

# Spontaneous Rupture of a Hepatic Hydatid Cyst with Expulsion of an Intact Germinative Membrane into the Peritoneal Cavity: A Case Report

Achraf Laiz<sup>1\*</sup>, Ismail Sriri<sup>1</sup>, Aymane Jbilou<sup>1</sup>, Younes Aggouri<sup>1</sup>, Said Ait Laalim<sup>1</sup>

<sup>1</sup>Mohamed VI University Hospital. Tangier. Morocco

DOI: <https://doi.org/10.36347/sjmcr.2026.v14i03.061>

| Received: 02.01.2026 | Accepted: 11.02.2026 | Published: 30.03.2026

\*Corresponding author: Achraf Laiz

Mohamed VI University Hospital. Tangier. Morocco

## Abstract

## Case Report

Hepatic hydatid cyst is a common disease in endemic areas and may be complicated by rupture, particularly into the peritoneal cavity. Intraoperative expulsion of a hepatic hydatid cyst with an intact germinative membrane is an exceptionally rare condition. We report the case of a 17-year-old female admitted for isolated hypogastric pain. Imaging revealed a ruptured HHC in segment IV and a 12 cm pelvic cystic mass. Surgery confirmed the migration of an intact germinative membrane from the liver to the pelvis. Conservative surgical treatment combined with extensive peritoneal lavage led to a favorable outcome.

**Keywords:** Hepatic hydatid cyst; Germinative membrane; Intraoperative rupture; Surgery.

**Copyright © 2026 The Author(s):** This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

## INTRODUCTION

Hydatidosis, caused by *Echinococcus granulosus*, remains endemic in many regions, particularly the Mediterranean basin (Derfoufi O, (2012) ) (McManus DP, 2003.). While the liver is the most frequently affected organ, the disease can be marked by serious complications such as rupture. Rupture into the peritoneal cavity is rare, 1% to 8% of cases, but life-threatening due to the risk of anaphylactic shock or secondary peritoneal hydatidosis (Mouaqit O, (2013) ). An exceptional form of rupture consists of the intraoperative expulsion of an intact germinative membrane, which has been reported only in very few cases in the literature (Bouabdallah, 2017) (Tuğba Acera, (2008)) (H. Arslan, 1998, ) (Sharma BG, 2000). We report a new case illustrating this unusual presentation.

## CASE PRESENTATION

- **History:** A 17-year-old female with no prior medical history presented to the emergency department with a 24-hour history of hypogastric pain. She was afebrile and in good general condition.
- **Clinical Examination:** The patient was hemodynamically stable. Physical examination

revealed localized tenderness in the hypogastric region.

### Laboratory tests:

revealed leukocytosis of 12,000/mm<sup>3</sup> and an elevated C-reactive protein level of 150 mg/L, while liver function tests were within normal limits.

### Imaging:

Abdominal ultrasonography showed a hepatic hydatid cyst with a scalloped appearance, a large pelvic cystic mass measuring approximately 12 cm, and moderate intraoperative fluid. Contrast-enhanced abdominal computed tomography confirmed a ruptured hydatid cyst of segment IV of the liver, a 12 × 10 cm pelvic cystic lesion, and moderate abdominal effusion.

### Surgery:

An emergency midline laparotomy was performed. Intraoperative exploration revealed moderate biliary effusion, a completely emptied hepatic hydatid cyst ruptured and fistulized into the adjacent bile ducts, and a hydatid cyst with an intact membrane free within the pelvic cavity, corresponding to the expelled germinative membrane.

The surgical procedure consisted of hepatic pericystectomy with resection of the surrounding parenchyma, extraction of the intact pelvic cyst without rupture, extensive peritoneal lavage with hypertonic saline solution, and placement of subhepatic and pelvic drains. Figure 1

**Follow-up:**

The postoperative course was uneventful. Albendazole therapy was initiated postoperatively with regular biological monitoring. Clinical and radiological follow-up showed a favorable outcome.

