Thromboembolism: A Rare Complication of Cardiac Hydatidosis

Vijay Trehan, Prasad Shah, Jamal Yusuf, Saibal Mukhopadhyay, Girish M Nair, R Arora
Department of Cardiology, GB Pant Hospital, New Delhi

A cardiac hydatid cyst is rare. We report a case of cardiac hydatid cyst localized in the atria which was diagnosed by two-dimensional echocardiography following a thromboembolic stroke. Surgical resection of the cyst was performed and histopathologic examination confirmed the diagnosis. (Indian Heart J 2002; 54: 199-201)

Key Words: Cardiac hydatidosis, Thromboembolism, Echocardiography

Hydatidosis caused by larval forms of the dog tapeworm Echinococcus granulosus rarely involves the heart. The reported incidence ranges from 0.5% to 2%. We report a case of cardiac hydatidosis associated with intracardiac thrombus formation and systemic thromboembolism that was successfully excised surgically.

Case Report

A 13-year-old boy presented with sudden onset of right-sided hemiparesis. There was no history of preceding fever, headache or head trauma. He was conscious and afebrile. Examination of the cardiovascular system revealed an ejection systolic murmur (grade 3/6) along the left sternal border. The resting electrocardiogram (ECG) showed normal sinus rhythm with left atrial enlargement, a QRS axis of +90° and incomplete right bundle branch block. Chest X-ray showed a dense retrocardiac shadow in the region of the left atrium and a cardiothoracic ratio of 55%. The lung fields were clear. Blood biochemistry results were within normal limits. Three blood cultures taken within one hour were normal. A transthoracic echocardiogram in the parasternal long-axis view showed a large, well defined, round, cystic mass with a central echolucent area and large, echo-dense mass (suggestive of a thrombus or vegetation) on its outer surface that prolapsed during diastole through the mitral orifice into the left ventricle (Fig. 1a). The apical four-chamber and modified parasternal short-axis views showed the cyst extending from the left to the right atrium across the interatrial septum, producing an hour-glass type of narrowing. Daughter cysts were seen within the main large cyst (Fig. 1b). All the valves were normal. No other cysts were seen in the heart. A spiral CT scan of the chest corroborated the echocardiographic findings and showed a thin-walled, bilobed, cystic mass 7×4 cm, predominantly in the right atrium extending across the interatrial septum into the left atrium (Figs. 2a, 2b). There was no evidence of pulmonary involvement. A coronary angiogram showed normal coronary arteries. A CT scan of the head showed an ischemic infarct in the left basal ganglia. There was no evidence of hydatidosis of the central nervous system. A CT scan of the abdomen revealed a 6×5 cm rounded mass in the liver with thin, internal septations. The other abdominal organs were normal. As the indirect haemagglutination test was negative for hydatidosis, the diagnosis was established on the basis of the imaging studies.

The patient was started on albendazole and enucleation of the cardiac cyst was planned. Six weeks later, the patient was taken up for enucleation of the cardiac cyst under cardiopulmonary bypass via a median sternotomy. Care was taken to avoid rupturing the cyst by using an angled-tip venous cannula. On opening the right atrium, a large cyst was seen extending into the left atrium across the interatrial septum (Fig. 3). Hypertonic saline was injected into the cyst to sterilize it. The left atrium was then opened and the cyst completely enucleated. It had a thrombus on its external surface. The interatrial septum was repaired using a pericardial patch.

The postoperative period was uneventful and the patient was discharged on postoperative day 10. A follow-up after 4 weeks, a repeat echocardiogram showed no evidence of an intracardiac cyst and neurological examination showed near-normal power on the right side. Histopathological examination confirmed the diagnosis of hydatid cyst.
Discussion

Hydatidosis in humans (intermediate host) occurs when the eggs of *Echinococcus granulosus* from canine (definitive host) faeces are accidentally swallowed. Onchosphere larvae hatch in the duodenum and are carried to the liver through blood vessels or lymphatics. About 65% are trapped in the liver (first filter); the remaining pass through it. Of these, 25% are trapped in the lungs (second filter) and less than 10% reach various organs through the systemic circulation. Only about 0.5%–2% of hydatid cysts are found in the heart.² The heart is usually involved due to contamination from the systemic, coronary or pulmonary circulations, or direct extension from neighboring structures.² A hydatid cyst of the heart is predominantly found in the following locations: left ventricle (75%), right ventricle (18%) and interventricular septum (7%).³ Cysts in the pericardium, right atrium⁴ and left atrium⁵ are extremely rare and the clinical picture depends on the location, size and integrity of the cysts. The majority of patients with cardiac hydatidosis are asymptomatic. Chest pain is usually the most common complaint, probably due
also been reported. Sudden death may occur, the reported simulating mitral, tricuspid and aortic valvular disease have result of compression by the cyst. Large cystic masses have been reported. Emboli are usually composed of cerebral embolism of ruptured left-sided cysts, secondary hydatid cysts of the central nervous system right-sided chambers cause pulmonary emboli. Multiple chambers cause systemic emboli while rupture into the right atrium. Coronary angiogram helps in excluding coronary involvement, often relation to cardiac and extracardiac structures. Coronary CT scan shows the anatomic extent of the mass and its to daughter cysts and scolices. In rare cases, they may be caused by a thrombus. Our patient had a combination of two rare entities—firstly, localization of the cyst in the atria and secondly, cerebral embolism secondary to a thrombus formed on the surface of the unruptured cyst.

Two-dimensional echocardiography is the best diagnostic procedure for demonstration of cardiac hydatid cysts. On echocardiography, a unilocular cyst with well-defined margins and internal trabeculations corresponding to daughter cysts is diagnostic of an echinococcal cyst. CT scan shows the anatomic extent of the mass and its relation to cardiac and extracardiac structures. Coronary angiogram helps in excluding coronary involvement, often totally missed on echocardiographic examination.

No effective chemotherapy is known against larval infection. It is generally accepted that treatment of cardiac hydatidosis is surgical because of the fear of sudden death. In our patient, because of the high risk of repeat systemic thromboembolism as well as that of rupture, the cyst was surgically removed after sterilizing its contents, with due care taken to avoid spillage.

References