

A Rare Case of Cardiac Hydatid Cyst

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ABSTRACT

Hydatid infection of the heart is rare and there is always the lethal hazard of cyst perforation. We present an 18-year-old male from Kashmir valley who was admitted to the emergency department of our hospital with fever and chest pain for the last 4 days. Using echocardiography and cardiac tomography (CT), cardiac Echinococcosis was diagnosed. The results of surgical treatment of cardiac Echinococcosis were better than the conservative strategy. Surgical excision was performed. The patient had an uneventful recovery.

Keywords: Cardiac hydatid cyst, echinococcosis, hydatid disease

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Submitted: 25-Feb-2020 **Revised:** 29-Apr-2020 **Accepted:** 10-May-2020 **Published:** 18-Oct-2021

INTRODUCTION

Hydatid disease is a common health problem in the sheep-farming countries of the Mediterranean, caused by infection with the metacestode stage of the tapeworm *Echinococcus*.^[1] The common sites are liver and spleen. Cardiac hydatid is rare. In 1921, Martin and De Crespign performed its first surgical treatment. The utilization of extracorporeal circulation for this purpose took place in 1961.^[2] However, the most cases now are operated without a cardiopulmonary bypass (CPB). *E. Granulosus* tapeworm reaches the liver through intestinal veins. Cardiac involvement is in 0.02%-2% of all hydatid diseases.^[3]

CASE REPORT

An 18-year-old male presented in the emergency with acute chest pain and fever for last 3-4 days. On examination, his general condition was stable. On auscultation, the chest was clear and heart sounds were normal. Chest X Ray (CXR) was fairly normal. ECG was done that revealed

sinus tachycardia. A Transthoracic echocardiographic examination revealed an intramyocardial cyst like mass involving the interatrial septum measuring roughly 7.3×3.2 cm, with no obvious communication with left atrium or right atrium (LA/RA). No LV regional wall motion abnormality (RWMA). CT angiography of the chest and whole abdomen was done to see the extent of cyst and extracardiac location if any. CT revealed a large cystic lesion with detached floating hyperdense membrane within the inferior pericardial space beneath the right atrium and right ventricle (RA and RV), measuring approximately $9 \times 6 \times 6$ cm in size [Figure 1]. The lesion was seen to compress inferior vena cava (IVC) laterally to the right side. No cysts were present in the liver or lungs. His preoperative blood counts revealed eosinophilia at 24%. A diagnosis of cardiac Echinococcosis was done and the patient was started on oral albendazole 10 mg/kg/day and praziquantel 25 mg/kg/day once daily dose. Since the cyst was huge, a decision was made to remove the cyst surgically. Intraoperatively, ECG, pulse oximetry, invasive BP, CVP, transesophageal echocardiography (TEE), urine output and temperature monitoring were done. After securing an

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10.4103/aca.ACA_42_20

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How to cite this article: Guha A, Ranjan R, Saxena P, Mehta Y. A rare case of cardiac hydatid cyst. *Ann Card Anaesth* 2021;24:470-472.

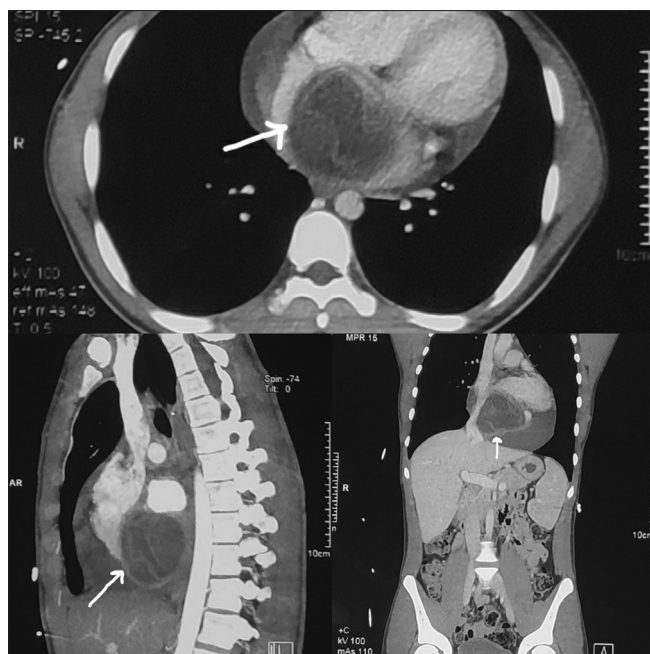


Figure 1: Topmost figure is of a Transverse contrast CT chest showing the cyst lying in the inferior pericardial space beneath the right ventricle-“serpentine sign”; Bottom left is a sagittal CT chest showing the cyst in inferior pericardial space. Bottom right is a coronal CT chest with the cyst evident beneath the right atrium and the ventricle

