

Right ventricular hydatid cyst ruptured to pericardium

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ABSTRACT

Cardiac hydatidosis is rare presentation of body hydatidosis. Incidence of cardiac involvements range from 5% to 5% of patients with hydatid disease. Most common site of hydatid cyst in heart is interventricular septum and left ventricular free wall. Right ventricular free wall involvement by cyst that ruptured to pericardial cavity is very rare presentation of hydatid cyst. Cardiac involvement may have serious consequences such as rupture to blood steam or pericardial cavity. Both the disease and its surgical treatment carry a high complication rate, including rupture leading to cardiac tamponade, anaphylaxis and also death. In the present report, a 43-year-old man with constrictive pericarditis secondary to a pericardial hydatid cyst is described.

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INTRODUCTION

Watery vesicle disease or hydatidosis is a systemic zoonosis. Involvement of heart occurs in 5–2% of body echinococcosis. The most common sites affected in heart are interred ventricular septum and the left ventricular free wall muscle.^[1] Cysts have also been reported in the right ventricle, right atrium, left atrium, valvar apparatus, aorta, and pericardium.^[2] Pericardial echinococcosis is classified into two types: Primary and secondary. The primary pericardial echinococcosis is occurred as the consequence of blood borne infestation from an artery that supplied the pericardium like pericardiophrenic artery. This type of disease is extremely rare presentation. The secondary pericardial infestation also divided into two types. In type A (secondary involvement), cardiac hydatid cyst perforated in pericardial cavity. In type B (secondary involvement), plural, lung, mediastinal and abdominal, and others neighboring organs affected by

hydatid cyst could be ruptured to pericardial cavity and caused hydatidosis. We report a rare presentation of echinococcosis in a 43-year-old man where a hydatid cyst in right ventricle ruptured into the pericardial cavity.

CASE REPORT

A 43-year-old male residing at sheep-raising province, presented with low grade fever, dyspnea, and chest pain since 18 days. He also complained of difficulty in breathing, 2 days prior to admission. There was no history of cardiac disease or congestive cardiac failure or tuberculosis. The patient had a history of prolonged close contact with sheep and to dogs. On examination, the patient has dyspnea with a heart rate of 96/min, respiratory rate of 20/min without respiratory muscle retractions. His blood pressure was normal. There was no pallor, icterus, and evidence of cardiac tamponade. Organomegaly was not palpable in abdomen. Heart sounds were muffled but there was no murmur. Breath

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sounds were normal. Laboratory exam revealed a hemoglobin of 10 g/dl, total white cell count of 13,000/mm³, serum albumin was 3.2 g/dl and serum globulin 3.7 g/dl. X-ray chest showed a normal cardiothoracic ratio. Ultrasound scan of abdomen showed normal liver parenchyma. Echocardiography showed thick pericardium with mild pericardial effusion and dense fibrin strands and multiple cystic lesions in pericardial cavity [Figures 1-3]. Echocardiography also revealed a large cystic mass in right ventricle attached to interventricular septum [Figure 4]. There was no evidence of tamponade. Heart valves were normal. Computerized tomographic (CT) scan of abdomen showed no hydatid cyst in the liver. The patient scheduled for open cardiac surgery. Median sternotomy was done. Pericardiotomy revealed dense pericardial fibrin strand associated with some vesicles and fragment of ectocyst [Figure 5]. There was a fistula tract from right ventricle's hydatid cyst to pericardium [Figure 6]. After pericardiotomy and dividing fibrin attachment, and removal of daughter cysts, hypertonic saline soaked pad was spread around the pericardium and cyst to minimize the risk of dissemination in case of an accidental spillage of hydatid fluid. Cardio pulmonary bypass with aortic and bicaval cannulation were established and superior vena cava and inferior vena cava were snared. From crater of fistula tract, all content of cyst with ectocyst were removed. The mouth of cyst was left opened to pericardium without capitonage. One mediastinal chest-drainage tube was placed. The cyst was carefully aspirated after injecting 0.5% cetrimide, a scolicial solution and then enucleated. Oral albendazole in a dose of 15 mg/kg/day was given 2 days preoperatively and continued for 4 weeks postoperatively. On follow-up after a month, X-ray chest and echocardiography showed complete resolution of the pericardial and right pleural effusions.

