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Cardiac Hydatid Cyst: A Rare Case Report

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ABSTRACT

Background: Cardiac hydatid cyst is a rare but potentially life-threatening manifestation of Echinococcus granulosus infection, accounting for less than 2% of hydatid disease cases. Clinical symptoms vary depending on cyst size and location, and diagnosis often requires multimodal imaging.

Case presentation: We present the case of a 32-year-old female from an endemic rural area with a 6-month history of exertional dyspnea and palpitations. Echocardiography and cardiac MRI revealed a large cystic mass in the interventricular septum. The patient underwent successful surgical excision under cardiopulmonary bypass, followed by three months of albendazole therapy. Recovery was uneventful, and six-month follow-up showed no recurrence.

Conclusion: Cardiac hydatid cyst should be considered in the differential diagnosis of cardiac masses, especially in endemic regions. Early diagnosis with appropriate imaging and prompt surgical intervention combined with antiparasitic therapy are key to preventing complications and recurrence.

Introduction

Hydatid disease (cystic echinococcosis), due to Echinococcosis granulosus, is endemic in pastoral regions across the Middle East, Central Asia, South America, and parts of Africa. Humans become accidental hosts through ingestion of parasite eggs from contaminated food or animal carriers (1,2). The liver (≈70–75 %) and lungs (≈20–25 %) are the most commonly involved organs, while cardiac hydatid cysts are exceedingly rare, accounting for only 0.5–2 % of all echinococcosis cases. This rarity is attributed to the constant contractility and high velocity blood flow in myocardium, which may hinder parasitic lodging (3).

In patients with cardiac involvement, the most frequently affected regions include the left ventricular free wall, interventricular septum, right ventricle, and pericardium, with rare involvement of the apex or atria (4). Clinical presentation varies based on cyst size and location: small cysts may remain asymptomatic, whereas larger ones can manifest as dyspnea, chest pain, palpitations, or syncope. Life-threatening complications such as cyst rupture, pericardial tamponade, systemic or pulmonary embolism, and anaphylaxis can occur (5).

Diagnosis is challenging, often requiring high suspicion in endemic areas. A multimodal imaging approach starting with transthoracic echocardiography, followed by CT or MRI for detailed anatomical delineation is critical, while serological assays (e.g., ELISA) provide adjunctive support despite variable sensitivity in isolated cardiac cases (6). The cornerstone of treatment remains surgical excision under cardiopulmonary bypass, supplemented by Benz imidazole therapy (e.g., albendazole) to reduce recurrence risk; medical therapy alone is generally reserved for inoperable cases or minor cysts (7). Early detection and prompt surgical intervention are essential due to the high morbidity and mortality associated with delayed treatment of cardiac echinococcosis.

Case Presentation

A 32-year-old female from a rural endemic area presented with a 3-month history of progressive exertional dyspnea (New York Heart Association Class II–III), palpitations, and intermittent, non-radiating chest pain. She denied any history of

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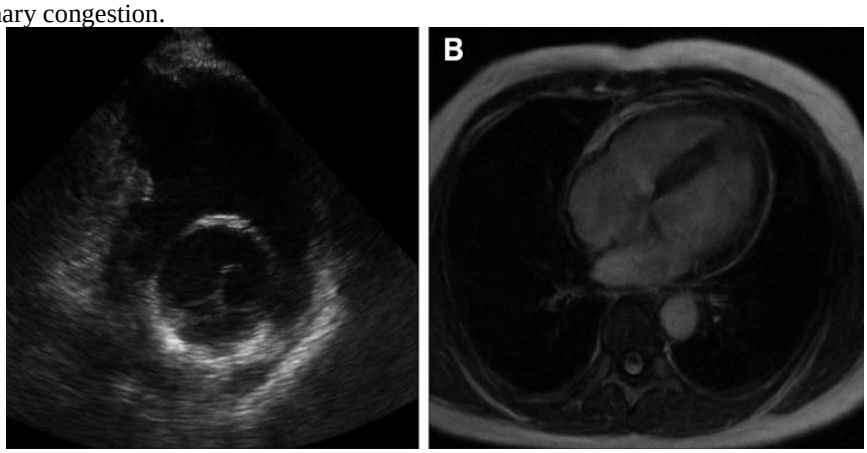
rheumatic heart disease, tuberculosis, or prior cardiac surgery. There was no family history of similar conditions. On physical examination, her blood pressure was 110/70 mmHg, heart rate 88 bpm, and oxygen saturation 97% on room air. Cardiovascular examination revealed a grade 3/6 systolic murmur best heard at the left lower sternal border, along with mild jugular venous distention. The remainder of the systemic examination was unremarkable.

Laboratory investigations demonstrated mild eosinophilia (absolute eosinophil count: 780/μL), elevated erythrocyte sedimentation rate (ESR: 42 mm/hr), and positive enzyme-linked immunosorbent assay (ELISA) for Echinococcosis granulosus IgG antibodies. Other hematological and biochemical parameters, including liver and renal function tests, were within normal limits. Electrocardiography revealed normal sinus rhythm with occasional premature ventricular contractions. Chest radiography showed mild cardiomegaly without pulmonary congestion.

Transthoracic echocardiography revealed a well-circumscribed cystic lesion measuring 5.2 × 4.8 cm located within the interventricular septum, causing mild left ventricular outflow tract obstruction. Cardiac magnetic resonance imaging (MRI) confirmed a multinodular cystic mass with hypo intense rim and no evidence of rupture, consistent with a hydatid cyst. Abdominal ultrasound and brain MRI were negative for other cystic lesions.

The patient was started on albendazole 400 mg orally twice daily for two weeks prior to surgery to reduce the risk of intraoperative dissemination and recurrence. She subsequently underwent elective surgical excision of the cyst via median sternotomy and cardiopulmonary bypass. The cyst was carefully enucleated without spillage, and the cavity was irrigated with hypertonic saline. Postoperatively, albendazole therapy was continued for three months. The patient's recovery was uneventful, and follow-up echocardiography at six months showed no residual lesion or recurrence.



Discussion

Cardiac hydatid cysts, though rare, present significant clinical challenges due to their variable manifestations and risk of severe complications. Clinical presentation is influenced by cyst size and location, potentially resulting in dyspnea, chest pain, arrhythmias, or tamponade depending on anatomy and expansion (8).

Imaging modalities are crucial for diagnostic accuracy. Transthoracic echocardiography provides initial detection, while CT and MRI offer detailed characterization MRI being superior for delineating cystic structure and surrounding myocardium (9).

Surgical excision, often under cardiopulmonary bypass, remains the definitive treatment, with excellent outcomes when combined with perioperative antiparasitic therapy. A case reported by Lalani et al. demonstrated complete resolution of multisystem lesions through albendazole alone, highlighting the potential role of medical management when surgery is contraindicated (10).

Our case, involving a septal cyst, illustrates the effectiveness of a multidisciplinary approach: accurate imaging diagnosis via echocardiography and MRI, prompt surgical removal, and adjuvant albendazole therapy, resulting in no recurrence at six months consistent with current evidence emphasizing early intervention (8,10).

Conclusion

Cardiac hydatid cysts, though rare, should be suspected in patients from endemic regions presenting with cardiac masses. Early diagnosis, prompt surgical removal, and adjunct antiparasitic therapy are essential to prevent serious complications and ensure favorable outcomes.

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Authors' Contributions

All authors contributed to data analysis, drafting, and revising of the paper and agreed to be responsible for all the aspects of this work.

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