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CARDIAC HYDATID CYST : A CASE REPORT

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All the authors contributed significantly to the research that resulted in the submitted manuscript.

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ABSTRACT

The larval and adult form of Echinococcus granulosus tapeworm causes cystic hydatid disease. Cardiac echinococcosis is a rare but potentially very serious complication of hydatid disease. It is potentially fatal pathology that may cause valvular dysfunction, conduction disturbances or may lead to congestive heart failure, rarely mimics acute coronary syndrome. Cardiac involvement is rare and accounts for 0.5-2% of all hydatid disease and involvement of the interventricular septum is rare.

We report surgical treatment of a large cardiac hydatid cyst in the interventricular septum. In cases of an interventricular cardiac hydatid cyst, the combination of surgical resection, washout of the remaining cavity with hypertonic saline solution, and albendazole therapy typically yields excellent results.

Key Words: Hydatid Disease, Cardiac Hydatid Cyst, Albendazole, Echinococcosis.

INTRODUCTION

Hydatid disease is a zoonosis caused by the larval or adult stage of Echinococcus granulosus. The most common sites of the infection are the liver and the lungs. Cardiac involvement is seen in only 0.5% to 2% of patients with hydatid disease and the interventricular septum is involved in just 4% of cardiac cases.[1,2] Cardiac hydatid cysts can rupture and cause cardiac tamponade, fatal arrhythmias or systemic infection. Although cardiac echinococcus is generally asymptomatic until the cysts grow to a large size, it can present with clinical symptoms and signs of myocardial ischemia.

CASE REPORT

A 44 year old hypertensive and diabetic female patient, presented to us with history of liver hydatid cyst about twenty years ago. She was referred on August 2013 to cardiologist clinic as a case of shortness of breath and chest tightness for the last 3 months. Physical examination was unremarkable as well as revealed nothing unusual and the results of routine laboratory tests. An electrocardiogram showed negative T waves in the inferior leads (II, III, and aVF) as well as in leads V_4 through V_6. A chest radiograph showed a normal

cardiothoracic ratio. Transthoracic echocardiography demonstrated a large cyst in the apical part of the interventricular septum with size around 36 x 30mm however, the patient had normal left ventricular wall motion. Immunofluorescence antibody test was positive for Echinococcus granulosis.

Simple chest X-Ray showed a cystic lesion in pericardial area (Figure1). The cardiac MRI revealed a 5.1x4.7 cm well defined smooth cystic lesion central at interventicular septum protruding into the right ventricle (Figure 2). Coronary angiography revealed normal coronaries.

We decided to excise the hydatid cyst. The patient underwent median sternotomy and was placed on cardiopulmonary bypass with aortic arterial and bicaval venous cannulation. The aorta was cross-clamped. An isothermic, potassium-enriched blood cardioplegic solution was used. Sponges soaked with hypertonic saline solution were distributed throughout the pericardial cavity to prevent local invasion by the parasite.

To avoid damaging the vessels an incision to excise the cyst was given parallel to and on the right side of the left anterior descending coronary artery. We reached the cyst directly through the interventricular septum without opening any adjacent cardiac chambers. We aspirated the entire contents of the cyst, removed its germinative membrane and washed the cavity with 20% hypertonic saline solution and the incision was closed. We took biopsies from whole area, and the histopathology report confirmed the diagnosis of cardiac hydatid cyst.

The postoperative period was uneventful. The patient had begun taking albendazole (400 mg twice daily) 5 days before surgery and continued with this therapy postoperatively for 12 weeks. The patient was discharged on eighth postoperative day. At the routine follow-up examination 2 month postoperatively, revealed no trace of cysts on echocardiography.

DISCUSSION

Hydatid disease (echinococcosis) is caused by larvae of Echinococcus granulosus. Larvae reaches the right side of the heart through thoracic duct and superior venacava then from the right ventricle the embryo passes through the pulmonary capillaries into the left ventricle, from where it can reach any part of the body through the systemic circulation. Some authors have suggested transmigration of embryo through the interatrial and interventricular septum to the left side of the heart. Larvae reach the myocardium through the coronary circulation. Cardiac infestation may be asymptomatic or may present with clinical findings depending upon the size, localization and number of cysts.Hydatid disease of the heart occurs in 0.5 - 2% of all hydatidosis in man. There does not appear to be any age limit at presentation.

