

Myocardial Hydatid Cyst : An Uncommon Complication of Echinococcal Infection

F Abtahi, Y Mahmoodi

Cardiovascular Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

A 27 –years-old man presented with malaise, fatigue and atypical chest pain. Transthoracic echocardiography was performed and revealed a single large and well defined intra-myocardial cystic mass in the inter-ventricular septum. The cystic mass was thin-walled and contained some small daughter cyst. Although the echocardiographic diagnosis was straightforward, serologic test (Hydatid cyst antibody) with Eliza was performed which was positive for echinococcal infection. Other works up showed no involvement of other organ system. Albendazol was started for him and he referred to cardiac surgeon for resection of cystic mass but the patient refuse for operation.

Introduction

Echinococcus is an infection caused in human by the larval stage of echinococcus granulosus, *E. Multilocularis*, or *E. Vogeli*. Slowly enlarging echinococcal cyst generally remains asymptomatic until their expanding size or their space occupying effect in an involved organ elicits symptoms. The most pathogonomic finding, if demonstrable is that of daughter cyst within the larger cyst. A specific diagnosis of *E. Granulosus* infection can be made by the examination of aspiration fluid for protoscolices, but this is not recommended. Serodiagnostic assays can be useful, although a negative test doses not exclude the diagnosis of echinococcosis. Detection of antibody to specific echinococcal antigen by immunoblotting has the highest degree of specificity. The liver and the lungs are the most common sites of these cysts. Cardiac hydatid cysts are found

in fewer than 2% of cases of hydatidosis. In 50% of such cardiac cases, there is multiple organ involvement.¹ Hydatid cyst of the heart is uncommon and usually develops in the left ventricle. Diagnosis should be considered in patients coming from an endemic area and who present with an abnormal heart shadow on chest x-ray. The cyst tends to grow and thus compress the neighboring myocardium. It causes displacement of the coronary vessels, rhythm disturbances and mechanical interference with the AV valves and ventricular function.² Echocardiography is the imaging method of choice for studying cardiac hydatidosis. Therapy for cardiac echinococcosis is based on consideration of the size, location, and manifestations of cysts and the overall health of the patient. Surgery has traditionally been the principal definitive method of treatment. Albendazol, which is active against echinococcus, should be administered adjunctively, beginning several days before resection and continued for several weeks.

Correspondence:

Y Mahmoodi

Cardiovascular Research Center, Shahid Faghihi Hospital, Zand Blvd., Shiraz, Iran.

Tel/Fax: +98-711-2343529 E-mail: Mahmoodi_6@yahoo.com

Case report

A 27-years-old afghan man, presented with nonspecific symptoms including malaise, fatigue and atypical chest pain. The patient referred to cardiology clinic, where EKG was found to be normal. Transthoracic echocar-

diography revealed a single, large, well-defined intramyocardial cystic mass in the interventricular septum (Fig. 1). The cystic mass was thin-walled and contained some small daughter cysts (Fig. 2). It projected into the LV cavity and color doppler imaging confirmed the lack of

