

Recurrence of Hepatic Hydatid Cyst After Radical Surgery with Concurrent Splenic and Peritoneal Involvement: A Case Report

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ABSTRACT: Hydatid liver disease, caused by *Echinococcus Granulosus*, remains a significant health concern in endemic regions. We report the case of a 50-year-old man who underwent radical surgery for a hepatic hydatid cyst two years ago and subsequently developed recurrence in the liver, spleen, and peritoneal cavity. The patient presented with abdominal pain, vomiting, and no signs of significant systemic complications. Imaging revealed multiple cystic lesions, including a CE2 cyst in the liver, CE1 cysts in the spleen, and gastrosplenic omental cysts. Surgical intervention included conservative management of the liver and splenic cysts using Lagrot's procedure and complete excision of the peritoneal cysts. Postoperatively, the patient recovered uneventfully and remained asymptomatic at the two-year follow-up, with normal ultrasonographic findings. This case underscores the challenges of managing hydatid disease recurrence, emphasizing the need for individualized treatment approaches and long-term follow-up to monitor for recurrence or extrahepatic dissemination.

KEYWORDS: *Echinococcus Granulosus*, Hepatic hydatid cyst, Lagrot's procedure, Radical Procedure, Peritoneal cysts, Splenic cyst.

INTRODUCTION

Hydatid liver disease remains a significant public health concern, particularly in regions where agriculture and animal husbandry are prevalent. The disease, caused by *Echinococcus granulosus*, is endemic in many countries, including Turkey, where prevalence rates in rural areas range from 2% to 6%. Although hydatid cysts can develop in any organ, the liver is the most commonly affected (60%-70%), followed by the lungs (20%-30%). In Turkey, the disease is most prevalent in Eastern and Central Anatolia, as well as the Marmara and Trakya regions (Akbulut et al., 2010).

Medical therapy with albendazole or mebendazole is used pre- and postoperatively to reduce the risk of secondary disease. However, surgical intervention remains the primary treatment, with approaches ranging from conservative techniques to radical resections. Radical surgery, which entails complete cyst excision, has the lowest recurrence rate but carries a higher risk of morbidity and mortality. It is typically reserved for patients with solitary, peripherally located cysts and no significant comorbidities. In contrast, conservative surgery is recommended for patients with multiple or deeply located cysts, elderly individuals, and those at high surgical risk. Preventing intraoperative spillage is a key factor in reducing recurrence, especially in conservative approaches.

Cyst rupture into the biliary system is one of the most serious complications of hydatid disease, potentially leading to biliary leakage or fistula formation. While minor leaks may resolve spontaneously, larger leaks often require endoscopic or surgical intervention. Postoperative follow-up is crucial, as recurrence can occur years after treatment. Since early recurrences may be asymptomatic, regular clinical and radiological evaluations—such as ultrasonography or CT scans—are necessary to distinguish between successfully treated cyst remnants and newly formed active cysts. Studies recommend at least three to four years of follow-up to monitor for recurrence, particularly in patients undergoing conservative surgery.

The choice between radical and conservative surgery depends on several factors, including cyst location, size, morphology, associated complications (such as infection or biliary obstruction), and prior treatments. While radical surgery offers the highest chance of a definitive cure, secondary operations for recurrence are more complex and carry higher risks due to adhesions and technical challenges. In cases where complete resection is unsafe, conservative treatment with cyst evacuation and partial cystectomy is preferred, as it provides satisfactory long-term palliation. Since hydatid disease progresses slowly and is rarely life-threatening, some asymptomatic patients with recurrence may be managed expectantly, with treatment reserved for those who develop complications.

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AIM OF THE ARTICLE

We report the case of a 50-year-old man who underwent radical surgery for a hepatic hydatid cyst two years ago and subsequently developed recurrence in the liver, spleen, and peritoneal cavity. This case report aims to evaluate the effectiveness of radical surgery in preventing recurrence of hepatic hydatid cysts.

PRESENTATION OF CASE

A 50-year-old man with no known comorbidities underwent a left lobectomy two years ago for a hepatic hydatid cyst. He presented with a five-month history of abdominal pain localized to the right and left upper quadrants, accompanied by vomiting. There were no signs of intestinal obstruction, gastrointestinal bleeding, or bronchopulmonary symptoms. The patient reported a normal appetite, stable weight, and no recent changes in bowel habits.

