

THE REMOVAL OF A CARDIAC HYDATID CYST WITHOUT EXTRACORPOREAL CIRCULATION

Mert YILMAZ, M.D., Tanju ÖZKAN*, M.D., Işık ŞENKAYA, M.D.,
Hakan ÖNOL, M.D., Hayati ÖZKAN, M.D.

Uludağ University, Faculty of Medicine, Departments of Cardiothoracic & Vascular Surgery and Paediatrics*, Bursa, Turkey
Gazi Medical Journal 6 : 173-176, 1995

SUMMARY : *We report cardiac and pulmonary hydatid cysts in a four-year-old female child diagnosed on routine chest X-Ray and confirmed by computerised tomography and two dimensional echocardiography. Surgical removal was carried out without extracorporeal circulation. The postoperative course was uneventful, and the patient was doing well 30 months after discharge.*

Key Words : *Cardiac, Hydatid Cyst, Child.*

INTRODUCTION

Cardiac localization of hydatid cyst is uncommon and often latent. The incidence ranges between 0.5 and 3 percent of all cases of human hydatidosis (6). The first well-documented case of cardiac hydatidosis was reported in 1836 (11). Shakibi and associates (13), reviewed the world literature in 1977, and reported 135 cases over seven years of age, treated by surgery.

We report here cardiac and pulmonary hydatid cysts in a four-year-old girl, which were removed from a beating heart via left thoracotomy without extracorporeal circulation.

CASE REPORT

A four-year-old girl was admitted to hospital with a history of two rounded opacities found on the routine chest x-ray taken for preoperative control of a plastic surgical operation. Physical examination revealed normal vital signs, and the lungs were clear on auscultation. Abdominal examination was nor-

mal. Laboratory tests included a white blood count of $13.000 / \text{mm}^3$, and a normal erythrocyte sedimentation rate of 5 mm in the first hour. The indirect haemagglutination test for hydatidosis was negative. Chest X-ray revealed a rounded opacity in the left lung (Fig. 1). Electrocardiogram revealed inverted T waves in all precordial leads. Echocardiography showed a large cystic epicardial mass at the apex of the heart, and the myocardium underlying the cyst was thick. CT of the chest confirmed the presence of two rounded masses in the left thoracic cavity (Fig. 2). One was in the left upper lobe of the lung and the other in the cardiac apex. There was no liver or other organ involvement on the CT of the abdomen. The patient underwent an elective operation via left anterolateral thoracotomy. A large pulmonary hydatid cyst found in the apicoposterior segment of the left upper lobe, was enucleated intact.

Following pericardiotomy, a cyst 2x2 cm. was found at the apex of the heart (Fig. 3A). It was decided to remove the cyst without the use of extracor-

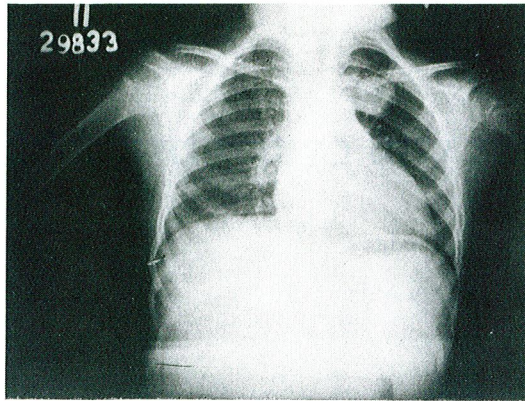


Fig - 1 : Chest X-ray showing pulmonary cyst.

