Acta Scientific Gastrointestinal Disorders (ISSN: 2582-1091)

Volume 8 Issue 11 November 2025

Case Report

Cardiac Compression by a Giant Hepatic Hydatid Cyst: A Rare Case Report

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Received: September 22, 2025

Published: October 15, 2025

Abstract

Cystic echinococcosis is a parasitic disease caused by *Echinococcus granulosus*. Transmission to dogs occurs when infected viscera containing hydatid cysts are ingested, allowing the parasite to complete its life cycle.

We report the case of a 69-year-old male presenting with signs of right-sided heart failure. Imaging revealed a massive septated hepatic hydatid cyst compressing the right cardiac chambers, impairing diastolic filling, and causing symptomatic right heart failure. Computed tomography (CT) confirmed a giant cyst measuring 215 × 162 mm. Surgical excision resulted in immediate relief; however, recurrence occurred within one week, requiring reoperation. After the second surgery, the patient remained asymptomatic with no recurrence on long-term follow-up.

Cardiac echinococcosis typically involves intramyocardial cysts, whereas this case represents an unusual extracardiac location. Extrinsic compression of the right heart chambers by hepatic hydatid cysts is extremely rare. Complete surgical excision provides rapid symptom resolution, but recurrence remains a clinically significant concern.

Keywords: Hydatid Cyst; Hepatic Echinococcosis; Right Heart Failure; Surgical Excision; Recurrence, Computed Tomography

Introduction

Cystic echinococcosis is a chronic parasitic infection caused by the larval stage of *Echinococcus granulosus*. Globally, it affects approximately 1.2 million people, with the highest prevalence in pastoral regions [1,2]. According to the World Health Organization (WHO) Foodborne Disease Burden Epidemiology Reference Group (FERG), echinococcosis is responsible for nearly 19,300 deaths and about 871,000 disability-adjusted life years (DALYs) annually [3].

Transmission occurs when dogs ingest infected viscera containing viable cysts. The parasite develops into adult tapeworms in the canine intestine, with eggs excreted in feces, contaminating the environment. Intermediate hosts such as sheep, cattle, goats, and pigs ingest the eggs, leading to cyst formation in their internal organs. Humans are accidental hosts, infected via ingestion of contaminated food, water, or soil [4].

The liver is the most commonly affected organ (70% of cases), followed by the lungs (20%), with the remainder involving other sites [5]. Hydatid cyst rupture poses the greatest risk, potentially causing life-threatening anaphylaxis [4].

Cystic echinococcosis is endemic in South America, Central Asia, East Africa, and parts of Europe, including Germany, southern France, Turkey, and the Balkans [6]. In Albania, incidence was estimated at 2.05 per 100,000 inhabitants between 1958 and 1987 [7].

We present a rare case of hepatic hydatid cyst compressing the right heart chambers, leading to symptomatic right-sided heart failure.

Case Presentation

A 69-year-old male with a history of hypertension presented to the emergency department with progressive dyspnea on minimal exertion and at rest, generalized weakness, fatigue, and palpitations. He reported no history of animal contact.

On physical examination, blood pressure was 130/80 mmHg, heart rate 75 bpm, and respiratory rate 20/min. Jugular venous distension was noted. Cardiac auscultation revealed rhythmic heart sounds with a systolic murmur at the apex. Breath sounds were normal without rales. The liver was palpable 4 cm below the costal margin.

Electrocardiogram showed sinus rhythm with nonspecific repolarization abnormalities. Laboratory results, including complete blood count and biochemistry, were normal except for elevated NT-proBNP at 686 pg/mL (normal <125 pg/mL).

Transthoracic echocardiography (TTE) revealed a giant septated cystic mass compressing the right atrium (RA) and partially collapsing the right ventricle (RV), with impaired diastolic filling.

CT scan demonstrated a giant hepatic hydatid cyst measuring 215 × 162 x 110 mm (H x AP x L), elevating the right hemidiaphragm and compressing the right cardiac chambers (Figure 1).

