

## Constrictive pericarditis due to hepatopericardial fistulas of hepatic echinococcosis

*Hepatik ekinokokkozisin hepatoperikardiyal fistüllerine bağlı gelişen konstriktif perikardit olgusu*

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Hydatidosis is a parasitic infestation which is endemic to sheepherding regions of the world. Constrictive pericarditis secondary to pericardial hydatid disease is a very rare entity. In our case, the cyst was not a primary cardiac hydatid cyst. In this article, we report a 72-year-old male case of constrictive pericarditis due to fistulization of a hepatic hydatic cyst to the pericardium. Partial pericardectomy and drainage of the hepatic cyst were performed successfully, followed by medical treatment.

**Key words:** Fistula; hydatid disease; pericardium.

Hydatidosis is a parasitic infestation caused by the larval stage of *Echinococcus granulosus*.<sup>[1]</sup> Echinococcal disease is endemic to sheepherding regions of the world, and it affects the heart in fewer than 2% of patients who have this parasite.<sup>[2]</sup> Constrictive pericarditis secondary to pericardial hydatid disease is also very rare. Herein, we report a case of constrictive pericarditis due to the fistulization of a hepatic hydatid cyst to the pericardium.

### CASE REPORT

A 72-year-old man was admitted to our hospital with dyspnea and fatigue. On physical examination, his blood pressure was 90/60 mmHg, and his heart rate was 150 bpm. Auscultation revealed weak heart sounds. Hepatomegaly, which was 4 cm from the arcus costae, was noted, and the patient was considered to be class IV according to the New York Heart Association (NYHA) classification system. Electrocardiography

Hidatidoz, hayvancılıkla uğraşılan ülkelerde endemik parazitik bir hastalıktır. Perikardiyal hidatik hastalığa bağlı gelişen konstriktif perikardit, oldukça nadir görülen bir rahatsızlıktır. Bizim olgumuzda kist, primer kardiyak kist hidatik değil idi. Bu yazımızda, 72 yaşındaki erkek hastada hepatik bir kist hidatının perikarda fistülizasyonuna bağlı gelişen konstriktif perikardit olgusu sunuldu. Parsiyel perikardiyektomi ve hepatik kistin drenajı başarı ile uygulandı ve takiben medikal tedavi verildi.

**Anahtar sözcükler:** Fistül; hidatik kist; perikard.

(ECG) showed atrial fibrillation. No abnormality was found on pulmonary artery (PA) chest X-ray, except for a minimally widened mediastinum, and all routine blood tests were normal.

Echocardiography revealed severe pericardial effusion that was compressing the heart. A pericardial tube was inserted with the diagnosis of cardiac tamponade, and a pericardial biopsy was performed. The patient was discharged following the removal of the tube on the third postoperative day. A pathological examination revealed chronic pericarditis.

The patient was readmitted after 10 days with symptom of dyspnea. His blood pressure was 90/60 mmHg, and his heart rate was 110 bpm and regular. A pulmonary artery chest X-ray yielded the same results as the previous examination. Thoracoabdominal computed tomography (CT) revealed a thickened pericardium, pericardial effusion,



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which was homogenous in nature and 3 cm at the widest part, and a hypodense, regularly contoured lesion measuring 6x5 cm in the right hepatic lobe that was elevating the diaphragm (Figure 1). For further examination, intravenous contrast abdominal CT and abdominal ultrasonography (USG) were performed, and the lesion was determined to be a grade 3 hydatid cyst. Coronary angiography revealed no abnormality.

A median sternotomy was performed with the diagnosis of constrictive pericarditis. A thickened pericardium was seen, and a hepatopericardial fistulas tract was also demonstrated between the lesion, which was located in the liver, and the diaphragmatic pericardium. A partial pericardectomy that included the area between the phrenic nerves and excluded the posterior pericardium was performed. In addition, the right atrium along with the superior and inferior vena cava were released. Following the pericardectomy, the hepatic cystic cavity was evacuated and cleaned, and a drainage tube was inserted into this cavity through the fistulas tract. The drainage tube was removed on the postoperative fifth day without any biliary drainage. Antibiotherapy was then applied using albendazole. The patient recovered well and was discharged on the postoperative 11<sup>th</sup> day.