intravenous (iv) access with 16 G cannula in the right upper limb, right radial artery cannulated with 20 G cannula for arterial BP monitoring, anaesthesia was induced with iv injection of midazolam 0.05 mg/kg, fentanyl 4 mcg/kg, and etomidate 0.4 mg/kg and paralysed with 0.15 mg/kg of vecuronium bromide. The trachea was intubated with 8.5 mm endotracheal tube. Prophylactic antibiotic Amoxycyclavulinic 1.2 gm iv given and a shot of 4 mg/kg hydrocortisone was given in view of anticipated cyst rupture and anaphylactic shock. The right internal jugular vein was cannulated with 7F triple lumen catheter for central venous pressure (CVP) monitoring and inotropes (epinephrine and norepinephrine) were connected to its lumens. Intraoperative TEE was done. The midesophageal 4 chamber view revealed a cystic shadow in the postero-inferior aspect of the interatrial septum [Figure 2 and Video 1]. Echo showed the folded capsule of the hydatid cyst (HC) in close relation to the IVC and RA (flaps floating view). The bicaval view showed external compression of IVC and RA [Video 2]. No intracardiac communication was appreciated on colour Doppler examination. A midline sternotomy was done, with careful incision and retraction of the pericardium where the pale yellow cystic mass was visible behind the heart. Since the cyst was large and it was difficult to lift the heart, CPB was used. Aorta and bicaval venous cannulation done after giving iv heparin (4 mg/kg), ACT of around 480 seconds was achieved. The affected area was covered with 10% hypertonic saline soaked gauze

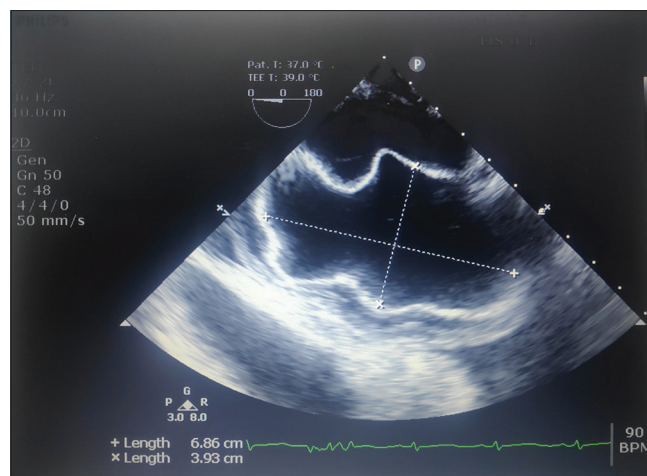


Figure 2: Hydatid cyst dimensions 6.8 × 3.9 cm

pieces. Almost 50 ml of cystic fluid was carefully aspirated due to which the cyst got shrunken and was deroofed [Figure 3] and the cavity was irrigated with hydrogen peroxide believed to be one of the good scolocidal agents. Cytology of the aspirated cyst fluid and histology of the cyst wall was later consistent with the diagnosis of HC. TEE performed which revealed a normal interatrial anatomy with no cystic shadow as was seen preoperatively [Video 3]. The patient came off the bypass machine successfully after CPB time of 30 minutes and aortic cross clamp time of 20 minutes. Protamine (1 mg/100 units of heparin) was given and hemostasis achieved. The chest tubes (pleural and mediastinal inserted). One shot of Pheniramine maleate 20 mg given post bypass and hydrocortisone 100 mg repeated. The patient was shifted on ventilator support in the ICU where he had an uneventful post-operative period. Echo performed on the first post-operative day which revealed a normal functioning heart with no residual cyst. CXR was normal. The patient was on no inotropic support. The trachea was extubated after 12 hours of ICU stay. The patient was continued on oral albendazole, praziquantel, amoxycyclavulinic acid on the same doses as was given preoperatively for 5 days. He was discharged on the fifth postoperative day. The follow-up advised at sixth and twelfth months of post-surgery till then patient was advised to take albendazole alone at 10 mg/kg once daily for 3 months.

