



Multiple Giant Hepatic Hydatid Cysts Managed Laparoscopically: A Case Report

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Abstract:

Laparoscopic surgery for hepatic hydatid disease is increasingly used, although multiple giant bilobar cysts remain technically challenging because of exposure difficulties and the risks of spillage, biliary leakage, and recurrence. We report the case of a 47-year-old male farmer from an endemic area who presented with right upper quadrant heaviness. Imaging showed multiple giant bilobar hepatic hydatid cysts with segmental portal hypertension, and serology was positive. After 4 weeks of albendazole, he underwent laparoscopic controlled puncture-evacuation, partial cyst wall resection, hemostasis, epiploplasty, and drainage. Postoperative recovery was uneventful, with no biliary fistula, discharge on postoperative day 5, and no recurrence on 6-month CT follow-up after 3 months of albendazole. This case highlights that laparoscopic conservative surgery can be feasible and effective in selected patients with multiple giant bilobar hepatic hydatid cysts. Careful patient selection, strict anti-spillage precautions, perioperative albendazole, meticulous surgical technique, and structured follow-up are essential for good outcomes.

Keywords: Hepatic Hydatid Cyst, Laparoscopy, Giant Cyst, Conservative Surgery, Case Report.

Case Report

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1. INTRODUCTION

Cystic echinococcosis remains a relevant surgical problem in endemic regions, with the liver being the most frequently involved organ. Management aims to eradicate the parasite, avoid intraoperative spillage, treat any cysto-biliary communication, and deal appropriately with the residual cavity [1, 2]. For large, symptomatic, or complicated hepatic hydatid cysts, surgery remains the mainstay of treatment [2, 3].

Although open surgery was historically considered the reference approach, minimally invasive surgery has gained increasing acceptance over the last three decades. Contemporary comparative studies and meta-analyses suggest that laparoscopy is associated with shorter hospitalization and fewer overall wound-related complications, while recurrence

and bile-leak rates are generally comparable to those of open surgery in appropriately selected patients [3, 4, 7, 8].

Nevertheless, giant, multiple, bilobar, deep, posterior, calcified, or complex cysts continue to challenge patient selection. Many surgeons still regard giant bilobar disease as a relative indication for open surgery because of fears of poor exposure, uncontrolled contamination, difficult residual-cavity management, and biliary injury [4, 6].

We report the case of a 47-year-old man with multiple giant bilobar hepatic hydatid cysts treated laparoscopically with a favorable short-term outcome. The educational value of the case lies in the fact that giant size and bilobar distribution did not prevent successful minimally invasive management when the

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dominant lesions were superficial and technically accessible.

2. Case Report

2.1 Patient Information

The patient was a 47-year-old man working as a farmer in clandestine livestock breeding, a clear epidemiological exposure context. He had no significant medical history, no previous surgery, no known associated disease, and no chronic medication recorded in the available chart. He presented from the outpatient setting with a 1-year history of right hypochondrial heaviness. He denied cough, hemoptysis, digestive complaints, night sweats, fever, or weight loss.

2.2 Clinical Findings

On examination, he was in good general condition, afebrile, and hemodynamically stable. Conjunctivae were normocolored. The abdomen was soft, with hepatomegaly on palpation. No peripheral

lymphadenopathy was noted. The remainder of the examination was unremarkable.

2.3 Diagnostic assessment and interpretation

Abdominal ultrasonography revealed multiple hepatic cystic lesions suggestive of hepatic hydatidosis. Contrast-enhanced abdominal CT demonstrated multiple giant bilobar hepatic cysts associated with segmental portal hypertension (Figure 1). Hydatid serology was positive. Intraoperatively, some cysts appeared superficial, thin-walled, and filled with clear fluid without obvious daughter cysts or thick septa, a morphology that could mimic simple cysts; however, the endemic exposure, multiplicity, CT pattern, and positive serology supported the diagnosis of hepatic hydatid disease rather than simple polycystic disease. No extrahepatic dissemination was described in the available record.

