

## A rare location for cardiac hydatid cyst in the interventricular septum

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Received: February 28, 2014 Accepted: May 12, 2014

Hydatid cyst is an endemic disease seen in different regions of the world due to the *Echinococcus granulosus* tapeworm. The lung and liver are the most affected organs. Cardiac involvement is 0.5% to 2% of patients with hydatid disease and the interventricular location is seen more rarely. A 17-year-old female patient with systemic hydatid cyst disease was consulted to our clinic. The patient presented with dyspnea, exertional dysrhythmia, and chest pain. Transthoracic echocardiography and cardiac magnetic resonance imaging showed the location of the interventricular septal hydatid cyst. The patient underwent elective surgery and discharged without any complications.

Keywords: Cardiac hydatid cyst; interventricular septum; operative view.

Hydatid cyst is an endemic disease seen in different regions of the world due to the *Echinococcus granulosus* tapeworm. The lung and liver are the most affected organs. Among patients who have hydatidosis, hepatic cysts occur in 70% and pulmonary cysts in 20%, but cardiac cysts are reported 0.5% to 2% of patients with hydatid disease and the interventricular location is seen rarely.<sup>[1]</sup> Cardiac hydatid cysts may rupture and cause cardiac tamponade, fatal arrhythmias or systemic infection.<sup>[2]</sup> The diagnosis of cardiac hydatid cyst is made through transthoracic echocardiography. Computed tomography (CT) and magnetic resonance imaging (MRI) are the other diagnostic tools. The treatment of cardiac hydatid cysts is surgery.

### CASE REPORT

A 17-year-old female patient with systemic hydatid cyst disease was consulted to us with cardiac interventricular septal cyst. The patient had an intracranial cyst operation approximately one month ago. Imaging studies showed two small renal cysts. There were no cysts in the liver and lung. The patient had complaints of dyspnea, effort-related dysrhythmia and chest pain for approximately three months. We planned the cardiac cyst surgery electively 54 days after the intracranial cyst operation.

On physical examination, systolic murmur was heard over the left second intercostal interval. The electrocardiogram showed right bundle branch block and the routine laboratory tests were normal. Transthoracic echocardiography showed 5x4.3 cm

sized cystic lesion located in the interventricular septum (Figure 1). Before the operation, cardiac MRI imaging was obtained to identify the cyst dimensions in the septal anatomy. The cardiac MRI was reported as the compression signs to the both of the ventricles (Figure 2).

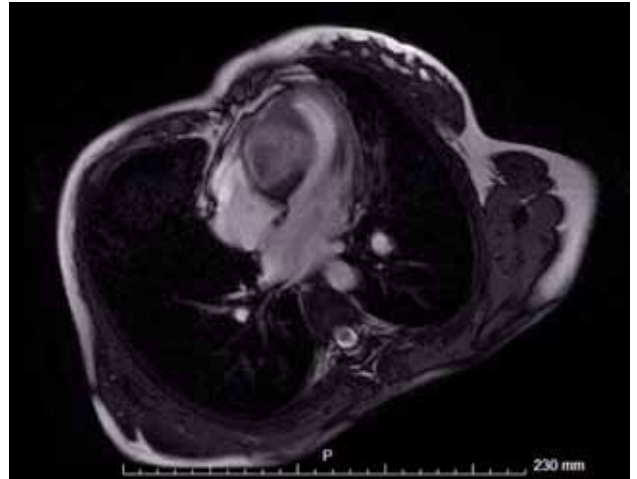
The operation was performed through median sternotomy. After opening the pericardium, the structure of cyst was palpable over the septal area. The cardiopulmonary bypass was instituted with ascending-aortic, bicaval cannulation and antegrade cardioplegia. The polyvinylpyrrolidone iodine-soaked sponges were placed into the pericardial cavity to prevent contamination. The incision was parallel to the interventricular septum. The cyst was reached by performing some dissection on the right ventricular side of the interventricular septum without opening any cardiac chamber and avoiding to damage to the left anterior descending coronary artery. The cyst content was aspirated and hypertonic solution was injected into the cyst. The germinal membranes were removed. The cavity was washed with hypertonic solution and iodinated solution, closed by capitonnage sutures, and then filled with Tisseel (Tisseel lyo 4 ml, two component fibrin sealant, Baxter Healthcare Ltd. Caxton Way, Thetford, Norfolk, UK IP24 3SE

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**Figure 1.** Transthoracic echocardiographic image of the septal cyst.



**Figure 2.** Cardiac magnetic resonance image of the septal cyst.

PL 00116/0321). The sides of myotomy were closed primarily by using Teflon felts (Figure 3, 4).

After the operation, there was no problem in the intensive care unit. The patient was discharged at the first postoperative week. The right bundle branch block was disappeared at the postoperative electrocardiographic records. The patient is still on albendazole treatment.

## DISCUSSION

Hydatid cyst disease is endemic in Turkey.<sup>[3]</sup> It is often asymptomatic at early stages. Clinical suspicion is important for the definite diagnosis. As it may affect multiple organs and systems, full body screening should be done. Cardiac involvement is 0.5-2% of the hydatid cyst patients. The interventricular

septum is affected from the 4% of the cardiac cyst cases. Cardiac hydatid cysts can rupture and cause cardiac tamponade, fatal arrhythmias or systemic infection.<sup>[3]</sup> Angina secondary to coronary artery compression, anaphylactic reaction and profound circulatory collapse may follow intracavitary rupture,<sup>[4]</sup> therefore treatment is surgery. Removal of the cyst improves myocardial compliance and myocardial perfusion.<sup>[4]</sup> It also corrects cardiac deformation and strengthens myocardial contraction.<sup>[4]</sup> It has been reported that electrical activity and contractile function can be restored by removal of interventricular septal hydatid cyst.<sup>[5]</sup> Improved electrical activity was also observed in our case report, as the right bundle branch block disappeared after the removal of the



**Figure 3.** The operation view, extraction of germinal membrane of the hydatid cyst, arrows indicate cyst membrane and interventricular septal incision.



**Figure 4.** The operation view, arrows indicate: 1- Inferior vena cava cannula, 2- Sutures of the myotomy with Teflon felts, 3- Aortic cannula. RV: Right ventricle; LV: Left ventricle.

hydatid cyst. We performed cardiac operation 54 days after the cranial cyst operation, therefore there was no risk of intracranial bleeding due to heparinization. In addition, serological markers against *Echinococcus granulosus* was negative. It decreases the risk of systemic dissemination due to the two major surgical procedures for this patient.

### Conclusion

The cardiac cysts are rare and may present with various clinical findings. Clinical suspicion is the critical issue for the definite diagnosis. Due to the possible risks of systemic distribution, cardiac cysts should be treated surgically. During surgery, perioperative measures should be taken to prevent systemic dissemination.

### Declaration of conflicting interests

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

### Funding

The authors received no financial support for the research and/or authorship of this article.

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