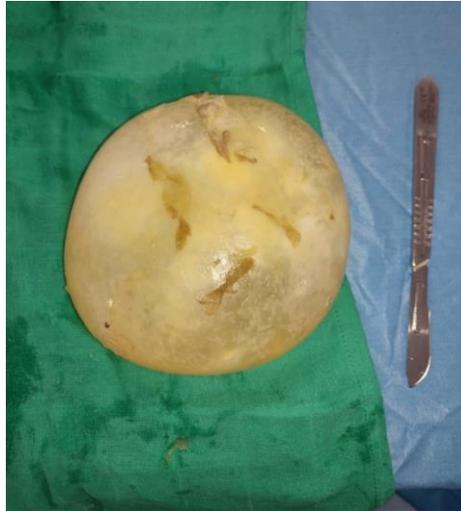


Figure 1: Peroperative image of hydatid cyst

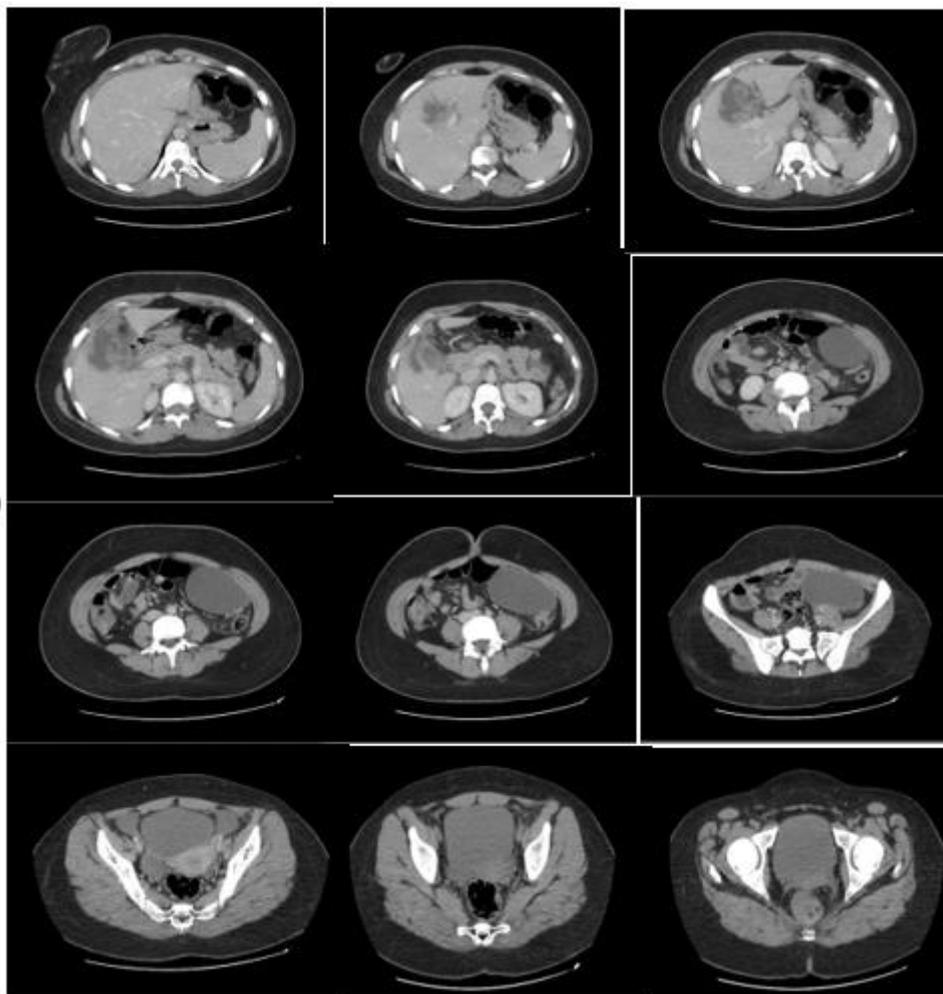


Figure 2: CT scan images

## DISCUSSION

Intraperitoneal rupture of hepatic hydatid cysts is reported in 1–8% of cases (Mouaqit O, (2013)). It may occur spontaneously or following abdominal trauma. Predisposing factors include young age, large cyst size, and superficial localization (K., 2007) (Sharma BG, 2000). However, the expulsion of an intact germinative membrane is an exceptional phenomenon. This occurs when the germinative membrane (endocyst) completely detaches from the host-produced fibrous capsule (pericyst). If the tear in the pericyst is sufficiently large, the internal pressure causes the membrane to be ejected like a "projectile" into the abdominal cavity without bursting (Tuğba Acera, (2008)) (Natarajan A, 2002).