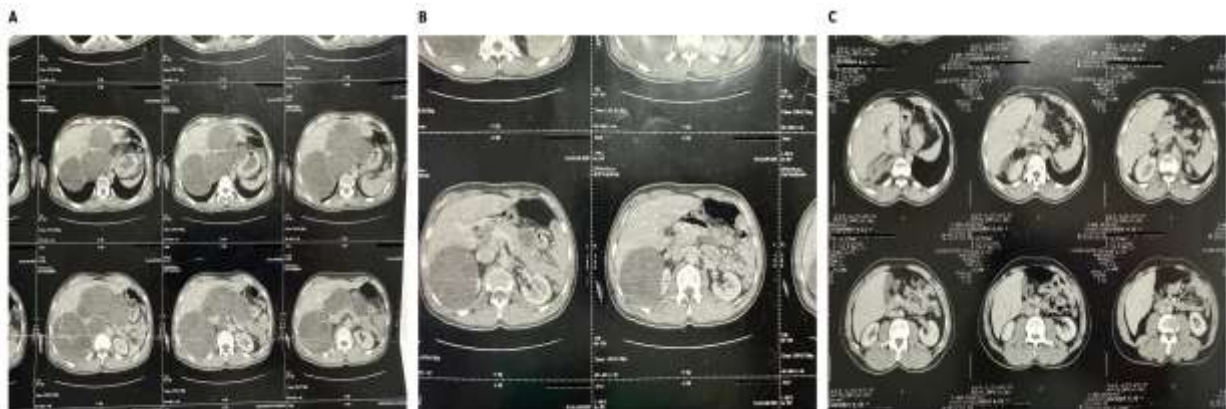


Figure 1: Preoperative abdominal CT images (A–C) showing multiple giant bilobar hepatic cystic lesions with marked mass effect, consistent with extensive hepatic hydatid disease

2.4 Therapeutic intervention

The patient received albendazole 800 mg/day for 4 weeks preoperatively. Surgery was performed under general anesthesia with the patient in the supine “French” position. Laparoscopic exploration showed multiple large cysts involving both hepatic lobes. The dominant superficial cysts were identified and punctured under controlled conditions. Fluid was aspirated and sampled, the cyst was opened using an ultrasonic scalpel, and a wide resection of the protruding dome was carried out while

preserving the hepatic parenchyma and staying away from vasculobiliary pedicles. Meticulous bipolar hemostasis of the resection bed was achieved. The same sequence was repeated for accessible cysts on the contralateral lobe. The cavities were inspected for biliary leakage, none was seen, and epiploplasty of the main residual cavity was performed to favor internal drainage and reduce recurrence risk. After lavage-aspiration and low-pressure hemostatic reassessment, a suction drain was left adjacent to the principal fenestration site.

