

## An apical cardiac hydatid cyst

Apikal kardiyak kist hidatik

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Hydatid cyst disease is a parasitic infestation by *Echinococcus* that can involve any organ. The purely cardiac cyst without any other organ involvement is a rare case. We report a 52-year-old man who was admitted because of fatigue, palpitation, chest pain and shortness of breath. Echocardiography and multi-slice computed tomographic scan demonstrated a hypodense lesion (29.8x25.4 mm) on the apicolateral region of the left ventricle. The lesion was located inside the pericardium but outside the myocardium. The cyst was successfully removed surgically. Histopathologic examination revealed an infected cardiac cyst. The patient had an uneventful recovery and was discharged four days after surgery. He was observed to be doing well in the two-month follow-up visit.

**Key words:** Echinococcus; infected cardiac hydatid cyst; myocardial infarctions

Hydatid cysts commonly affect the liver and lung. Cardiac cyst hydatidosis is an uncommon form of hydatid disease, with a frequency of 0.5-2%.<sup>[1,2]</sup> The most common location is the left ventricle, followed by the interventricular septum and right ventricle.<sup>[3]</sup> *Echinococcus* reach the myocardium through the coronary circulation and the distribution of the cyst in the heart varies according to the blood supply. The left ventricle, having the most abundant supply, is most frequently involved (55-60%). The other sites include the right ventricle (15%), the interventricular septum (5-9%), left atrium (8%), pericardium (8%), pulmonary artery (7%) and the right atrium (3-4%).<sup>[4]</sup> The clinical picture depends on the location and size of the cyst. Patients with cardiac hydatid cysts are usually asymptomatic, although mild, recurrent, nonspecific chest pain is the most common complaint. This may be due to episodes of partial rupture into the pericardium, with resulting pericarditis or because of external compression of the coronary artery.

*Ekinokokların* paraziter infestasyonu sonucu oluşan kist hidatik hastalığı her organı tutabilir. Başka organ tutulmu olmadan sadece kardiyak kist hidatik nadir görülen bir olgudur. Bu yazıda yorgunluk, çarpıntı, göğüs ağrısı ve nefes darlığı yakınmaları ile kliniğimize başvuran 52 yaşında erkek olgu sunuldu. Ekokardiyografi ve çokkesitli bilgisayarlı tomografide sol ventrikülün apikolateral bölgesinde 29.8x25.4 mm boyutlarında hipodens kitle tespit edildi. Lezyon perikardın içinde miyokardın dışında yerleşmiş bulunmaktaydı. Kist cerrahi olarak başarıyla eksize edildi. Histopatolojik tanı infekte kardiyak kist olarak bildirildi. Hasta sorunsuz olarak ameliyat sonrası 4. günde taburcu edildi. İki aylık takibinde herhangi bir sorunu olmadığı gözlemlendi.

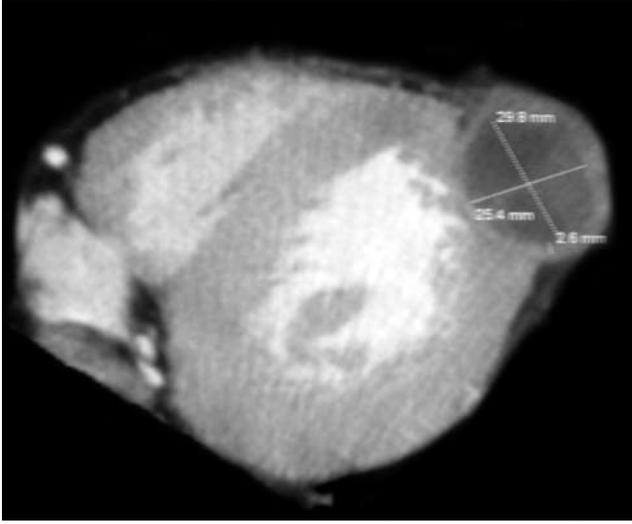
**Anahtar sözcükler:** Ekinokok; infekte kardiyak kist hidatik; miyokard infarktüsü.