On clinical examination, general and thoracic findings were unremarkable. However, abdominal palpation revealed a well-defined, 6 cm mass in the left upper quadrant with limited mobility.

A CT scan revealed multiple cystic lesions. In the liver, a $65 \times 62 \times 56$ mm cyst was identified in the remnant hepatic tissue at the site of the previous lobectomy. This cyst displayed internal septations, a multivesicular, rosette-like, or honeycomb appearance and was classified as CE2. Additionally, the spleen contained a $65 \times$

52.5×49 mm unilocular cyst with a double-line sign, classified as CE1. Furthermore, a large peritoneal cyst measuring $110 \times 90 \times 75$ mm was detected within the gastrosplenic omentum and omental bursa. This cyst was unilocular and classified as CE1.

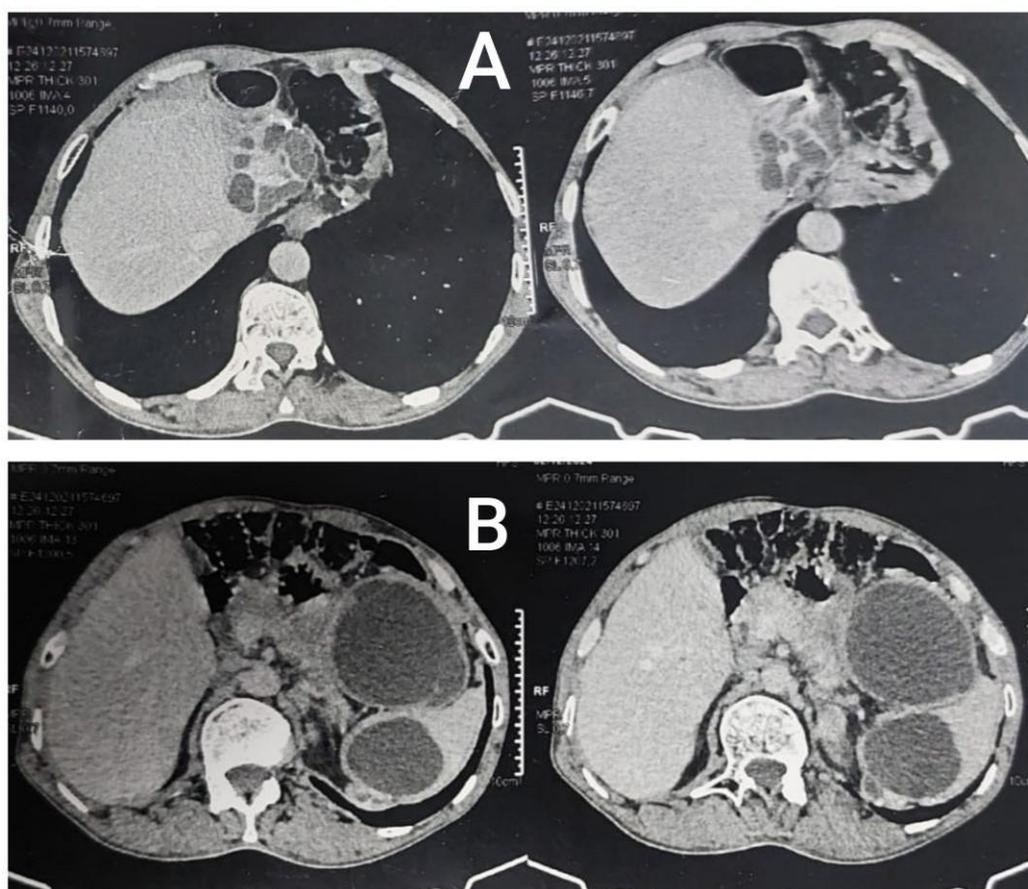


Figure 1:

- (A) Coronal CT scan image showing a hepatic cyst located in the remnant hepatic tissue of the previous left lobectomy, displaying multiple internal septations with a multivesicular, rosette-like, or honeycomb appearance, classified as CE2.**
- (B) CT scan showing unilocular cysts in the spleen and gastrosplenic omentum, exhibiting the double-line sign and classified as CE1.**

The patient underwent surgical intervention, during which a 10 cm liver hydatid cyst in the section slice of the ancient left lobectomy and a 5 cm splenic cyst were identified. Multiple peritoneal cysts were also found, with the largest measuring 15 cm in the gastrosplenic omentum. The liver and splenic cysts were managed conservatively using Lagrot's procedure, which involved partial

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excision, removal of the parasitic membranes, and irrigation of the residual cavity with diluted hydrogen peroxide. The peritoneal cysts were completely excised via radical cystectomy.