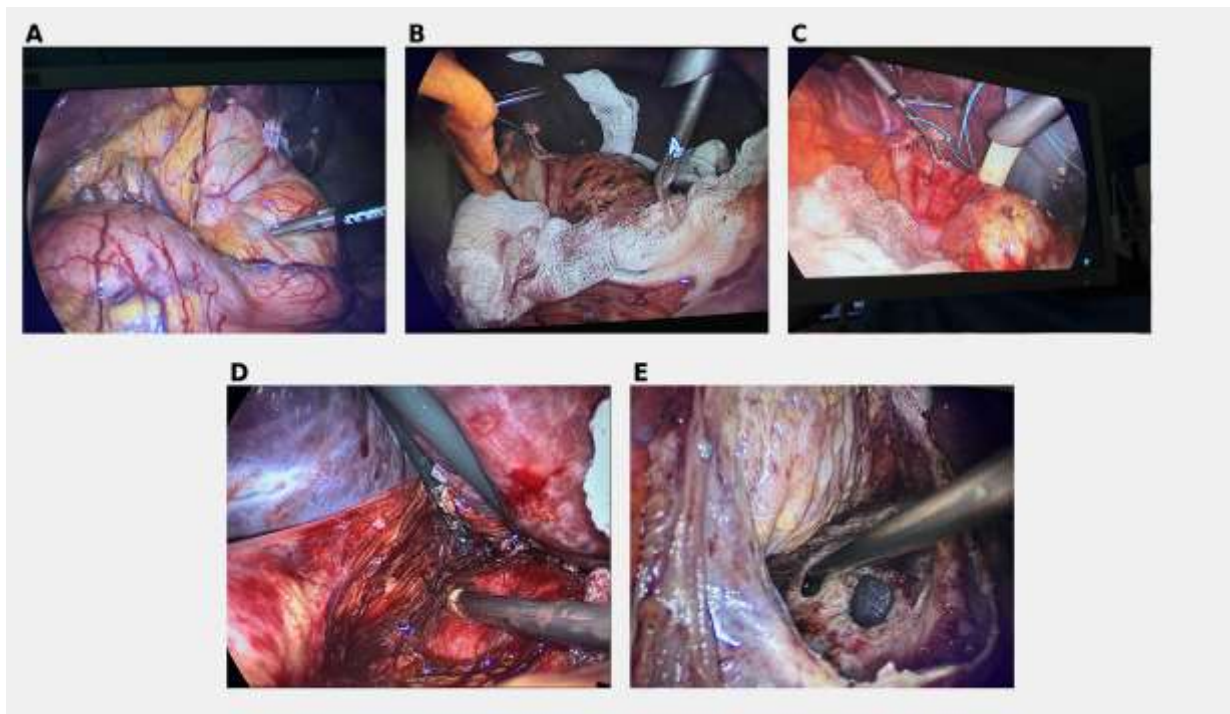


Figure 2: Key intraoperative steps of laparoscopic conservative surgery for multiple giant hepatic hydatid cysts. (A) Initial exploration showing multiple superficial cystic prominences. (B) Operative-field isolation with pads and controlled aspiration under protected conditions. (C) Direct puncture-aspiration of a dominant cyst. (E) Residual cavity/resection bed after conservative treatment with meticulous hemostasis. (D) Intracystic inspection after evacuation showing residual daughter vesicle or membranous content

2.5 Follow-up and outcomes

Postoperative recovery was favorable. No biliary fistula was observed, the drain was removed, and the patient was discharged on postoperative day 5. Albendazole was prescribed for 3 months after surgery. Follow-up CT performed at 3 months and again at 2 years showed no radiologic recurrence.

3. DISCUSSION

This case illustrates a clinically relevant point: multiple giant bilobar hepatic hydatid cysts do not invariably mandate laparotomy. The traditional reluctance to use laparoscopy for large or multiple cysts was driven by concerns about intraoperative spillage, anaphylaxis, poor access, and difficult control of cysto-biliary communication. However, the laparoscopic literature has evolved considerably, and current decision-making is increasingly based on accessibility, cyst biology, and local expertise rather than size alone [4–7].

Consensus recommendations continue to favor surgery for large, symptomatic, or complicated hepatic cystic echinococcosis and recognize albendazole as the main perioperative antihelminthic agent. The Turkish HPB Surgery Association consensus recommends albendazole at 10 mg/kg/day and states that at least 10 days of preintervention therapy and at least 2 months of postoperative therapy can be recommended on the basis of the available literature [2]. In our patient, 4 weeks of preoperative treatment followed by 3 months postoperatively is therefore consistent with accepted practice.

A 2022 meta-analysis including 13 studies and 1211 patients found that laparoscopy was superior to open surgery in terms of length of hospital stay, recovery of gastrointestinal function, overall complications, and incisional infection, while showing no significant difference in

recurrence, bile leakage, biliary fistula, or residual-cavity infection [3]. A 2025 systematic review likewise described low conversion, morbidity, and recurrence rates in laparoscopic series, further supporting the safety of the approach in selected cases [4].

Recent comparative observational studies point in the same direction. Elmoghazy *et al.*, reported shorter hospitalization with minimally invasive surgery and no recurrence during follow-up in a mixed laparoscopic/robotic cohort [7]. Mihetiu *et al.*, found that minimally invasive strategies were associated with shorter hospitalization and fewer late complications and recurrences than open surgery [8]. Large single-center laparoscopic series have also shown low recurrence in selected patients, including 66 cases with no recurrence in the classic Palanivelu series [5] and 105 patients without recurrence at 18 months in the Turkish experience reported by Dalbaşı and Tüzün [10].

