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Commentary

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INTRODUCTION

Hydatid disease, caused by Echinococcus granulosus or Echinococcus multilocularis, remains a significant yet often underrecognized global health concern. Although traditionally associated with pastoral regions where sheep and cattle are raised, its geographic reach has expanded substantially due to increased global travel and livestock trade. The liver and lungs are the most frequently affected organs, while cardiac involvement represents a striking rarity, accounting for only 0.5%–2% of all hydatid disease cases [1].

CLINICAL SPECTRUM AND DIAGNOSTIC CHALLENGES

The literature indicates that most patients with cardiac hydatid cysts are male, typically aged between 35 and 40 years [1-3]. Clinical manifestations are notoriously variable, ranging from asymptomatic cases to presentations mimicking severe cardiac failure. This variability depends primarily on the cyst's location and size within the heart, contributing to frequent diagnostic delays.

Transthoracic echocardiography remains the initial imaging modality of choice, often revealing a well-circumscribed, echo-negative lesion with smooth margins [4]. However, computed tomography (CT) and magnetic resonance imaging (MRI) are indispensable for accurately defining the cyst's location, size, and relationship to adjacent cardiac structures [5]. Serologic testing using the Casoni method has limited diagnostic value, given its high false-positive and false-negative rates (up to 30%) [2,3]. In contrast, the enzyme-linked immunosorbent assay (ELISA) demonstrates superior diagnostic performance, with sensitivity and specificity of 91% and 82%, respectively. A positive ELISA result for echinococcal antibodies, in combination with compatible imaging findings, is considered confirmatory [2,3].

In endemic regions, left ventricular hydatid cysts may closely resemble ventricular aneurysms and should be included in the differential diagnosis of cystic cardiac lesions [3]. Furthermore, in patients presenting with unexplained electrocardiographic abnormalities—particularly those suggestive of myocardial ischemia or arrhythmia [3,6], clinicians should maintain a strong suspicion for cardiac echinococcosis.

CARDIAC HYDATID CYST AND ITS SEQUELAE:

Arrhythmia secondary to cardiac hydatid disease is an uncommon but potentially fatal event. Its rarity often results in diagnostic oversight, especially in hospitals outside endemic areas. Among reported cardiac hydatid cases, the interventricular septum (IVS) is the most frequently affected site (approximately 55%) [7], followed by the left ventricle (20%), left atrium (12%), and, less commonly, the right-sided chambers and pericardial sac (each about 5%) [8].

In patients presenting with ventricular tachycardia (VT) related to hydatid cysts, the IVS remains the predominant site of involvement (over 50%) [7],

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followed by the free wall of the left ventricle (44%) [3]. Several authors have linked these arrhythmias directly to cyst size, typically ranging from 8 to 12 cm, particularly when the cyst compresses or infiltrates the left ventricular wall [3,6,7]. Similarly, in patients with third-degree atrioventricular block (AVB), the IVS is affected in up to 88% of cases underscoring the vulnerability of the cardiac conduction system [3,6-8].

Mechanistically, these rhythm disturbances arise from mechanical compression or inflammatory infiltration of the conduction pathways by the expanding cyst. The IVS and free wall of the left ventricle are particularly prone to such involvement due to their proximity to key conduction fibers [3,6,7]. Notably, numerous reports document the disappearance of arrhythmias following surgical excision of the cyst, emphasizing the reversibility of electrophysiologic disturbances when timely intervention is achieved.

Given these findings, clinicians should consider cardiac hydatid disease in the differential diagnosis of unexplained ventricular arrhythmias, especially in individuals from or having resided in endemic regions.

TREATMENT AND SURGICAL CONSIDERATIONS

Surgical intervention remains the cornerstone of management for cardiac hydatid cysts [2,3]. The primary surgical objective is complete excision of the cyst while avoiding rupture and dissemination of parasitic material, which could lead to recurrence or anaphylaxis. Technically, this requires meticulous isolation of the operative field. The pericardial cavity should be packed with gauze soaked in hypertonic saline to inactivate protoscolices and minimize the risk of secondary implantation [3].

Adjunctive antiparasitic therapy with albendazole and/or mebendazole is recommended as a complementary measure to surgery. Preoperative administration helps sterilize the cyst and decrease its internal pressure, whereas postoperative continuation reduces the risk of recurrence and addresses potential residual disease [2,3,9].

Optimal outcomes are achieved through a multidisciplinary approach involving cardiothoracic surgeons, infectious disease specialists, and cardiac imaging experts. Such collaboration ensures accurate diagnosis, safe surgical removal, and vigilant long-term monitoring to prevent recurrence or late complications.

CONCLUSION

Cardiac hydatid cysts, though rare, represent a diagnostic and therapeutic challenge with potentially lethal consequences. Awareness of this entity is essential, particularly in endemic regions and among patients with unexplained arrhythmias or cardiac masses. Early recognition, guided by multimodal imaging and supported by reliable serologic testing, remains the cornerstone of effective management. Prompt surgical intervention, complemented by antiparasitic therapy, can yield excellent outcomes but ICD and pacemakers are also critical to prognosis. As global migration and trade continue to blur geographic boundaries, clinicians worldwide must remain vigilant for this elusive yet treatable disease.

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