### CASE REPORT

A 52-year-old man was admitted because of fatigue, palpitation, chest pain and shortness of breath. Electrocardiography revealed T-wave inversion in leads V2 through V5. The cardiac enzymes (CPK-MB and Troponin-T) were normal. He gave a history of handling dogs. The physical examination and laboratory analysis were normal. Transthoracic echocardiography demonstrated a single hypoechoic cystic tumor adjacent to the left ventricle apex and left anterior descending artery. Cyst size was 25x30 mm. There was no communication between the cardiac chambers. Multi-slice computed tomography (MSCT) scan demonstrated a hypodense lesion (29.8x25.4 mm) on the apicolateral region of the left ventricle. The lesion was located inside the pericardium but outside the myocardium of the anteroapicolateral wall of the left ventricle. Coronary angiography revealed normal coronary arteries at that MSCT

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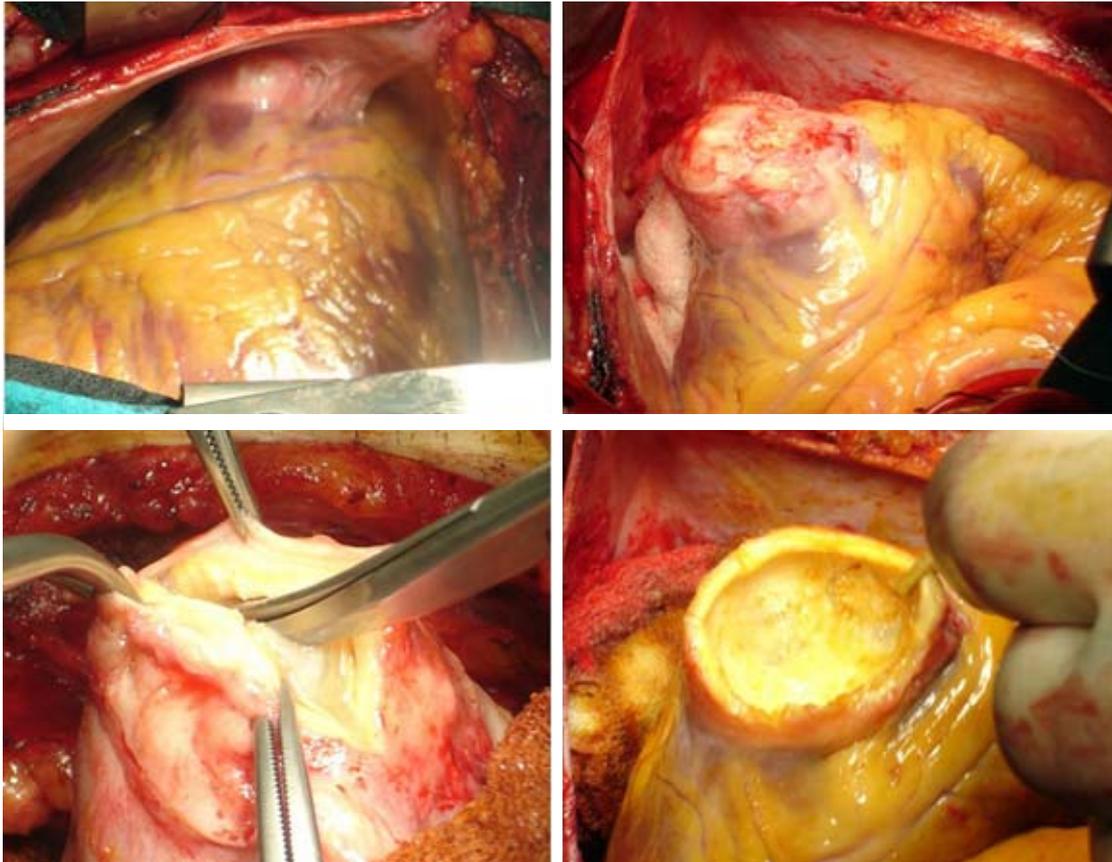
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**Fig. 1.** Multi-slice computed tomography scan demonstrated a hypodense lesion (29.8x25.4 mm) on apicolateral region of the left ventricle. The lesion was located inside the pericardium but outside the myocardium of the anteroapicolateral wall of the left ventricle.

