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Incidentally Detected Cardiac Cyst Hydatid after Blunt Thoracic Trauma

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Cardiac involvement in hydatid disease is more seldom than the involvement of the liver and the lungs. Cardiac cyst hydatid disease is diagnosed incidentally or by means of symptoms such as dyspnea and angina pectoris. Here, we present the case of a 45-year-old male patient who underwent open heart surgery for a randomly detected cardiac cyst hydatid during investigations carried out in a healthcare institution after accidentally falling from height. On the other hand, this patient did not have any complaints associated with hydatid disease before this event.

Key words: 1. Cysts
2. Hydatid
3. Cardiac

CASE REPORT

A 45-year-old male patient was admitted to an outpatient clinic with blunt thoracic trauma after falling from height (work-related accident) and was referred to Kocaeli University Faculty of Medicine after the detection of ischemia on his electrocardiogram. In the physical examination, the vital signs were stable, but pain and tenderness was detected on his ribs in the thoracal examination. The other systems were found to be normal upon examination. However, it was worth noting the patient had a history of hypertension.

A T inversion was detected in D1, aVL, and V3, V4, V5, V6 derivations in the electrocardiogram (ECG). There was no pathology in the chest radiographs. Further, there were no additional pathologic findings in the blood tests and the serological tests. Moreover, decreased left ventricular preload and after load were detected. The coronary angiography was normal. Echocardiography showed minimal mitral insufficiency and a cystic lesion (size: 25×27 mm) next to the left ventricle anterolateral wall (Fig. 1C).

Cardiac magnetic resonance imaging (MRI) documented a cystic lesion on the lateral wall of the left ventricle, approximately 3.5×2.5 cm in size; this lesion was initially considered to be similar to a hydatid cyst (Fig. 1B). There were no additional cyst hydatid lesions found in the computerized tomography scan of the abdomen and the thorax.

1) Surgical technique

Median sternotomy was performed under general anesthesia, and cardiopulmonary bypass was initiated after stand-

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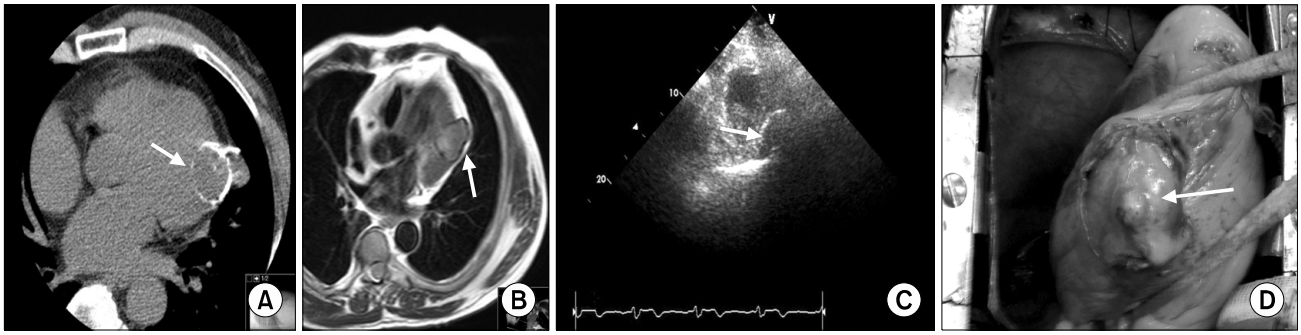

Fig. 1. (A) Thorax computed tomography showed a cystic lesion on the left ventricle anterolateral wall. (B) Cardiac magnetic resonance imaging showed a cystic lesion on the left ventricle anterolateral wall. (C) Echocardiographic appearance of the hydatid cyst on the left ventricular anterolateral wall. (D) View of the cystic membrane on the left ventricle anterolateral wall.

ard aorta and bicaval cannulation. The heart was stopped with antegrade blood cardioplegia after aortic cross-clamping.

A cyst on the left ventricle anterolateral wall was explored. The cyst was opened up; cyst fluid was aspirated; and the remaining contents, including the germinative membrane and the daughter vesicules, were removed (Fig. 1D). We paid maximum attention to the prevention of the dissemination of the aspiration fluid to the pericardial sac. The cyst cavity was irrigated with a highly concentrated sodium chloride solution, and then, the empty sac was closed with primary sutures.

The patient was weaned from cardiopulmonary bypass, and the postoperative course was uneventful. Pathological investigation of the samples revealed cardiac cyst hydatids. After the diagnosis, a therapy with albendazole was initiated immediately with a 10-mg/kg/day dose and maintained for three months. The patient was discharged on postoperative day 7. Echocardiography and thorax computed tomography (CT) were repeated in the outpatient clinic control at 6 months postoperatively and showed no pathological findings.

DISCUSSION

Hydatid disease is endemic in farming areas but occurs worldwide. In particular, the incidence is greater in the cattle- or sheep-raising areas of the world, such as Australia, South America, South Africa, and Panama, the Mediterranean countries, and the Middle East. The most common site of the disease is the liver, followed by the lungs, kidney, bones, and brain. Other organs are very rarely affected. Any race can be affected, and this disease is common in both men and women. Its symptoms depend on the affected organ; for example, liver cysts cause jaundice and abdominal discomfort, while lung cysts cause cough, chest pain, and hemoptysis (coughing up blood).