Preoperative diagnosis can be challenging and misleading. In our case, the patient presented with hypogastric pain mimicking a gynecological emergency, such as a ruptured ovarian cyst. Imaging plays a pivotal role in the correct diagnosis:

**The "Scalloped Appearance" Sign:** Observed on our patient's CT scan, this wavy or indented appearance of the hepatic cyst wall is a pathognomonic sign of rupture or membrane detachment (al., 2008.) (Lewall DB, 1986;) (I., 1983). Figure 2

**Migration Patterns:** Once expelled, the membrane can migrate anywhere within the abdomen. However, due to gravity and the flow of peritoneal fluid, it often settles in the Pouch of Douglas, simulating a primary pelvic mass, any isolated abdominal or pelvic cystic mass should prompt a thorough evaluation of the liver to rule out a primary ruptured cyst

The integrity of the membrane at the time of expulsion is a favorable short-term prognostic factor. It prevents the massive release of hydatid fluid, which is highly antigenic and often responsible for immediate anaphylactic shock (Gunay K, 1999). Nevertheless, management must be treated as a surgical emergency to:

1. **Prevent Secondary Rupture:** An intact free-floating membrane remains fragile. Its rupture within the peritoneum would lead to widespread secondary peritoneal hydatidosis.
2. **Address the Primary Site:** In this case, the discovery of a biliary fistula required specific attention (pericystectomy and drainage) to prevent postoperative biliary complications and collections.
3. **Scolicidal Irrigation:** The use of scolicidal agents, such as hypertonic saline, This step ensures the inactivation of any microscopic protoscolices that might have been released during the expulsion process (Krige JEJ, 2002).

**Adjuvant Medical Treatment** Surgical intervention must systematically be followed by medical

therapy with Albendazole (10–12 mg/kg/day). This adjuvant treatment is crucial to minimize the risk of recurrence, which remains significantly high after any intraperitoneal rupture, even when the membrane is retrieved intact (Liu Y, 2000;) (Daali M, 2000;).

## CONCLUSION

Intraperitoneal expulsion of a hepatic hydatid cyst with an intact germinative membrane is an extremely rare clinical entity. Its diagnosis is difficult and often established intraoperatively. Prompt surgical management combined with medical therapy leads to a favorable prognosis. This case highlights the vital role of CT imaging in identifying the initial hepatic rupture and the location of the migrated membrane, allowing for precise and effective surgical management

## REFERENCES

- M. M.-A.-E. (2008.). Imagerie de la maladie hydatique. *Journal de radiologie*, .
- Bouabdallah, S. I. (2017). Expulsion d'un kyste hydatique du foie dans la cavité péritonéale avec une membrane prolifère non rompue. *J. Afr. Hépatol. Gastroentérol*.
- Daali M, H. R. (2000;). Hydatidose péritonéale. À propos de 25 cas marocains. *Sante* .
- Derfoufi O, N.-A. E. ((2012) ). Epidemiological profile of echinococcosis in Morocco from 1980 to 2008. *Ann Biol Clin (Paris)* (70:457–61).
- Gunay K, T. K. (1999). Traumatic rupture of hydatid cysts: a 12-year experience from an endemic region. *J Trauma* .
- H. Arslan, M. E. (1998, ). Free Hydatid Cyst only Covered with Germinative Membrane Disrupted from Fibrotic Capsule in the Peritoneal Cavity : a Case Report. *Acta chir belg*, .
- I., B. (1983). The radiological appearances of hydatid disease of the liver. *Clin Radiol* .
- K., K. (2007). Spontaneous rupture of a hepatic hydatid cyst into the peritoneum causing only mild abdominal pain: a case report. *World J Gastroenterol* .
- Krige JEJ, M. A. (2002). Fatal hypernatremia after hypertonic saline irrigation of hepatic hydatid cysts. *Pediatr Surg Int*.
- Lewall DB, M. S. (1986;). Rupture of echinococcal cysts: diagnosis, classification, and clinical implications. *AJR Am J Roentgenol* .
- Liu Y, W. X. (2000;). Continuous long-term albendazole therapy in intraabdominal cystic echinococcosis. *Chin Med J* .
- McManus DP, Z. W. ( 2003,). Echinococcosis. *Lancet*.
- Mouaqit O, H. A. ( (2013) ). Acute intraperitoneal rupture of hydatid cysts: a surgical experience with 14 cases. *World J Emerg Surg WJES* .
- Natarajan A, R. A. (2002). Percutaneous expulsion of hydatid liver cyst following sclerotherapy. *Indian J Gastroenterol* .
- Sharma BG, G. K. ( 2000). Spontaneous intraperitoneal expulsion of an unruptured hydatid cyst. *Saudi Med J*.
- Tuğba Acera, İ. K. ((2008)). Spontaneous expulsion of intact germinative membrane of liver hydatid cyst in a child. *Journal of Pediatric Surgery* .