(Fig. 1). Hydatid serology was negative. Abdominal ultrasonogram did not reveal similar cysts in the liver or elsewhere. There were no other cysts in the liver, lungs or brain.

We approached via a median sternotomy. After dissecting pericardial adhesions, we found a 25x30 mm cyst, at the anteroapical surface of the heart. Because the cyst was attached to environmental tissues, and because of the adhesions on the posterior cardiac wall, we decided to operate on the patient with the techniques of standard cardiopulmonary bypass using moderate hypothermia and cardioplegic arrest. The mass was seen clearly in the muscle of the left ventricular apex. The area in which the cyst was situated was isolated from the rest of the heart and the pericardial cavity with gauze packs (Fig. 2). After aspirating the cystic material, we enucleated the mass and washed the residual cavity with a 20% hypertonic saline solution and a 1% iodine solution. The cavity had no communication with the ventricular cavity. After partial resection, the cyst cavity was closed with the capitonage technique and primer suturing without felt. Histopathologic examination revealed a germinative membrane and scolices within a basophilic laminary structure, necrotic material containing membrane residues surrounded by inflammatory tissue containing a large number of giant cells, consistent with a hydatid cyst. The patient was put on albendazole 15 mg/kg in two divided doses for a period of four weeks before he was submitted for surgery.



**Fig. 2.** Intraoperative images.

## DISCUSSION

Cases of infected cardiac hydatid cysts in the literature are very rare.<sup>[3,5]</sup> Infection in cardiac hydatid cysts do not show with laboratory tests but only with solid imaging in echocardiography and MSCT scans. The MSCT scan has acquired more importance in diagnosis and management, to find the relation of the cardiac cyst with the cardiac chambers and to investigate the coronary arteries of patients with risk of coronary artery disease, as seen in this case. Although the recent trend is for the use of off-pump procedures for cysts, in our case we decided to operate with standard cardiopulmonary bypass techniques using moderate hypothermia and cardioplegic arrest because of adhesions on the posterior cardiac wall. At surgery, irrigation with scolicedal agents is mandatory to prevent anaphylaxis. We used a 20% hypertonic saline, which is the safest. Once thought to be a formidable disease, cardiac *echinococcosis* can now be effectively managed by excellent non-invasive diagnostic imaging procedures and equally effective surgical expertise and techniques.<sup>[6]</sup> Oral albendazole therapy has also

been used to reduce the size of the cyst and to prevent recurrence.<sup>[3]</sup>

## REFERENCES

1. De Paulis R, Seddio F, Colagrande L, Polisca P, Chiariello L. Cardiac echinococcosis causing coronary artery disease. *Ann Thorac Surg* 1999;67:1791-3.
2. Gürbüz A, Tetik O, Yilik L, Emrecaan B, Ozsöyler I, Ozbek C. Cardiac involvement of hydatid disease. *Jpn J Thorac Cardiovasc Surg* 2003;51:594-8.
3. Kardaras F, Kardara D, Tselikos D, Tsoukas A, Exadactylos N, Anagnostopoulou M, et al. Fifteen year surveillance of echinococcal heart disease from a referral hospital in Greece. *Eur Heart J* 1996;17:1265-70.
4. Elangovan S, Harshavardan K, Meenakshi K, Swaminathan TS, Murthy P. Left ventricular hydatid cyst with myocardial infarction in a patient with severe rheumatic mitral stenosis. *Indian Heart J* 2004;56:664-7.
5. Ceviz M, Becit N, Koçak H. Infected cardiac hydatid cyst. *Heart* 2001;86:E13.
6. Oliver JM, Sotillo JF, Domínguez FJ, López de Sá E, Calvo L, Salvador A, et al. Two-dimensional echocardiographic features of echinococcosis of the heart and great blood vessels. Clinical and surgical implications. *Circulation* 1988;78:327-37.