DISCUSSION

Hydatid disease remains endemic in various parts of our provinces.^[3] Due to the close relation between dogs and humans in sheep or cattle raising area, most persons are infected in childhood but become symptomatic in adulthood.^[3] The clinical manifestations of cardiac hydatid disease depend upon the site, size of cyst and became symptomatic when cyst ruptured to blood stream or pericardium. As intra ventricle hydatid

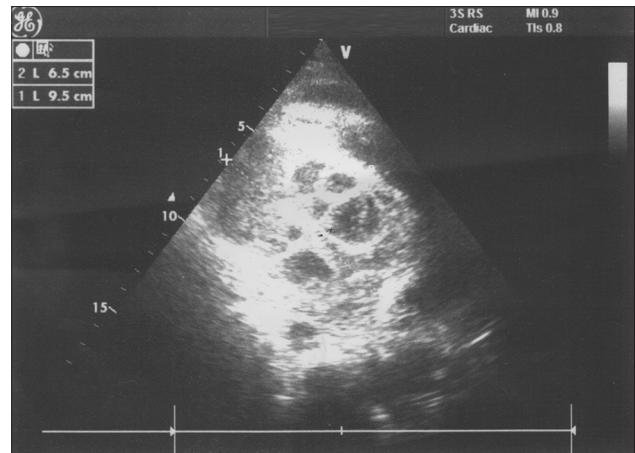


Figure 1: Multiple daughter cysts in pericardial cavity

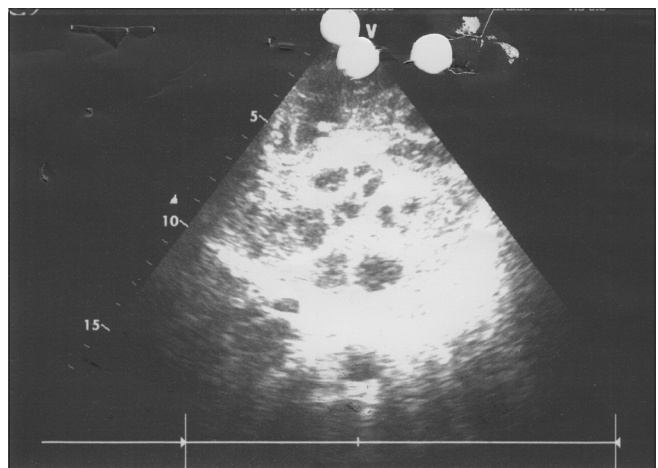


Figure 2: Rupture of cysts with dense fibrin strands in pericardium

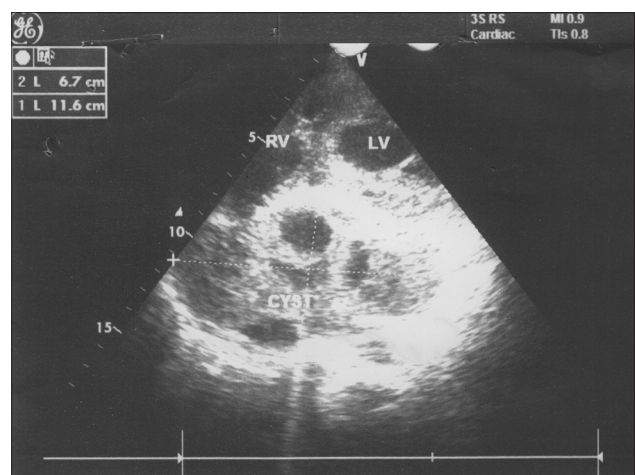


Figure 3: Revealed ruptured right ventricle cyst ruptured to pericardium with multiple daughter cysts

cysts grow, they can rupture into intra cavity and systemic circulation or grow externally and ruptures to