## DISCUSSION

Echinococcus disease in humans is caused by the development of the larval stage of the *Taenia echinococcus*, a cestode tapeworm whose definitive host is a dog in most instances. The dog is infested

when fed with cyst-bearing organs (lungs, liver, etc.) of intermediate hosts, usually sheep.<sup>[3]</sup> Humans are only accidental and incidental hosts.

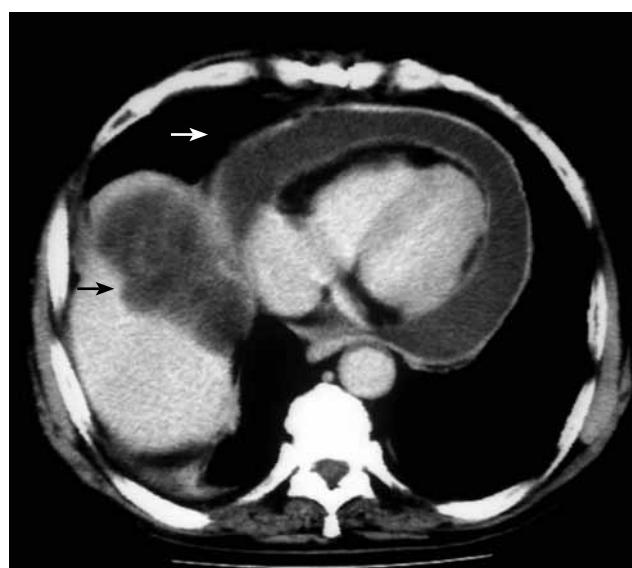
The liver is the most likely organ to be involved (55-70%) through portal drainage, but any organ may be infected. The helminth usually reaches the heart via coronary circulation. Most lesions (60%) occur within the left ventricle; however, 15% affect the right ventricle, and 15% affect the ventricular septum. Atrial involvement is rare. Additionally, 2-10% of cysts occur in the pericardium.<sup>[4,5]</sup>

The primary hydatid cyst of the heart has a marked tendency to rupture either into the lumen of a cardiac chamber or into the pericardial sac, depending on its primary location and on the direction of least resistance.<sup>[3]</sup>

However, in our case, the cyst was not a primary cardiac hydatid cyst. The hydatid fluid of the hepatic hydatid cyst reached the pericardium through a fistulas tract, leading to pericardial effusion. A cyst localized in the intrapericardial cavity may cause thickening of the pericardium, constrictive pericarditis, and/or cardiac tamponade. Anaphylactic reactions may also develop in some patients due to the antigenic properties of cystic fluid.<sup>[6]</sup> In our case, the patient had dyspnea and fatigue associated with cardiac compression due to pericardial effusion.

Transthoracic echocardiography, CT, and nuclear magnetic resonance imaging (MRI) have been successfully used in the diagnosis of cardiac hydatidosis. An MRI could be more useful in complicated cases since it provides better visualization of the expansion of the cyst.<sup>[7]</sup> This proved to be true in our case. The diagnostic and/or therapeutic use of invasive techniques and interventional radiological procedures carries the risk of puncturing cysts, and this could lead to anaphylactic reaction, formation of secondary cysts, or even sudden death.<sup>[6,8]</sup>

Though successful results have been reported with mebendazole and albendazole, surgical therapy is still the most favored method for treating hydatid cysts. Some authors have suggested using albendazole as a supportive therapy for surgery in order to decrease the incidence of recurrence.<sup>[1,4,6]</sup> In this case, with the diagnosis of constrictive pericarditis and hepatic hydatid cyst, it was decided that surgery was the best treatment option. For removal of the thickened pericardium, we performed a partial pericardectomy. Capitonnage of large and central cysts of the liver can cause vascular and biliary tract injuries. Thus, tube drainage without capitonnage is the preferred procedure for such cysts.



**Figure 1.** Computed tomography image showing the thickened pericardium with pericardial effusion (white arrow) and the regularly contoured lesion in the right hepatic lobe (black arrow).

Due to high intraabdominal pressure, these cavities close rapidly, and the drainage tube can be removed after approximately 10 days.<sup>[9]</sup> In this case, we preferred to drain the hepatic cyst by inserting a tube through the fistulas tract, and we used albendazole in the postoperative period as well.

In conclusion, the rare possibility of hydatid cyst fistulization leading to pericardial hydatidosis or even constrictive pericarditis should be kept in mind, especially in regions of the world where raising sheep is common.

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