Cyst may cause obstruction in the chamber of the heart or

Figure 1

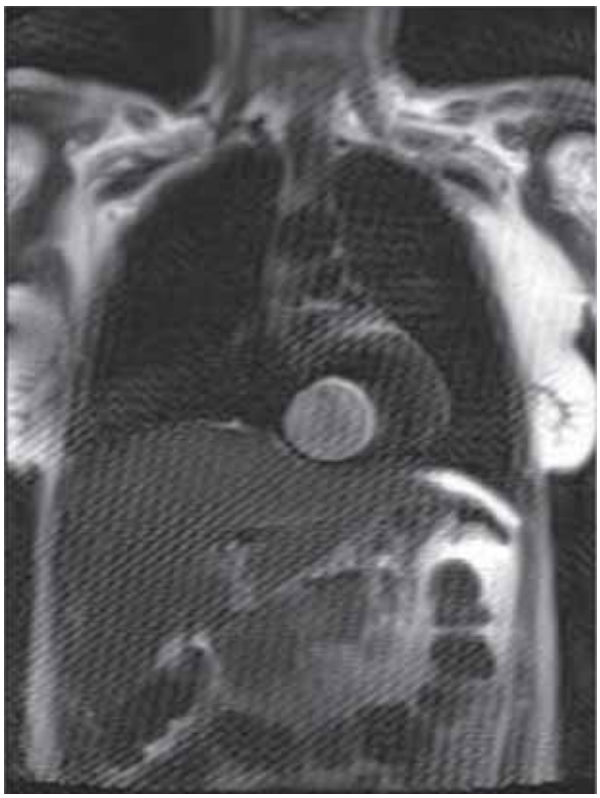
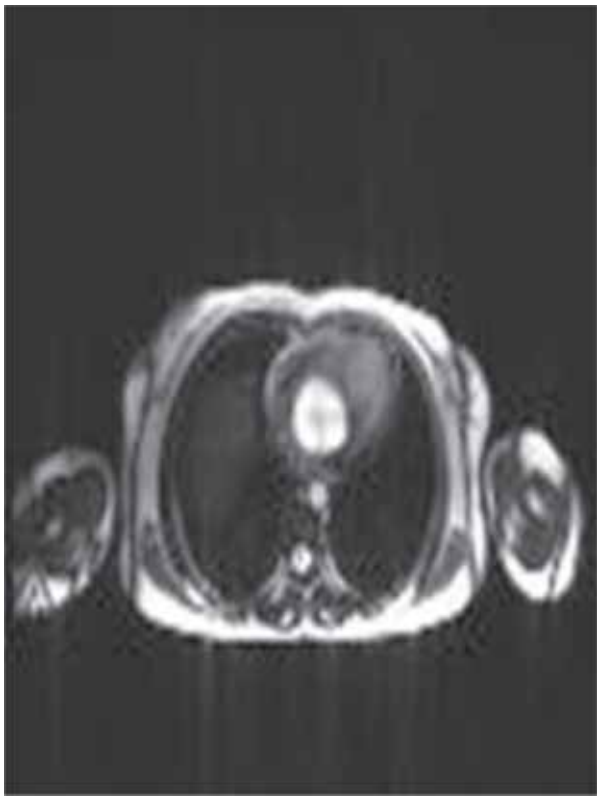


Figure 2



induce conduction disturbance.[3] Rupture of a cardiac cyst may result in anaphylactic shock, pulmonary embolism and systemic metastasis.The cyst may remain asymptomatic and may be discovered incidentally.The left ventricle, the part of the heart that has the most abundant blood supply is involved most frequently (55 - 60%). Hydatid cyst of the left ventricle is usually localised sub-epicardially and rarely ruptures into the pericardial space.

