



Hydatid Cyst in a 10-Year-Old Boy: An Unusual Location

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Abstract

Hydatid disease, caused by *echinococcus granulosus*, is a common infectious disease in endemic areas such as Southern Europe and the Middle East. The incidence of this disease, however, is on the increase in Northern Europe due to the migration of labor and also tourism. We report a case of the hydatid cyst of the mediastinum, the diagnosis of which was established by the hemagglutinin test and echocardiography and confirmed by histological examinations. The cyst was totally removed during surgery on beating heart. The patient presented herein demonstrates that the mediastinal and cardiac involvement in hydatid disease could manifest in children with fast growth and rupture.

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Introduction

Hydatid disease, caused by *echinococcus granulosus*, is a common infectious disease in endemic areas such as Southern Europe and the Middle East. Labor migration and tourism in recent years, however, have resulted in an increase in the incidence of this disease in Northern Europe as well. Hydatid disease usually involves the lung and liver; nevertheless in only 0.5 to 2% of cases of echinococcosis, the involvement of the heart occurs¹⁻³ and in about half of cases it is not accompanied by the involvement of any other organs.⁴

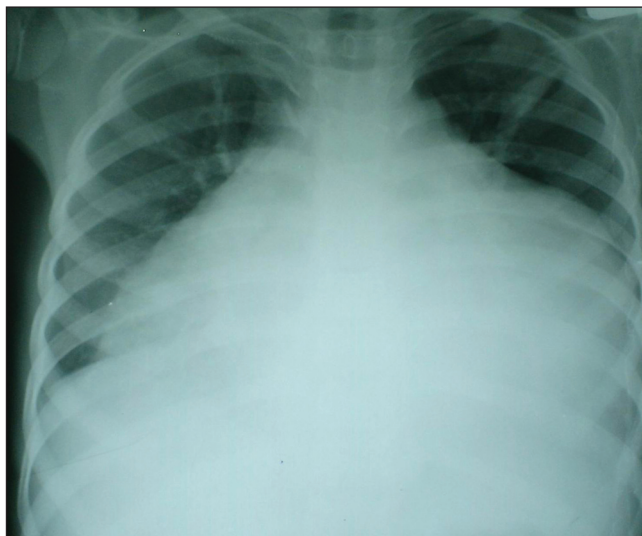
The mediastinal and pericardial involvement in hydatid cysts, especially solitary ones, is reported mainly in middle-aged or old patients,^{5,6} which may be in consequence of the very slow growth of the pericardial or mediastinal cyst.⁷ Hydatid cysts have higher growth rates in children; be that as it may, the huge pericardial cyst in our report is quite rare inasmuch as it developed over a relatively short period of time.

Here we report an unusual presentation of a hydatid cyst in the mediastinum of a 10-year-old boy.

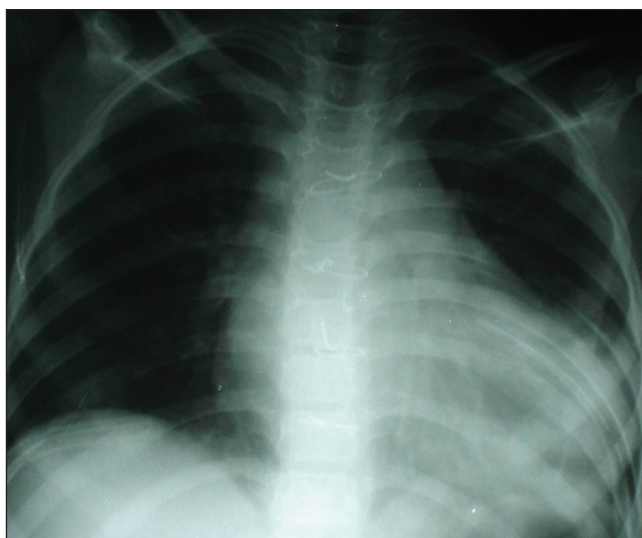
Case report

A 10-year-old boy, complaining of malaise, early fatigue, anorexia, and occasional coughs, was referred to the pediatric heart clinic of Shaheed Modarres Hospital. In his physical examination, heart sounds were muffled and crackles could be heard in the upper lobe of the left lung. Laboratory data revealed mild leukocytosis (13100/mm³) with dominant polymorphonuclears, mildly positive C-reactive protein, and a high erythrocyte sedimentation rate (40 mm). Chest radiography showed an increased cardio-thoracic ratio (Figure 1), and reduced QRS amplitude was found on electrocardiography. Because of abnormal findings in cardiac physical examination, transthoracic echocardiography was performed, which showed massive pericardial effusion, fibrin formation in the pericardium, and a large (5×5 cm) cyst in the pericardium cavity (Figure 2). Abdominal ultrasound study as well as brain and chest CT scans showed no more abnormal findings. Additionally, the hem-agglutinin test for hydatid disease was positive.