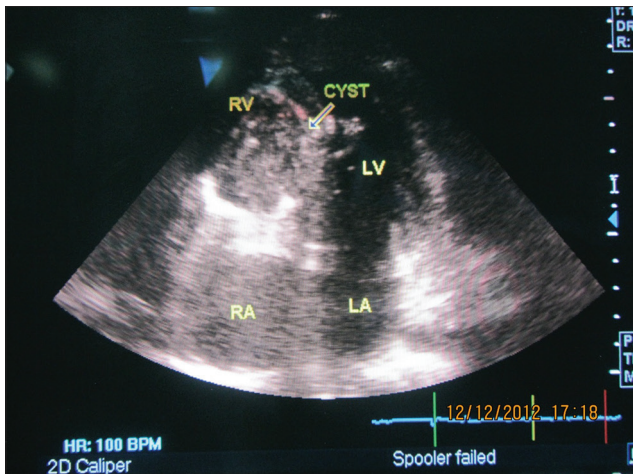


Figure 4: Huge hydatid cyst of right ventricle



Figure 5: Multiple daughter cysts

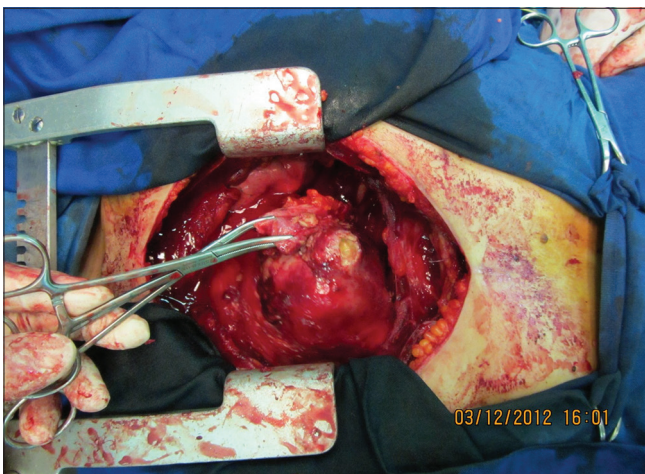


Figure 6: Right ventricle crater of fistula of cyst to pericardium

pericardium.^[4] However, pericardial hydatidosis is rare but careful literature search revealed, few report of a

right ventricle hydatid cyst rupturing into pericardial cavity associated with effusion. In our case, this was documented on echocardiography. Whenever there is rupture of a cyst, an allergic response is evoked due to spillage of antigenic cyst contents in the pericardial cavity. Rupture of a hydatid cyst into the pericardial cavity may give rise to a severe inflammatory reaction and pericardial effusion or gradual leakage lead to dense pericardial fibrin strand attached to surrounding tissues.^[5] The effusion can be massive and cause cardiac tamponade. In our case, since there was no evidence of tamponade. Symptoms of a pericardial cyst related to type of cyst. Primary pericardial hydatid cysts are generally due to the pressure exerted on the myocardium by an enlarging cyst or due to rupture of the cyst. Symptom of secondary involvement of Hypertrophic cardiomyopathy (HCM) in pericardium related to myocardial infestation that revealed by block, arrhythmias, papillary muscle involvement mitral or aortic valve involvement or free rupture to systemic circulation, and its sequels such as emboli, an aphyllaxis, and sudden death.^[6] Rupture of hydatid cysts into the pericardial cavity also may lead to pericarditis with effusion, cardiac tamponade, and formation of secondary cysts.^[6,7] In the present case, the disease manifested with effusion and constrictive pericarditis. The diagnosis of a pericardial hydatid cyst was established by echocardiography. Diagnosis is based on cardiac imaging techniques such as echocardiography, CT scans, magnetic resonance imaging, and serological tests. Echocardiography is the diagnostic tool of choice because it is noninvasive, easily performed, and has a high sensitivity in the determination of intracardiac hydatid cysts and in planning surgical intervention.^[8,9]

CONCLUSIONS

Hydatid cysts can form in a different location in the heart, but extrapulmonary location within the pericardium is very rare. This rarity may cause difficulties in diagnosis, especially in nonendemic area. The precise location of an intra-pericardial cyst is usually confirmed by echocardiography. Total extirpations of the pericardium are combined to cardiac cystotomy and capitonnage. To avoid recurrence, it is necessary to resect the affected tissues completely and postoperatively to place patients on an anthelmintic medical regimen.

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