Figure 2 Intra-operative image of the omental hydatid cyst



Figure 3: Intra-operative image of the splenic parasitic membranes.

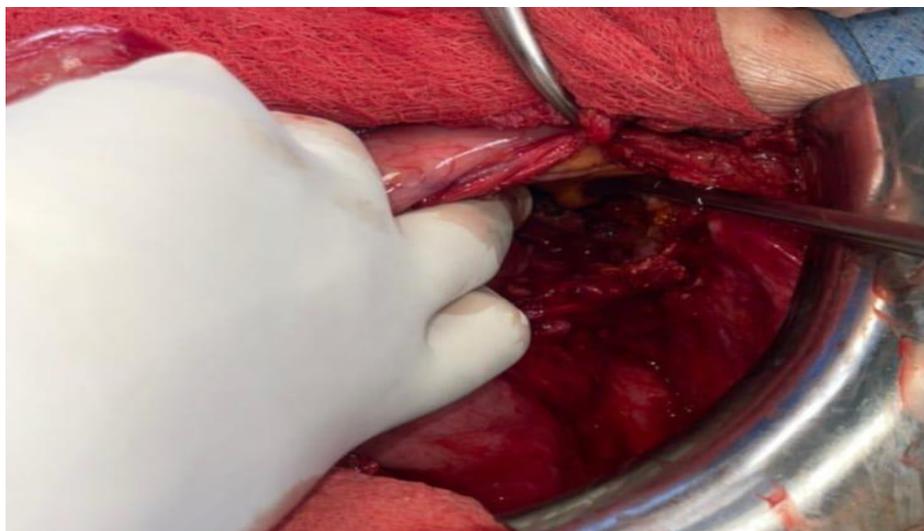


Figure 4: Intra-operative image of the hepatic hydatid cyst after resection of the protruding dome.

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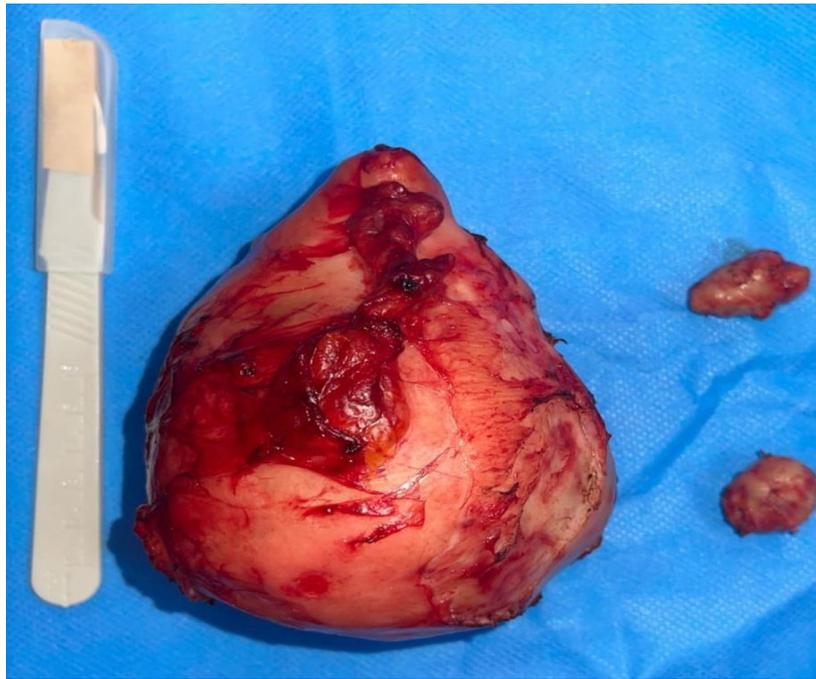


Figure 5: Post-operative specimen of the omental hydatid cysts

Postoperative recovery was uneventful, and the patient was discharged on the fifth postoperative day in stable condition. At the two-year follow-up, he remained asymptomatic, and ultrasonographic evaluation showed no abnormalities, indicating successful treatment. This case underscores the importance of long-term follow-up in hydatid disease to monitor for recurrence or extrahepatic dissemination.