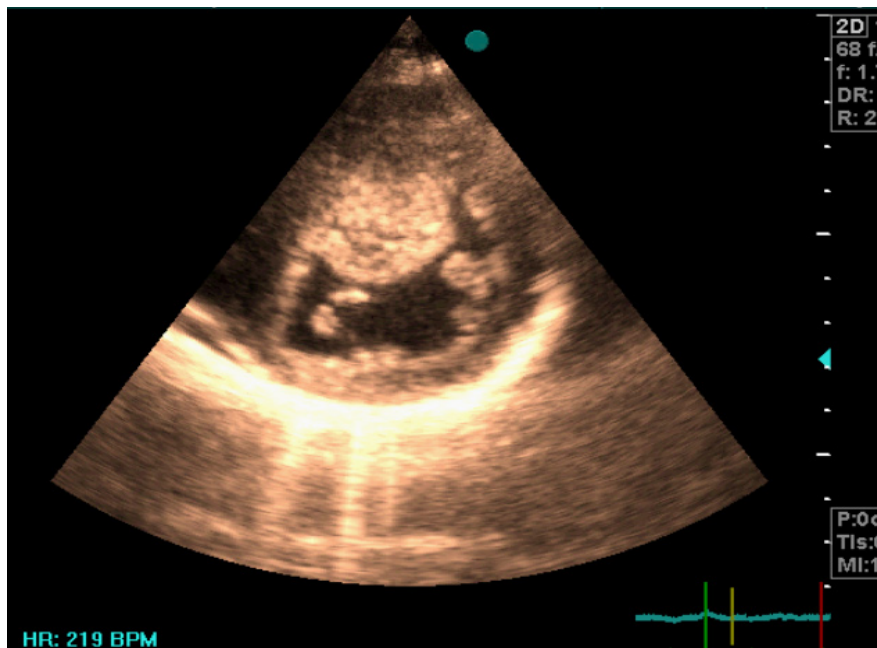


Figure 1. Transthoracic echocardiography in parasternal short axis view shows hydatid cyst in the interventricular septum.

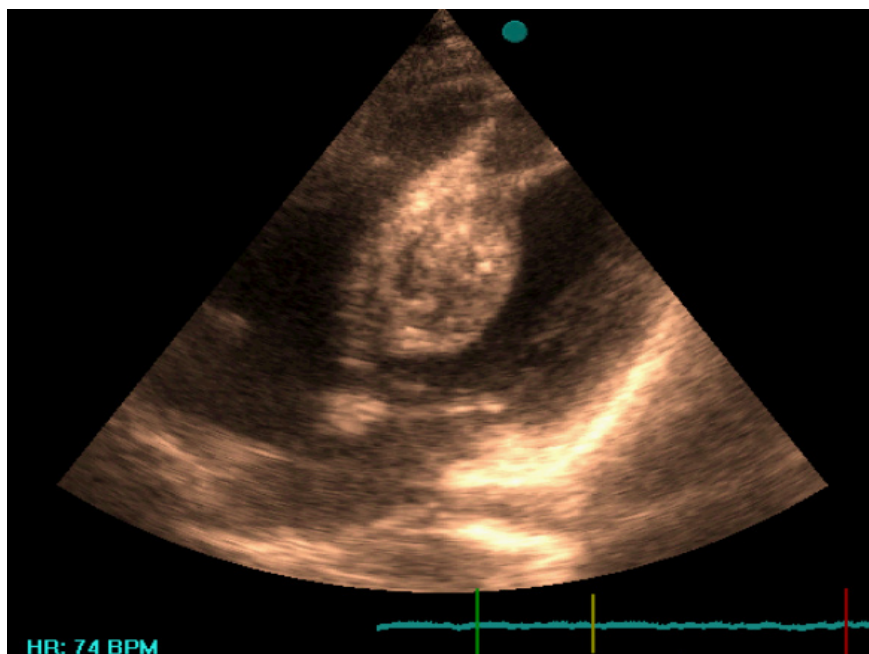


Figure 2. Transthoracic echocardiography in apical four chamber view shows hydatid cyst in the interventricular septum that contained some small daughter cysts

blood flow within the cystic space. LV function was acceptable and there was no evidence of flow obstruction (Fig. 3). Although the echocardiographic diagnosis was straightforward, serologic test using Eliza for detection of antibody to hydatid cyst was positive for echinococcal infection. Further studies showed no involvement of other organ systems. Albendazol was administered and the patient was referred to cardiac surgeon for resection of cystic mass but the patient refused the operation.

Discussion

Cardiac echinococcosis is scarcely encountered with a frequency of 0.01% to 2%.³ Because contractions of the heart provide a natural resistance to the presence of viable hydatid cyst, primary echinococcosis of the heart is a rare event.⁴ Although any part of the heart may be affected, the most common location is the free wall of left ventricle (50-77%)⁵ or interventricular septal wall⁶ followed by atria

and intracavity area.⁷ The disease can remain asymptomatic (90%) but may incidentally result in heart failure, cardiac tamponade, pulmonary embolism, stroke, atrioventricular block, paroxysmal supraventricular tachycardia, mitral regurgitation, pericardial effusion, coronary artery disease, anaphylaxis and death. Diagnosis of cardiac hydatid cyst is easy with typical cystic appearance in echocardiography; however, it may rarely be difficult to distinguish it from myxoma.^{8,9}

Transthoracic echocardiography showing the cyst with echonegative contents and smooth contours is the most efficient method of diagnosing the hydatid cyst.¹⁰ Other diagnostic steps to be taken subsequently include CT scan and MRI and performance of serologic tests. Because of the localization in myocardium, pericardium and life threatening complication, aggressive treatment is deemed necessary. Early excision with standby cardiopulmonary bypass is advisable with Albendazol to be administered as an anti-*echinococcus* medication.