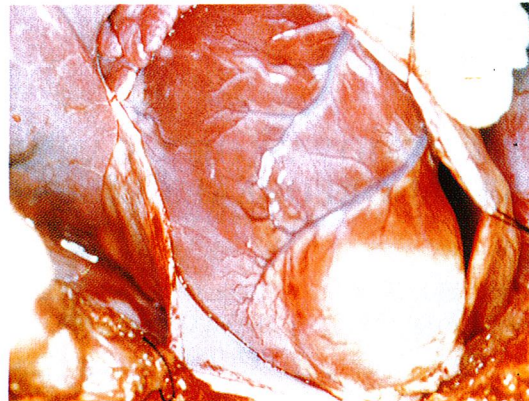


Fig - 3A : Cystic mass at the epicardium of the apex.

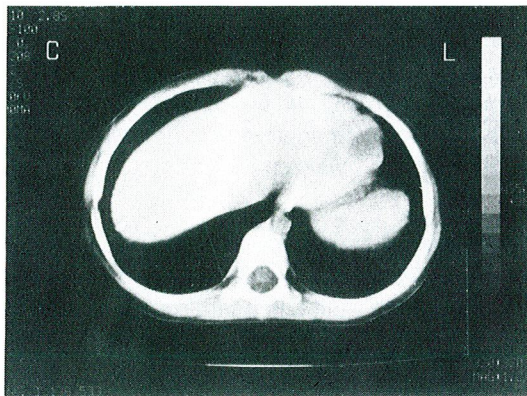


Fig - 2 : Computerized tomography of the chest showing a cardiac cyst in the cardiac apex.



Fig - 3B : The cystic cavity was closed with 3-0 pledgetted polypropylene mattress sutures.

poreal circulation; nevertheless the heart lung machine was kept on standby. The area surrounding the cyst was packed with soaked pads 30 % soaked with dextrose in water. The cyst contents were aspirated through a purse-string. Suture placed in the epicardium over the cyst. Thirty percent dextrose in water was injected into the cyst to sterilize the cyst scolices. The epicardium was incised and the germinal membrane enucleated from the cyst cavity three minutes after injecting the sterilizing solution (Fig. 4). The cyst cavity in the myocardium was closed with 3-0 pledgetted polypropylene mattress sutures (Fig. 3B).

The final histopathology report revealed "Cyst wall composed of multilayered hyalinized and cellular tissue, lined with germinal epithelium on one side".

The postoperative course was uneventful. Prophylactic medical therapy (such as Mebendazole or Albendazole) was not administered. Thirty months later, the patient was asymptomatic and without evidence of recurrence and computerized tomography of the chest and abdomen were normal.

DISCUSSION

Cardiac echinococcosis, like other forms of hydatid disease, can occur at any age, and has no

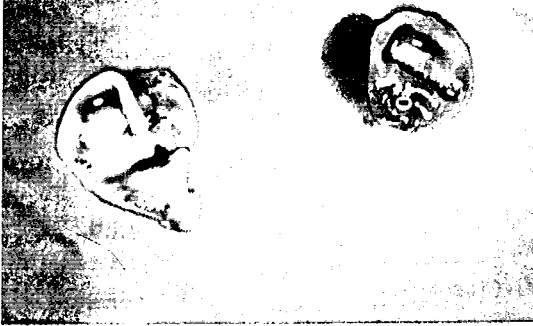


Fig - 4 : Germinal membrane of the hydatid cyst.

sex predilection. Hydatid cyst of the heart is found in young adults and middle-aged patients; however, this is not necessarily so, on the basis of reports of patients three to thirteen years of age (1, 3, 4, 9).

Cardiac hydatid cysts may be located in the endocardium, myocardium, or epicardium. The clinical picture of cardiac echinococcosis is determined by the location of the cyst and its degree of interference with normal function (8).

Over the last decade substantial improvement has been made in the diagnosis and management of hydatid disease. 2 D ECHO and CT have been reported as the best noninvasive diagnostic methods as carried out in our case (5, 10).

