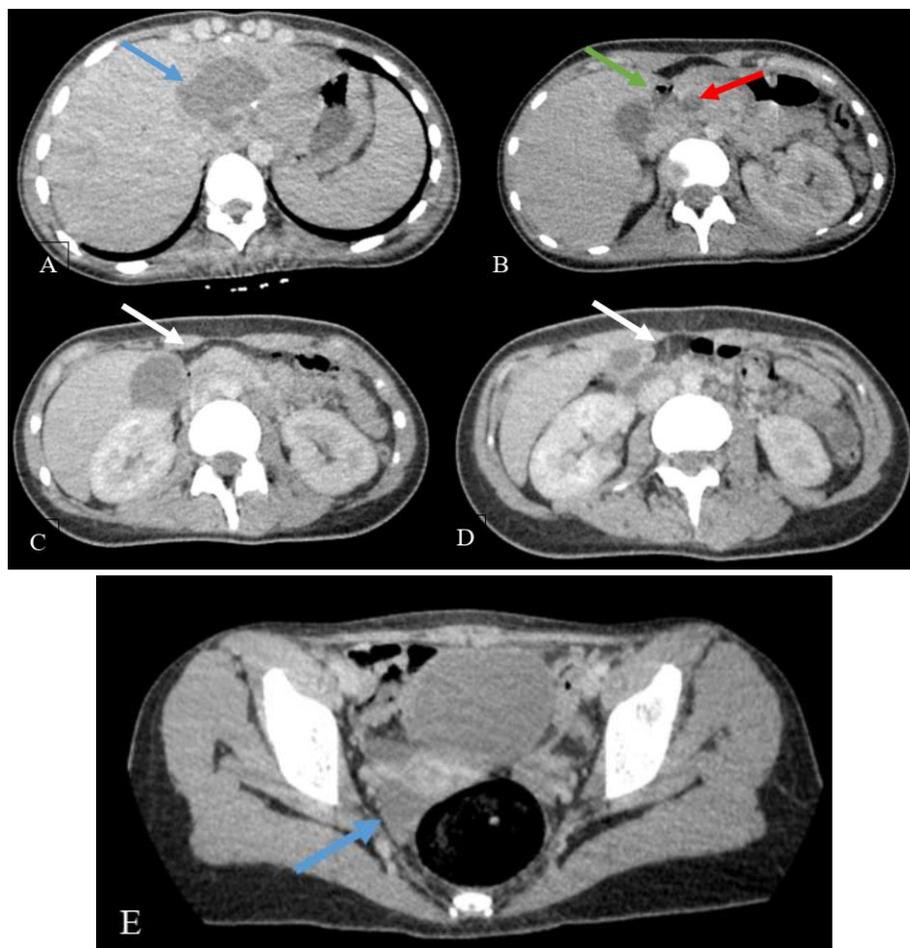
We present a case of a 19-year-old female patient, who had a direct contact with dogs and has undergone surgery for pulmonary hydatid cyst in 2018. She presented to the emergency department with cholestatic jaundice and a recent worsening of atypical epigastric pain persisting for the past 15 days. The pain was constant, radiating from the back, and associated with nausea and vomiting. This is occurring in the context of fever and general asthenia. There was no history of drug or alcohol ingestion.

The examination revealed a diffuse abdominal tenderness more pronounced at the epigastric region.

Her initial labs were significant for an elevated lipase (1.839 units/L), abnormal liver function tests (total bilirubin 5mg/dL, alanine transaminase 650IU/L,

aspartate transaminase 550IU/L), a positive inflammatory tests (White blood cells 26.850giga/L, CRP 191mg/L), as well as a positive serological tests for hydatidosis.