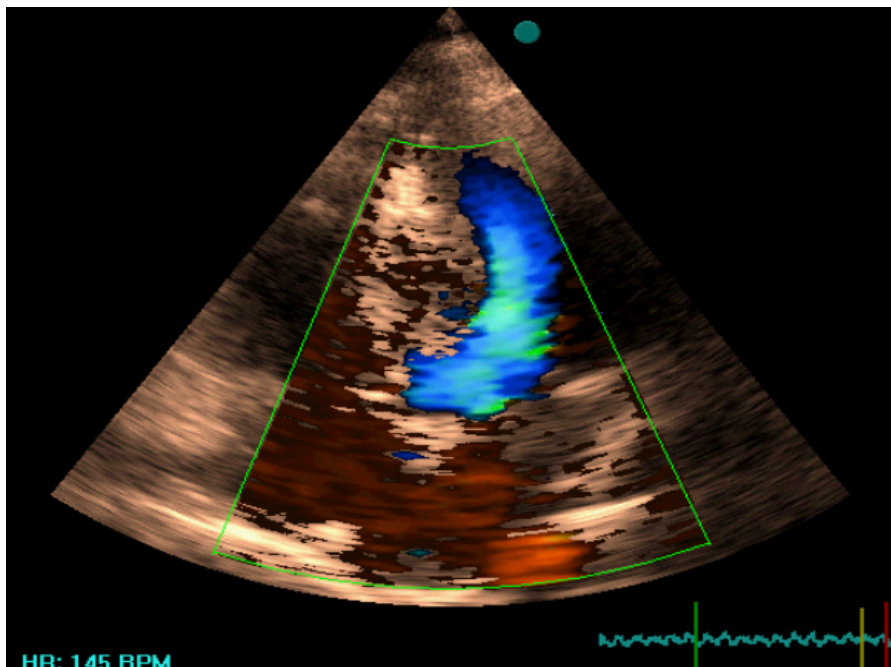


Figure 3. Color Doppler imaging of transthoracic echocardiography demonstrated the lack of blood flow within cystic space and no flow obstruction.

Acknowledgements

This work was financially supported by Vice Chancellor for Research of Shiraz University

of Medical Sciences. The authors declare that they have no Conflicts of Interest.

References

- 1 Bayazid O, Ocal A, Isik O, et al. A case of cardiac hydatid cyst localized on the interventricular septum and causing pulmonary emboli. *J Cardiovasc Surg (Torino)* 1991;**32**:324-6. [2055928]
- 2 Gula G, Luisi VS, Machado F, et al. Hydatid cyst of the heart, clinical and surgical implications. *Thorac Cardiovasc Surg* 1979;**27**:393-6. [542947]
- 3 Maffei GR, Petrucci O, Carandina R, et al. Cardiac echinococcosis. *Circulation* 2000;**101**:1352-4. [10725298]
- 4 Kabbani SS, Jokhadar M, Sundouk A, et al. Surgical management of cardiac echinococcosis, report of four cases. *J Cardiovasc Surg (Torino)* 1992;**33**:505-10. [1527160]
- 5 Beshlyaga VM, Demyanchuk VB, Glagola MD, et al. Echinococcus cyst of left ventricle in 10 year old patient. *Eur J Cardiothorac Surg* 2002;**21**:87. [11788266]
- 6 Ugurlucan M, Sayin OA, Surmen B, et al. Images in cardiovascular medicine, Hydatid cyst of the interventricular septum. *Circulation* 2006;**113**:869-70. [16785345]
- 7 Tandon S, Darbari A. Hydatid cyst of the right atrium: a rare presentation. *Asian Cardiovasc Thorac Ann* 2006;**14**:e43-4. [16714680]
- 8 Jeridi G, Boughzala E, Hajri S, et al. Complicated hydatid cyst of the right atrium simulating myxoma of the tricuspid valve. *Ann Cardiol Angeiol (Paris)* 1997;**46**:159-62. [9183397]
- 9 Bolourian AA. Cardiac echinococcosis presenting as myxoma, report of very rare case. *Cardiovasc Surg* 1997;**5**:62-3.
- 10 Oliver JM, Sotillo JF, Dominguez FJ, et al. Two dimensional echocardiography features of echinococcosis of the heart and great blood vessel, Clinical and surgical implications. *Circulation* 1988;**78**:327-7. [3396169]