In this case, the indirect haemagglutination test for hydatidosis was negative, pre-and postoperatively. Bombardieri and associates (2) reported that the indirect haemagglutination test has 71 % sensitivity for hydatidosis. Saidi (12) recommended that since hydatid cysts are space-occupying lesions and must be approached surgically, negative or positive serological tests must neither inhibit nor encourage surgeons to undertake the operation. Some authors recommend that all patients should be discharged on medical therapy as prophylaxis against cyst recurrence although we advocate such medication only for recurrent unresectable or inoperable cysts. Surgery is still the best treatment for cardiac hydatid cysts, and most surgeons agree that this procedure should be done using cardiopulmonary by-pass (3). Heilburn (7); however, suggested that epicardial cysts can be removed without extra-

corporeal techniques.

CONCLUSION

It is suggested that endocardial and myocardial hydatid cysts should be removed using extracorporeal circulation; but if the cyst is epicardial, and the myocardium underlying the cyst is thick enough, we believe the cyst can be removed without extracorporeal circulation by an experienced surgeon. However, a pump-oxygenator must be on standby during this procedure.

Acknowledgement : We thank Feridun GÖKIRMAK, M.D., Professor of Microbiology, Department of Microbiology, Uludağ University Görükle, Bursa, Turkey, for his guidance.

Correspondence to : Dr.Mert YILMAZ
Uludağ Üniversitesi Tıp Fakültesi
Kardiyovasküler Cerrahi
Anabilim Dalı
16059 BURSA - TÜRKİYE
Phone : 224 - 442 84 00

REFERENCES

1. AlNaaman YD, Al-Omeri MM : Cardiopericardial echinococcosis causing myocardial insufficiency right sided heart failure and constrictive pericarditis : report of four cases and review of the literature. J Cardiovasc Surg (Torino) 1970; 11 : 303.
2. Bombardieri et al : An evaluation of an agar gel diffusion test with crude and purified antigens in the diagnosis of hydatid disease. Bull WHO 1974; 51 : 525-530.
3. Di Bello R, Sadi I, Esteves S : Abdominal precordial pulsation in cardiac echinococcosis. J Thorac Cardiovasc Surg 1967; 53 : 366.
4. Di Bello R, Abo JC, Borges UL : Hydatid constrictive pericarditis. J Thorac Cardiovasc Surg 1969; 59 : 530.
5. Farrooki QZ, Adelman S, Green EW : Echocardiographic differentiation of a cystic and a solid tumor of the heart. Am J Cardiol 1977; 39 : 107-111.

6. Giannaria O, Massimo V, Ruggero DP, Alberto V : Restoration of atrioventricular conduction after surgical removal of a hydatid cyst of the interventricular septum. *J Thorac Cardiovasc Surg* 1987; 93 : 144-147.
7. Heilburn NA, Kittle CF, Dunn M : Surgical management of echinococcal cysts of the heart and pericardium. *Circulation* 1963; 27 : 219-228.
8. Kabbani S, Jakhodar M, Sandouk A, et al : Surgical management of cardiac echinococcosis : report of four cases. *J Thorac Cardiovas Surg* 1992; 33 : 505-510.
9. Karageorgis B, Papanicolis I : Some remarks on two personal cases of cardiac echinococcosis. *Dis Chest* 1967; 51 : 199.
10. Malouf J, Saksouk FA, Alam S, Rizk GK, Dagher I : Hydatid cyst of the heart : diagnosis by two dimensional echocardiography and computed tomography. *Am Heart* 1985; 109 : 605-607.
11. Murphy TE, Kean BH, Venturini A, Littlehei CW : Echinococcus cyst of the left ventricle : report of a case with review of the pertinent literature. *J Thorac Cardiovasc Surg* 1971; 61 : 443-449.
12. Saidi F : *Surgery of Hydatid disease*. Philadelphia, WB Saunders 1976; 39.
13. Shakibi JG, Sa'avian MH, Azar H, Siassi B : Surgical treatment of echinococcal cyst of the heart : report of two cases and review of the world literature. *J Thorac Cardiovasc Surg* 1977; 74 : 941-946.