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A



B

Figure 1. Chest roentgenogram before (A) and after (B) surgical removal of pericardial cyst

The patient underwent surgery through a mid-sternotomy approach on beating heart. During the operation, it was discovered that the cyst was an extra-pericardial mediastinal cyst containing one daughter cyst surrounding the heart with its wall unified with the visceral pericardium. Before being enucleated, the cyst was punctured to remove the light-colored liquid and was subsequently sterilized with hypertonic saline, iodine, and alcohol solutions.

Histological study of the removed tissue showed chronic pericarditis with foreign body reaction and a laminated layer of the hydatid cyst.

The patient was discharged from hospital with albendazole. On follow-up, echocardiography and chest CT scan were performed, which were indicative of no recurrent or residual hydatid cyst.

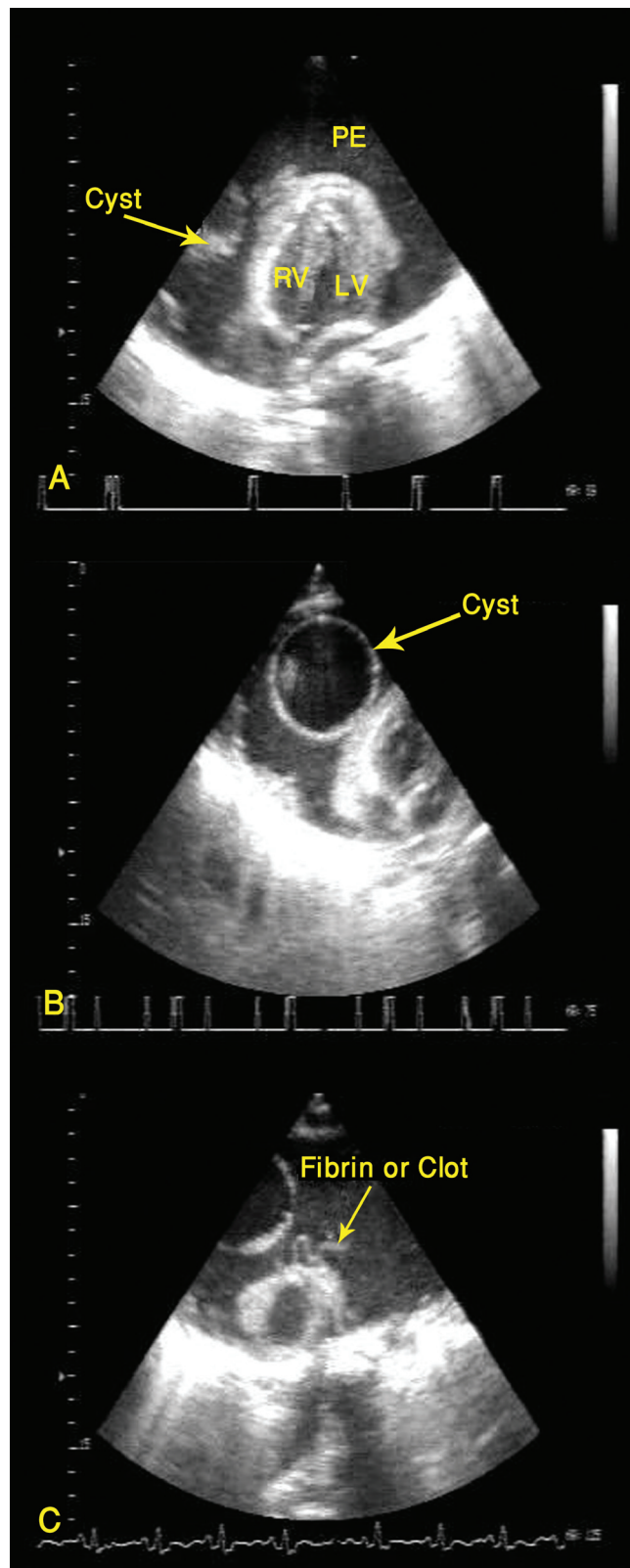


Figure 2. Cardiac echocardiography showing large pericardial effusion (A), a large hydatid cyst (B) and its effect on pericardia (C) PE, Pleural effusion; RV, Right ventricle; LV, Left ventricle



