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Interventricular Hydatid Cyst Imitating Pulmonary Stenosis

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ABSTRACT

Cardiac hydatid cyst is known to be a rarely occurring disease. The appearance of large cysts in the interventricular septum in childhood is even more rare. Although such cysts are usually asymptomatic, they can behave like valvular disorders, depending on their location. In addition, cardiac hydatid cysts originating from the interventricular septum carry the risk of rupturing into both ventricular cavities, which may lead to fatal complications. Thus, early surgical treatment is of extreme importance. We describe the case of a 7-year-old girl with a cardiac hydatid cyst that originated in the interventricular septum.

INTRODUCTION

Human hydatid disease caused by *Echinococcus granulosus* is endemic in sheep-raising regions of the world such as the Middle East, South America, and Mediterranean countries. Cardiac hydatid cyst is a rare disease, occurring in 0.4% to 2% of patients with echinococcosis, and localization of the cysts in the interventricular septum is extremely rare [Uysalel 1998]. We report a case of a cardiac hydatid cyst that originated in the interventricular septum and imitated pulmonary stenosis and that we ultimately removed surgically.

CASE REPORT

A 7-year-old girl was referred to our institution with a cardiac murmur, which was found during a routine physical examination. Auscultation revealed a 3/6 systolic murmur at the pulmonic area. No abnormality was found in the chest radiograph in the pulmonic area. The electrocardiogram demonstrated a normal sinus rhythm. The results of all routine blood tests were normal. A 2-dimensional echocardiographic examination revealed a cystic lesion with dimensions of 25 × 25 mm that originated in the interventricular septum and bulged into the right ventricle. The cyst was close to both ventricular outflow tracts; it especially narrowed the right ventricular outflow tract and caused a systolic gradient of 84 mm Hg (Figure 1). The results of hydatid serologic tests were negative.

A median sternotomy incision was performed. After initiating cardiopulmonary bypass (CPB) under mild systemic hypothermia, we arrested the heart with isothermic blood cardioplegia. A right atriotomy incision was performed, and the right ventricle was explored through the tricuspid valve. The cyst stemmed from the interventricular septum, just beneath the septal leaflet of the tricuspid valve. The cyst bulged through the right ventricular cavity and narrowed the left ventricular outflow tract. After we protected the surrounding tissues with sheets soaked in a helminthicide agent, we performed a cystotomy and totally removed the cyst (Figure 2). The cyst cavity was not in connection with the left side. We washed the cavity with hypertonic saline (3% sodium chloride) and closed it with interrupted sutures without performing a capitonnage. After closure of the right atriotomy and termination of CPB, we transferred the patient to the intensive care unit. The postoperative course was uneventful.

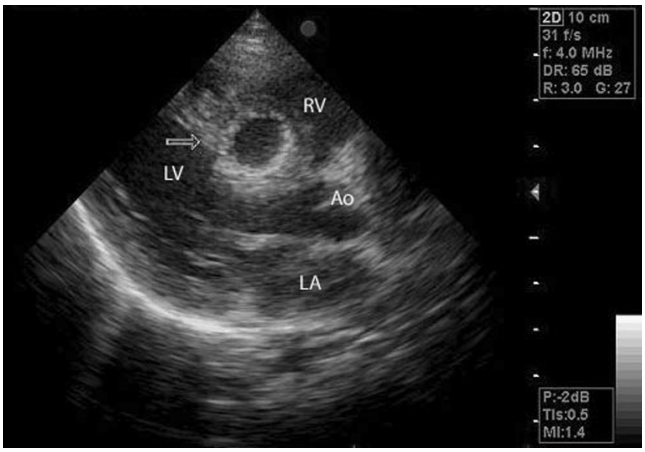

Figure 1. Transthoracic echocardiography. Arrow indicates the cyst. LA indicates left atrium; LV, left ventricle; RV, right ventricle; Ao, aorta.