The educational value of the present case lies in the combination of giant size and bilobar distribution. From a technical point of view, the successful laparoscopic strategy was not based on attempting radical surgery at all costs, but on selecting the dominant superficial and accessible lesions for conservative minimally invasive treatment. This is important because radical laparoscopic procedures such as total pericystectomy or

hepatectomy, although attractive in selected patients, are not mandatory for every giant cyst and may not be appropriate in all bilobar disease patterns [6]. In our patient, controlled puncture-evacuation, wide resection of the protruding dome, epiploplasty, and drainage achieved a good early result without biliary leakage.

The case also highlights an interpretative nuance. Intraoperatively, some cysts had clear contents and thin walls without obvious daughter cysts, potentially mimicking simple cysts. In endemic settings, however, univesicular hydatid cysts may have a deceptively simple appearance, and diagnosis should integrate epidemiology, multiplicity, imaging, and serology rather than rely on a single operative visual impression. This diagnostic point is especially relevant when minimally invasive surgery is planned.

Finally, the main limitation of this report is the still-limited duration of documented postoperative follow-up. Conservative surgery leaves a residual cavity and may carry a higher long-term risk of residual-cavity complications or recurrence than radical resection in some series [1, 6]. Accordingly, the favorable 6-month result should be interpreted as proof of short-term feasibility and efficacy, not as definitive evidence of cure. Continued surveillance remains essential.

Selected evidence supporting the discussion

Study	Design / sample	Main findings	Message for this case
Wang <i>et al.</i> , 2022 [3]	Meta-analysis, 13 studies, 1211 patients	Laparoscopy shortened hospital stay and reduced total complications and incisional infection, with no significant difference in recurrence or bile leak versus open surgery.	Supports the short-stay, low-morbidity rationale for laparoscopy in selected patients.
Ali <i>et al.</i> , 2025 [4]	Systematic review	Reported low conversion, low mortality, and low recurrence in published laparoscopic series.	Supports expanding indications in experienced centers.
Palanivelu <i>et al.</i> , 2006 [5]	Prospective series, 66 patients	No recurrence reported during mean 5.8-year follow-up using a dedicated anti-spillage system.	Demonstrates the importance of controlled aspiration/anti-spillage technique.

Elmoghazy et al., 2023 [7]	Comparative retrospective cohort, 57 patients	Minimally invasive surgery had a shorter hospital stay than conventional surgery, with no recurrence in the cohort.	Supports minimally invasive management when technically feasible.
Mihetiu et al., 2024 [8]	Retrospective comparison, 149 patients	Minimally invasive techniques were associated with shorter hospitalization, fewer late complications, and fewer recurrences than open surgery.	Reinforces the value of laparoscopy in selected hydatid cysts.

4. CONCLUSION

- Selected multiple giant bilobar hepatic hydatid cysts can be managed laparoscopically with good short-term outcomes when the dominant lesions are superficial, technically accessible, and treated by an experienced team.
- Giant size alone should not be considered an absolute contraindication to laparoscopy; the real decision factors are accessibility, anticipated control of spillage, the likelihood of biliary communication, and institutional expertise.
- Perioperative albendazole, controlled puncture-evacuation, meticulous hemostasis, inspection for biliary leak, appropriate management of the residual cavity, and structured postoperative imaging surveillance are key elements of success.

Declarations

Ethical approval: It is not applicable.

Consent: Consent for publication of clinical details and images are confirmed by the authors before submission.

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Conflict of interest statement: The authors declare no conflicts of interest.

Disclaimer (Artificial intelligence): The authors used artificial intelligence solely to assist in the structuring and language organization of the manuscript. No artificial intelligence tool was used to generate clinical data, modify images, interpret findings, or

make clinical or scientific conclusions. The authors reviewed, revised, and approved the final version of the manuscript and take full responsibility for its content.

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

Data availability statement: Data supporting this case report are available from the corresponding author on reasonable request, subject to institutional and privacy restrictions.

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