Discussion

The case presented herein was a large extra-pericardial mediastinal hydatid cyst containing a daughter cyst, pyo-necrotic masses, and fibrin filaments. This case is worthy of note from different perspectives. Cardiopericardial hydatid disease is an infrequent condition per se. In 1978, the total number of cases in the world was estimated at 400;² and although it is extremely difficult to come up with the exact number of cases since that date, it can be stated beyond doubt that only a few cases have been reported in the existing literature. Amongst these, the mediastinal involvement is rarer and most cardiac hydatid cysts are located in the interventricular septum or left ventricular wall.⁵⁻⁸ Furthermore, the mediastinal and pericardial involvement in hydatid cysts, not least solitary ones, is reported predominantly in middle-aged or old patients and there are very few reports of cardiac hydatid disease in children.⁹ It is believed that pericardial or mediastinal cyst growth is very slow. Admittedly, hydatid cysts have higher growth rates in children; nonetheless, the fact that our 10-year-old patient's huge pericardial cyst had developed over a relatively short time period renders the case very interesting. On the other hand, the formation of daughter cysts in the epicardium and pericardium is rare in hydatid disease. This high growth rate may result in the rupture of the cyst, which is a serious complication, especially in multiple cysts that may occur in asymptomatic cases.¹⁰ This may be more important given the fact that the diagnosis is difficult in symptomatic patients because of a long period between parasitic infection and the manifestation of the disease.^{1,8} Therefore, diagnosis should be suspected in every case of cyst-like mass in persons coming from areas where echinococcus granulosus is endemic.⁷ Echocardiography, computed tomography, and magnetic resonance imaging can help in the differential diagnosis of the lesion;¹¹ however, the diagnosis of cardiac hydatid cysts is often made using transthoracic echocardiography and transesophageal echocardiography, which provide more details of the cysts.⁶

Although some cases of successful therapy with benzimidazoles have been reported,⁵ the treatment of choice for cardiac hydatid disease is the surgical excision of the cyst.⁴ The mortality rate is 5.5% for surgical treatment and mainly is due to septic shock, rupture of the cyst, anaphylactic reactions, and pulmonary hydatid embolism.^{2,9,10} On account of the fact that our patient had only an extra-pericardial, not intra-cardiac, cyst, we opted for surgical treatment using cystectomy on beating heart instead of utilizing extra-corporeal circulation.

Conclusion

The case presented herein demonstrates that the

mediastinal and cardiac involvement in hydatid disease could manifest in children with fast growth and rupture.

References

1. Mrad Dali K, Tlili K, Ly M, Romdhani N, Bakir D, Gharbi H, Ennabli K, Jeddi M. Radioclinical profile of cardiopericardial hydatid: report of 17 cases. *Ann Cardiol Angeiol* 2000;49: 414-422.
2. Thameur H, Abdelmoula S, Chenik S, Bey M, Ziadi M, Mestiri T, Mechmeche R, Chaouch H. Cardiopericardial hydatid cysts. *World J Surg* 2001;25:58-67.
3. Rein R, Niggemann B, Runge M. Echinococcosis of the heart. *Herz* 1996;21:192-197.
4. Djoshibaev S, Kudaiberdiev T, Maralov A, Shabraliev S, Djooshev K, Halikov UM, Yankovskaya L. Surgical treatment of isolated cardiac echinococcosis: report of five cases. *Anadolu Kardiyol Derg* 2003;3:137-143.
5. Guven A, Sokmen G, Yuksel M, Kokoglu OF, Koksall N, Cetinkaya A. A case of asymptomatic cardiopericardial hydatid cyst. *Jpn Heart J* 2004;45:541-545.
6. Jerbi S, Kortas C, Dammak S, Hamida N, Aly F, Mlika S, Romdhani N, Limayem F, Ennabli K. Cardio-pericardial hydatid cyst. Report of 19 cases. *Tunis Med* 2004;82:152-157.
7. Rena O, Garavoglia M, Francini M, Bellora P, Oliaro A, Casadio C. Solitary pericardial hydatid cyst. *J Cardiovasc Surg* 2004;45: 77-80.
8. Barbetseas J, Lambrou S, Aggeli C, Vyssoulis G, Frogoudaki A, Tsiamis E, Stefanadis C. Cardiac hydatid cysts: echocardiographic findings. *J Clin Ultrasound* 2005;33:201-205.
9. Onursal E, Elmaci TT, Tireli E, Dindar A, Atilgan D, Ozcan M. Surgical treatment of cardiac echinococcosis: report of eight cases. *Surg Today* 2001;31:325-330.
10. Kudaiberdiev T, Djoshibaev S, Yankovskaya L, Djumanazarov A. Multiple hydatid cysts of epicardium and pericardium. *Int J Cardiol* 2001;81:265-267.
11. Sakarya ME, Irmak H, Etlik O, Evirgen O, Temizoz O, Sakarya N. MR findings in pericardial hydatid cyst. *Tohoku J Exp Med* 2003;199:181-185.