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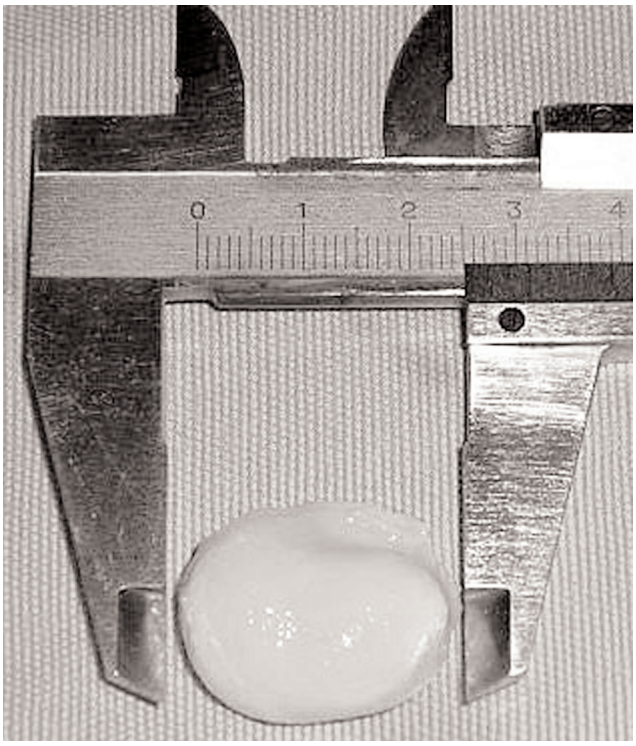

Figure 2. Surgical specimen.

The patient was discharged on postoperative day 6. Her echocardiogram was normal at a follow-up examination 2 years later.

DISCUSSION

Humans are accidental and incidental hosts in the life cycle of *E granulosus*. The helminths usually reach the heart via the coronary circulation. Although the helminths have the potential to reach every part of the heart, most lesions occur within the left ventricle because of its rich coronary blood flow. Five percent to 9% of cysts occur in the interventricular septum [Tetik 2002]. Even though the appearance of large cysts in the interventricular septum in children is extremely rare, Maroto and colleagues [1998] reported such a case in a 3.5-year-old child.

Some locations are usually symptomatic in cardiac hydatid disease. Cysts can lie near ventricular and atrial openings, with effects similar to those produced by a valvular disease. Sometimes chest pain, dyspnea, and palpitations may also occur. A ruptured cardiac hydatid cyst may cause more serious complications, such as pericardial tamponade, pulmonary-systemic embolization, pulmonary hypertension, and anaphylactic reactions [Uysalel 1998; Thameur 2001; Tetik 2002]. Ulgen and colleagues [2000] reported a case in which the patient died of recurrent cerebral embolization of a ruptured cardiac hydatid cyst.

Interventricular septal cysts are usually asymptomatic; however, they may produce conduction disorders that may lead to syncopic heart block or signs and symptoms of ventricular outflow tract obstruction [Maroto 1998; Tetik 2002]. Our patient was asymptomatic, although there was a moderate systolic gradient in the right ventricular outflow tract.

Echocardiography is the most popular noninvasive, highly sensitive, and easily performed method used for the diagnosis of cardiac hydatid cysts. Computed tomography and magnetic resonance imaging should be preferred mainly for differential diagnosis [Macedo 1997].

Surgical therapy under CPB is the most favored method for treating cardiac hydatid cysts, because medical therapy is not effective and not sufficiently safe. Almost 10% of all hydatid cysts tend to recur after surgery. Therefore, albendazole alone or in combination with praziquantel can be used as prophylactic chemotherapy [Görmüs 2004], yet combination chemotherapy is not preferred by most surgeons unless the surgical field remains contaminated with cystic material.

Although cardiac hydatid cysts are rarely seen during childhood, it should be kept in mind that such cysts can imitate the symptoms of valvular disorders, depending on their location. Therefore, any child with an acquired loud cardiac murmur should be carefully examined. Moreover, cardiac hydatid cysts originating in the interventricular septum carry the additional risk of rupturing into both ventricular cavities, possibly leading to pulmonary or systemic embolization and even to fatal anaphylactic reactions. Thus, following a definitive diagnosis, early surgical treatment should be performed to avoid such fatal complications.

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