DISCUSSION

Hydatidosis is a chronic, complex zoonotic disease caused by *Echinococcus granulosus* tapeworms. It is prevalent in endemic regions such as North Africa, with the liver being the most commonly affected organ (Gessese, 2020). However, hydatid disease can affect nearly any part of the body, and its clinical presentation varies widely, ranging from asymptomatic cases to life-threatening complications, including anaphylactic shock or death.

Accurate diagnosis is crucial, with ultrasonography serving as the primary imaging modality due to its high sensitivity and diagnostic reliability (96%). In certain cases, especially those involving peritoneal hydatid disease or complex cystic structures, computed tomography (CT) provides superior accuracy (Deo et al., 2020). The WHO Informal Working Group on Echinococcosis (IWGE) classification system is essential for evaluating cyst morphology and guiding treatment planning.

The cornerstone of treatment for cystic echinococcosis is surgical intervention, often considered the gold standard. Radical surgical techniques, such as cystectomy, pericystectomy, or hepatectomy, aim for complete cyst excision and are associated with lower rates of recurrence and morbidity. However, conservative surgery, which involves partial excision of the cyst and removal of the parasitic membrane, remains a valid option in specific cases to preserve organ integrity (Deo et al., 2020). Notably, a systematic review by Kapan et al. reported a pooled recurrence rate of 8% following primary radical surgery, while some cases of non-radical surgery exhibited even lower recurrence rates, challenging traditional perspectives (Kapan et al., 2006).

The primary goal of surgical management for hydatid liver disease is to eliminate local disease, manage complications, and prevent recurrence while minimizing morbidity and mortality. Treatment options include radical surgical resection, conservative surgical interventions, medical therapy with antihelminthic agents, and percutaneous drainage following cyst sterilization. Despite these approaches, recurrence remains a major challenge, with reported rates ranging from 4.6% to 22% (Akbulut et al., 2010). The main causes of recurrence include microscopic spillage of viable parasites, incomplete cyst removal, and failure to eliminate cysts in inaccessible areas. Early postoperative recurrence often suggests inadequate initial treatment (Kapan et al., 2006).

Minimally invasive techniques, including the PAIR (Puncture, Aspiration, Injection of a scolicidal agent, and Reaspiration) procedure and laparoscopic approaches, have emerged as alternatives to open surgery. These methods are particularly useful in patients with contraindications for invasive surgery or those with superficial cysts. However, their efficacy is limited by factors such as cyst size, location, and number, as well as the risk of spillage during intervention, which could lead to recurrence or secondary infection (Alzoubi et al., 2025).

Several risk factors have been identified for the recurrence of hepatic hydatid disease. A retrospective study analyzing 391 cases found a recurrence rate of 12%, with an average time to recurrence of 50 months. Patients originating from rural areas were at higher

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risk, likely due to continued exposure to *Echinococcus granulosus*. Additionally, cyst characteristics played a major role: large cysts greater than 7 cm and unilocular cysts were associated with significantly higher recurrence rates. Multivariate analysis confirmed that both cyst size and

unilocular morphology were independent predictors of recurrence. These findings suggest that patient background and specific cyst features should be carefully considered when planning treatment and postoperative follow-up to minimize the risk of relapse (Bedioui et al., 2012).

This case underscores the importance of an individualized approach to hydatid disease management, balancing the risks of surgery, the likelihood of recurrence, and the need to preserve organ function. Radical surgical approaches remain the treatment of choice in most cases due to their lower recurrence rates. However, conservative and minimally invasive methods have a role in specific contexts, particularly when radical surgery poses significant risks. Moreover, the high potential for recurrence highlights the need for long-term follow-up with periodic imaging to detect and treat new cysts early.

CONCLUSION

This case highlights the complexity of managing hydatid disease, particularly in the context of recurrence after radical surgery. While radical surgical approaches remain the treatment of choice for hepatic hydatid cysts due to their lower recurrence rates, conservative and minimally invasive techniques may offer

valuable alternatives in specific patient populations or cases with high surgical risk. The case underscores the need for a personalized approach, considering factors such as cyst location, size, and patient comorbidities. Additionally, the high potential

for recurrence necessitates long-term follow-up with periodic imaging to detect new cysts and prevent further complications. Ultimately, the success of treatment relies not only on effective surgical intervention but also on vigilant monitoring to ensure optimal outcomes for patients with hydatid disease.

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.

SOURCE OF FUNDING:

None

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