In our patient, the cyst was localised to the interventicular septum and protruding into the right ventricle . Involvement of the inter-ventricular septum is reported in 5 - 9% of the cases.[4] Echocardiography, computerised tomography and magnetic resonance imaging are valuable diagnostic tools. High index of suspicion is necessary to make the diagnosis because of the rarity of the condition. However, intra-operatively the possibility of hydatid cyst was considered and necessary precautions were taken during the excision of the mass.

Surgical removal of the hydatid cyst remains the definitive treatment.[1] Risks at surgery from leakage of fluid include anaphylaxis and dissemination of the infected scolices. The latter complication can be minimised by the instillation of scolicidal solutions like hypertonic saline or ethanol. In our patient, after opening the cyst the whole contents were sucked out and hypertonic saline was instilled into the cyst cavity. After the removal of cyst, the whole pericardial cavity was washed with hypertonic saline. Hypertonic saline does not have any effect on the conduction system of the heart. Percutaneous aspiration has been effective in many cases of hepatic echinococcosis.[5]

Puncture - aspiration of cyst contents -infusion of scolicidal agents and re-aspiration (PAIR) has been used as a percutaneous treatment in the management of cystic echinococcosis of the liver , peritoneum, spleen , kidneys and muscle.[6] PAIR is contraindicated for superficially located cysts, for cysts with multiple thick internal septae and for cysts communicating with the biliary tree. To the best of our knowledge, PAIR has not been used for cardiac echinococcosis.Albendazole therapy (400 mg twice daily) is typically prescribed for at least 4 days preoperatively and for 4 to 12 weeks postoperatively.[7]

CONCLUSION

Although cardiac hydatid cysts can be fatal, they are rare and often asymptomatic in their early stages. Therefore, clinical suspicion is important for a correct diagnosis. Patients who have cardiac echinococcosis can present with a variety of clinical manifestations including typical angina pectoris. Cardiac hydatid cyst should be considered, particularly in endemic regions, in the differential diagnosis of patients with chest pain, even for those who do not have a history of hydatid disease. Furthermore, it should be noted that negative serology is found in up to 50% of cardiac locations. Echocardiography, CT, and MRI are useful in the diagnosis and location of cardiac hydatid cysts. Combined surgical resection of an interventricular cardiac hydatid cyst, washout of the remaining cavity with hypertonic saline solution, and concurrent albendazole therapy typically yield excellent results.

REFERENCES

1. Pakis I, Akyildiz EU, Karayel F, Turan AA, Senel B, Ozbay M, et al. Sudden death due to an unrecognized cardiac hydatid cyst: three medicolegal autopsy cases. J Forensic Sci 2006;51:400-2.
2. Dursun M, Terzibasioglu E, Yilmaz R, Cekrezi B, Olgar S, Nisli K, et al. Cardiac hydatid disease: CT and MRI findings. AJR Am J Roentgenol 2008;190:226-32.
3. Agarwal DK, Agarwal R, Barthwal SP. Interventricular septal hydatid cyst presenting as complete heart block. Heart 1996;75:266.
4. Kulan K, Tuncer C, Kulan C, Serce K, Goldeli O, Irhan S, et al. Hydatid cyst of the interventricular septum and contribuion of magnetic resonance imaging. Acta Cardiol 1995;50:477-81.
5. Khuroo MS, Wani NA, Janil G, Kham BA, Yatto GN, Shah AH, et al. Percutaneous drainage compared with surgery for hepatic hydatid cysts. New Eng J Med 1997;337:881-7.
6. Gargouri M, Ben Amor N, Ben Chehida F, Hammou A, Gharbi HA, Ben Cheikh M, et al. Percutaneous treatment of hydatid cysts. (Echinococcus granulosis). Cardiovasc Intervent Radiol 1990;13:169-73.
7. Umesan CV, Kurian VM, Verghese S, Sivaraman A, Cherian KM. Hydatid cyst of the left ventricle of the heart. Indian J Med Microbiol 2003;21:139-4.