Surgical excision was performed, and pathology confirmed hydatid disease. The patient's symptoms resolved immediately.

However, one week post-surgery, he returned with recurrent dyspnea. Echocardiography revealed a smaller recurrent cyst (<50 × 40 mm) compressing the RA. CT confirmed recurrence, partially obstructed by the omentum, containing approximately 200 cc of fluid. A second surgical resection was performed one month after the first procedure.

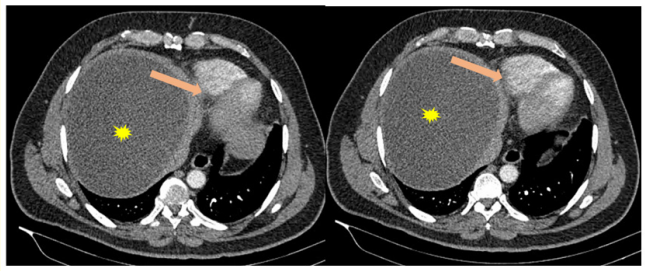

Figure 1: Giant hepatic hydatid cyst with cardiac compression. Axial contrast-enhanced computed tomography (CT) scans demonstrate a large, well-defined hypodense cystic lesion (asterisks) in the right hepatic lobe. The cyst causes significant mass effect, with upward displacement and compression of the right cardiac chambers (arrowheads).

At one-year follow-up, the patient remained asymptomatic with no recurrence on periodic echographic and CT evaluations.

Discussion

Hydatid cysts of the liver compressing cardiac chambers are extremely rare. A PubMed search using the terms "hydatid cyst" and "heart failure" identified only two previously reported cases of extracardiac compression leading to right-sided heart failure.

The first, reported by Sanchez-Recalde., *et al.* (2000), described atrial arrhythmias caused by hepatic hydatid cyst-induced mechanical compression [8]. The second, by Robles., *et al.* (2009), reported right atrial and ventricular compression from a hepatic hydatid cyst measuring 155 × 115 mm, at that time considered the largest recorded [9]. In our case, the cyst measured 215 × 162 mm, likely representing the largest hepatic hydatid cyst associated with right heart failure published to date.

Extrinsic cardiac compression is rarely encountered clinically. It may result from mediastinal or pericardial cysts, dilated descending aorta, or hiatal hernia [10]. Cardiac echinococcosis typically involves intramyocardial cysts of the left ventricle [11]. Dyspnea, the presenting symptom in our patient, can arise from such ext-

racardiac masses impeding right chamber filling. Surgical excision remains the treatment of choice, producing immediate symptom relief.

Recurrence of hydatid disease remains a significant issue. Reported recurrence rates range from 4.6% to 22% [12-14]. The WHO estimates recurrence in 6.5% of cases following surgery [3]. In the series by Prousalidis., *et al*., recurrence was 8.7%, often linked to minimal intraoperative spillage or incomplete pericystectomy [12]. Mottaghian and Saidi reported an 11.3% recurrence rate, independent of cyst size [13]. Kapan., *et al*. concluded that appropriate incision and complete pericystectomy of solitary peripheral cysts reduce recurrence, with a rate of 4.65% in their series [14].

Conclusion

This case illustrates an exceptionally rare presentation of hepatic hydatid cyst causing right-sided heart failure via extracardiac compression. Unlike typical intramyocardial hydatid cysts, this extracardiac manifestation required surgical management. While surgery provided immediate relief, recurrence highlights the importance of long-term surveillance. Hydatid disease should be considered in the differential diagnosis of unexplained right heart failure, particularly in endemic areas.

Conflict of Interest

The authors declare no conflicts of interest.

Author Contributions

- Conception and manuscript drafting: Abderrazzak Ajertil
- Data acquisition and interpretation: Abderrazzak Ajertil, Youssef Mehdi
- Critical review for intellectual content: Najat Kabbaj, Mohamed Cherkaoui Malki

Ethical Approval

All participants provided informed consent. The hospital ethics committee approved this case report.

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