An Abdominal CT was performed:



**Fig. 1: Axial images of abdominal CT with contrast showing**

**Image A:** Cystic formation within segments II and III, exhibiting scalloped borders, with a thin wall and containing calcifications (blue arrow)

**Image B:** This formation appears to communicate with the left biliary duct, which appears dilated and contains air bubbles (green arrow). There is also dilation of the main bile duct (15mm) (red arrow)

**Image C and D:** The pancreas appears to be of normal size with subtle peripancreatic fat stranding (white arrows), without any detectable collections or necrotic areas on this abdominal CT

**Image E:** Demonstrate a minimal peritoneal effusion observed in the pelvic region and in the Douglas pouch. (Blue arrow)

Based on CT and labs findings, the patient was diagnosed with an hepatic hydatid cyst complicated with an acute pancreatitis stage C of Balthazar with a modified CTSI (Computed Tomography Severity Index) score calculated at 2. She was treated surgically, and her symptoms improved.

## DISCUSSION

Hydatid disease, also known as cystic echinococcosis, is a parasitic infection primarily caused by the larval form of *Echinococcus granulosus*. It

continues to pose significant clinical challenges in regions heavily involved in cattle and sheep farming worldwide, particularly in South America and Mediterranean countries like Morocco [7]. In approximately 70% of cases, the liver is the primary site of involvement. However, due to the slow growth of cysts, many patients remain asymptomatic for extended periods.

Over time, hepatic hydatid cysts can become symptomatic due to their enlarging size, resulting in

clinical manifestations such as hepatomegaly, right-upper quadrant or epigastric pain, and nausea [7, 8]. A significant number of complications in hydatidosis stem from the cysts communicating with the biliary tract. This cystobiliary communication occurs in 2-42% of liver hydatidosis cases and in up to 80% of patients with cysts larger than 7.5 cm in size. Although this communication is often concealed, the actual rupture of cysts into the biliary system can lead to obstructive jaundice, cholangitis, and even anaphylactic reactions [9].

In rare instances, the passage of hydatid cyst contents through the biliary tract can trigger acute pancreatitis, with most reported cases originating from regions like Morocco and the Mediterranean [10-13]. The proposed mechanisms for pancreatitis development include the obstruction of the ampulla of Vater and the pancreatic duct by cystic debris (such as membranes and scolices), or it may result from an allergic response to echinococcal antigens within the papilla [12].

In the previously mentioned patient, the diagnosis was established by significant elevation in serum lipase levels, alongside the supporting evidence of pancreatitis from CT scans. The concurrent diagnosis of biliary tract hydatidosis was determined based on the patient's ethnic background, the presence CT scan findings indicative of a liver hydatid cyst, as well as positive serological tests for hydatidosis.

To correlate complications and mortality several clinical scoring systems like Marshal or APACHE (Acute Physiology and Chronic Health Disease Classification System) were designed. Balthazar *et al.*, in 1990 introduced instead the CT severity index for assessment of acute pancreatitis. In 2004 Mortele *et al.*, [14], introduced the MCTSI, which includes as prognostic indicators the pancreatic inflammation, the pancreatic necrosis and extrapancreatic complications (Table 1) [15].

Prognostic indicators	Points
<i>Pancreatic inflammation</i>	
Normal pancreas	0
Intrinsic pancreatic abnormalities with or without inflammatory changes in pancreatic fat	2
Pancreatic or peripancreatic fluid collection or peripancreatic fat necrosis	4
<i>Pancreatic necrosis</i>	
None	0
≤ 30%	2
≥ 30%	4
<i>Extrapancreatic complications</i>	
One or more of pleural effusion, ascites, vascular complications, parenchymal complications, or gastrointestinal tract involvement	2

**Table 1: Modified CT severity index [14,15]**

## CONCLUSION

In summary, acute pancreatitis is an uncommon complication associated with hepatic hydatid disease. It arises due to the obstruction of the distal segments of the common bile duct and/or the pancreatic duct by fragments of hydatid cyst membranes, scolices, or daughter cysts. Clinicians should consider the possibility of acute pancreatitis in individuals with hydatid liver disease who present with upper abdominal pain.

The initial assessment should include abdominal ultrasonography or a CT scan that can provide valuable information for positive diagnosis and prognosis assessment of acute pancreatitis, as well as the exploration of other abdominal sites affected by hydatidosis.

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