DISCUSSION

Cardiac hydatids are rare. The most common sites of cardiac involvement are the interventricular septum (IVS): 46%, followed by RA: 15.3%, LV free wall: 15.3%, pericardium: 7.7%, RV free wall: 7.7%, and LA: 7.7%.^[4] Pericardial involvement occurs mostly in multifocal cardiac Echinococcus. Solitary pericardial HC is rare, which was

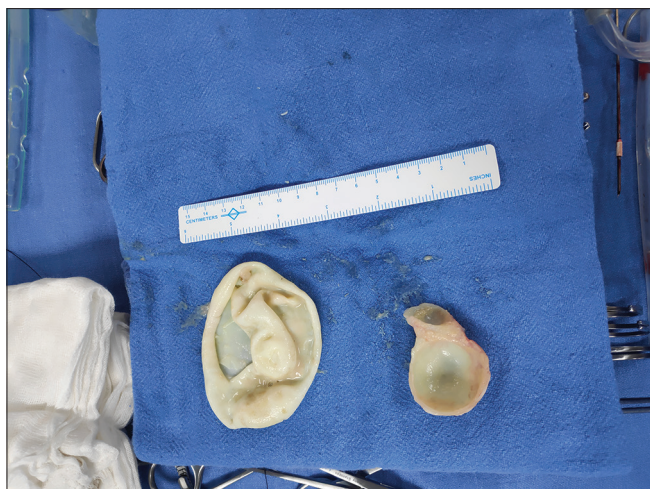


Figure 3: The hydatid cyst with its capsule

seen in our case. Cardiac symptoms are mostly chest pain, dyspnea, persistent cough, palpitation, arrhythmias, and heart failure may also develop. The most critical complication of a cardiac cyst is perforation with an incidence ranging from 25% to 40%. As a rule, LV cysts perforate out of the cavity (more frequently than RV cysts), and RV cysts perforate into it.^[5] Two-dimensional echocardiography and cardiac CT imaging are diagnostic modalities of choice, in a suspected case. In MRI the cystic wall is shown to have two layers (“double-line sign”) with the inner layer being hypodense and the outer layer being isodense, which is produced by the endocyst (inner layer) and the pericyst (outer layer).^[6] Serologic tests - the Casoni test are not very reliable. ELISA test has a higher sensitivity and specificity. In their case series of 10 patients of off-pump removal of intracardiac HC, Birincioglu *et al.*^[7] concluded that ventricular echinococcosis without relation with the cardiac chambers can be operated without using CPB with the aid of TEE and controlled cyst fluid aspiration. Preoperative treatment with albendazole begins at least 3 months to 1 day before surgery and continues for 1–3 months post-treatment. The WHO recommends that patients with operable disease even though asymptomatic should undergo surgical excision of the cyst followed by medical therapy for a minimum of 2 years. Liver enzymes are watched for in chronic uptake of albendazole. To exclude recurrence, serologic and echocardiographic

monitoring is recommended during the first 5 postoperative years.

CONCLUSION

Intramyocardial cysts are a rare kind of zoonoses. Although the above-mentioned case has been done successfully on CPB, cystic lesion in the LV free wall, not communicating with the LV cavity, has been excised successfully with off-pump technique.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Tsigkas G, Chouchoulis K, Apostolakis E, Kalogeropoulou C, Koutsogiannis N, Koumoundourou D, *et al.* Heart echinococcus cyst as an incidental finding: Early detection might be life-saving. *J Cardiothorac Surg* 2010;5:124.
2. Artucio H, Roglia JL, Di Bello R, Dubra J, Gorlero A, Polero J, *et al.* Hydatid cyst of the interventricular septum of the heart with rupture into the right ventricle. *J Thorac Cardiovasc Surg* 1962;44:110-4.
3. Eckert J, Deplazes P. Biological, epidemiological, and clinical aspects of echinococcosis, a zoonosis of increasing concern. *Clin Microbiol Rev* 2004;17:107-35.
4. Yekeler I, Koçak H, Aydin NE, Başoğlu A, Okur A, Senocak H, *et al.* A case of cardiac hydatid cyst localized in the lungs bilaterally and on anterior wall of right ventricle. *Thorac Cardiovasc Surg* 1993;41:261-3.
5. Lahdhili H, Hachicha S, Ziadi M, Thameur H. Acute pulmonary embolism due to the rupture of a right ventricle hydatid cyst. *Eur J Cardiothorac Surg* 2002;22:462-4.
6. Su L, Yu J, Dai C, Liu Y, Peng L. Echinococcosis in left ventricle: A case report. *Medicine (Baltimore)* 2019;98:e15267.
7. Birincioglu CL, Tarcan O, Bardakci H, Saritaş A, Taşdemir O. Off-pump technique for the treatment of ventricular myocardial echinococcosis. *Ann Thorac Surg* 2003;75:1232-7.