Hydatid cyst is a human parasitic disease in which multiple-visceral involvement is generally caused by the metacestode of the tapeworm or larva of the species of the genus echinococcus. It can be asymptomatic according to its localization but can cause sudden death. It can be usually detected in the liver and lungs of humans. Cardiac involvement is more seldom than other localizations [1]. However, the most frequently involved cardiac region is the left ventricle; the right ventricle and the interventricular septum are the less affected regions, respectively [2]. There is no characteristic clinical presentation of a cardiac cyst hydatid.

The age of the cyst, size of the cyst, and the extent of calcification are decisive for clinical presentation in patients. Patients generally present at outpatient clinics with complaints of subjective symptoms such as palpitation, dyspnea, and atypical angina pectoris [3].

The rupture of cysts may cause fever, urticaria, and serious anaphylactic reactions. Diagnosis is performed using imaging techniques, examination of the cyst fluid, and serological tests. Cardiac hydatic disease was first mentioned by Williams in 1836. The first diagnosis of hydatid disease was reported by Cerne et al. [4].

Cysts on the ventricular wall grow toward either the epicardium or the endocardium. A cardiac cyst can lead to

life-threatening consequences such as myocardial infarction caused by the compression of a coronary artery, pulmonary edema caused by a disturbance in the valvular mechanisms, or outflow tract obstruction and sudden cardiac arrest caused by a variety of conduction defects [5].

A cardiac cyst is a diagnostic and therapeutic challenge due to the variability of signs and symptoms at its presentation, its numerous and often unpredictable preoperative complications, and the risk of complications associated with cardiac surgery. Cardiac hydatid cysts should be removed surgically, even in asymptomatic patients. Our patient was asymptomatic for years and did not have any complaints associated with hydatid disease before the accident when a cardiac hydatid cyst was diagnosed by the thorax CT. Arrhythmia, electrical conduction system defects and bundle branch blocks, myocardial infarction, and non-specific ST segment and T-wave changes can be seen in the ECG in the cases of cardiac hydatid cysts [6]. A T inversion was detected in D1, aVL, and V3–V6 in the ECG of our patient; however, the patient's coronary angiography was normal. Echocardiography is used in the differential diagnosis of cardiac cyst hydatid. Cardiac cyst hydatid involves many septums and occasionally, daughter cysts. Because of the thin membrane surrounding the cyst it can be distinguished from other intracardiac masses by echocardiography. A hydatid cyst can be in the form of a solid mass or have a multiloculated cystic formation in some cases [7]. Cardiac MRI and thoracic CT have been utilized in the diagnosis of hydatid disease. In our case, the cardiac MRI revealed normal intensities, sizes, and wall thicknesses of the right ventricle, left atrium, and right atrium. The interventricular septum was measured to be 14 mm. Further, a hypodense mass (size: 3.5×2.5 cm) was observed in the T1-weighted sequence; the T1- and T2-weighted sequences of the cyst rim revealed hypointensity.

A hydatid cyst can be managed either by nonoperative or by operative methods. The most common treatment strategy of echinococcosis is 6 months of medical treatment with albendazole or mebendazole or a combination of albendazole and praziquantel after surgical treatment [8]. We chose surgical excision under cardiopulmonary bypass, and the albendazole treatment was pursued after surgical cyst excision in this patient. The follow-up of the patient was performed using the imaging modalities. The echocardiography and thorax CT conducted 6 months postoperatively were normal. The patient is still being followed in the outpatient clinic of infectious diseases.

In conclusion, cardiac hydatid cysts are rare. In patients with cardiac masses, the possibility of cardiac hydatid disease should be kept in mind, particularly in the endemic zones. Due to the high risk of their associated complications, cardiac hydatid cysts should be removed surgically, even in asymptomatic patients.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

REFERENCES

1. Akar R, Eryilmaz S, Yazicioglu L, et al. *Surgery for cardiac hydatid disease: an Anatolian experience.* Anadolu Kardiyol Derg 2003;3:238-44.
2. Yaliniz H, Tokcan A, Salih OK, Ulus T. *Surgical treatment of cardiac hydatid disease: a report of 7 cases.* Tex Heart Inst J 2006;33:333-9.
3. Ozer N, Aytemir K, Kuru G, et al. *Hydatid cyst of the heart as a rare cause of embolization: report of 5 cases and review of published reports.* J Am Soc Echocardiogr 2001;14: 299-302.
4. Murphy TE, Kean BH, Venturini A, Lillehei CW. *Echinococcus cyst of the left ventricle: report of a case with review of the pertinent literature.* J Thorac Cardiovasc Surg 1971;61: 443-50.
5. Bayezid O, Ocal A, Isik O, Okay T, Yakut C. *A case of cardiac hydatid cyst localized on the interventricular septum and causing pulmonary emboli.* J Cardiovasc Surg (Torino) 1991;32:324-6.
6. Eroglu E, Gemici G, Ergenoglu M, Yildiz C, Kucukaksu S, Degertekin M. *Giant hydatid cyst of the interventricular septum mimicking acute myocardial infarction on ECG: an unusual cause of ST segment elevation.* J Cardiovasc Med (Hagerstown) 2009;10:425-7.
7. Charet E, Roudaut R, Lafitte S, Laffort P, Madonna F, de Mascarel A. *Echocardiographic demonstration of rupture of intraseptal hydatid cyst.* J Am Soc Echocardiogr 2000;13: 955-8.
8. WHO Informal Working Group on Echinococcosis. *Guidelines for treatment of cystic and alveolar echinococcosis in humans.* Bull World Health Organ 1996;74:231-42.