ARCHIVES OF THE TURKISH SOCIETY OF CARDIOLOGY

Official journal of the TURKISH SOCIETY OF CARDIOLOGY

Cardiac Hydatid Disease and Peritoneal Tuberculosis Coexistence

Kardiyak Kist Hidatik ve Peritoneal Tüberküloz Birlikteliği

ABSTRACT

Hydatid cyst is a parasitic infection caused by *Echinococcus granulosus*. The coexistence of tuberculosis and cardiac hydatid cyst is extremely rare and generally seen in developing countries. Here, we describe a unique case of a patient presenting with cardiac and gastrointestinal symptoms, who has coexistence of cardiac hydatid cyst and peritoneal tuberculosis.

Keywords: Cardiac involvement, cyst hydatid, diagnosis, tuberculosis

ÖZET

Hidatik kist, *Ekinokokus granulosus* sebep olduğu bir parazitik enfeksiyondur. Tüberküloz ve kardiyak hidatik kist birlikteliği oldukça nadir olup genellikle gelişmekte olan ülkelerde görülmektedir. Bu yazıda, kardiyak ve gastrointestinal semptomlarla çıkan kardiyak kist hidatik ve peritoneal tüberküloz birlikteliği olan nadir bir vaka tarif edilmektedir.

Anahtar Kelimeler: Kardiyak tutulum, hidatik kist, teşhis, tüberküloz

CASE REPORT
OLGU SUNUMU

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Received: October 18, 2021
Accepted: December 19, 2021

Cite this article as: Mutlu D, Raimoğlu U, Cimci M, *et al*. Cardiac hydatid disease and peritoneal tuberculosis coexistence. Turk Kardiyol Dern Ars 2022;50(5):371-373.

DOI:10.5543/tkda.2022.21244

Hydatid cyst is a parasitic infection caused by *Echinococcus granulosus*.[1] Coexistence of tuberculosis and cardiac hydatid cyst is extremely rare and generally seen in developing countries.[2] In this case, we describe a unique case of a patient presenting with cardiac and gastrointestinal symptoms who has coexistence of cardiac hydatid cyst and peritoneal tuberculosis.

Case Report

An 18-year-old male immigrant from India was referred to our clinic due to chest and epigastric pain accompanied by nausea. There was no smoking or drug abuse history. Physical examination was unremarkable. While electrocardiogram showed normal sinus rhythm, transthoracic echocardiography revealed preserved ejection fraction and the presence of 3.5 × 3 cm cystic structure on the posterobasal wall of the left ventricle (LV) (Figure 1, Video 1-4*). Thoracoabdominal computed tomography (CT) revealed mild pleural effusion in the left hemithorax with a cystic structure in the LV without the involvement of pericardium or LV cavity (Figure 2). The cystic structure documented with echo and CT is considered as a hydatid cyst on the basis of the patient's medical history. Additionally, a 15 mm-long lymphadenopathy (LAP) with a necrotic core in right ileocolic lymph node as well as nodular thickness in the omentum was detected and initially interpreted as peritoneal carcinomatosis with a differential diagnosis including primary tuberculosis peritonitis or peritoneal mesothelioma (Figure 2). There was no finding of liver involvement in the abdominal ultrasonography (US). An US-guided biopsy from the paraaortic LAP and omentum documented acid-resistant bacilli with necrotic granulomatosis. Moreover, *Mycobacterium tuberculosis* was also identified in the tissue culture and pathology. There was no bacteria found in the sputum culture. According to the patients' complete blood count and biochemistry, neutrophilic leukocytosis (white blood cell: 15 000, neutrophils: 8000) was detected and his C-reactive protein levels was 84 mg/L. Indirect hemagglutination assay was found to be positive. There was no other abnormalities.

After heart team discussion, surgical excision of hydatid cyst with medical therapy of tuberculosis was considered. Myocardial cystectomy was achieved with cardiopulmonary

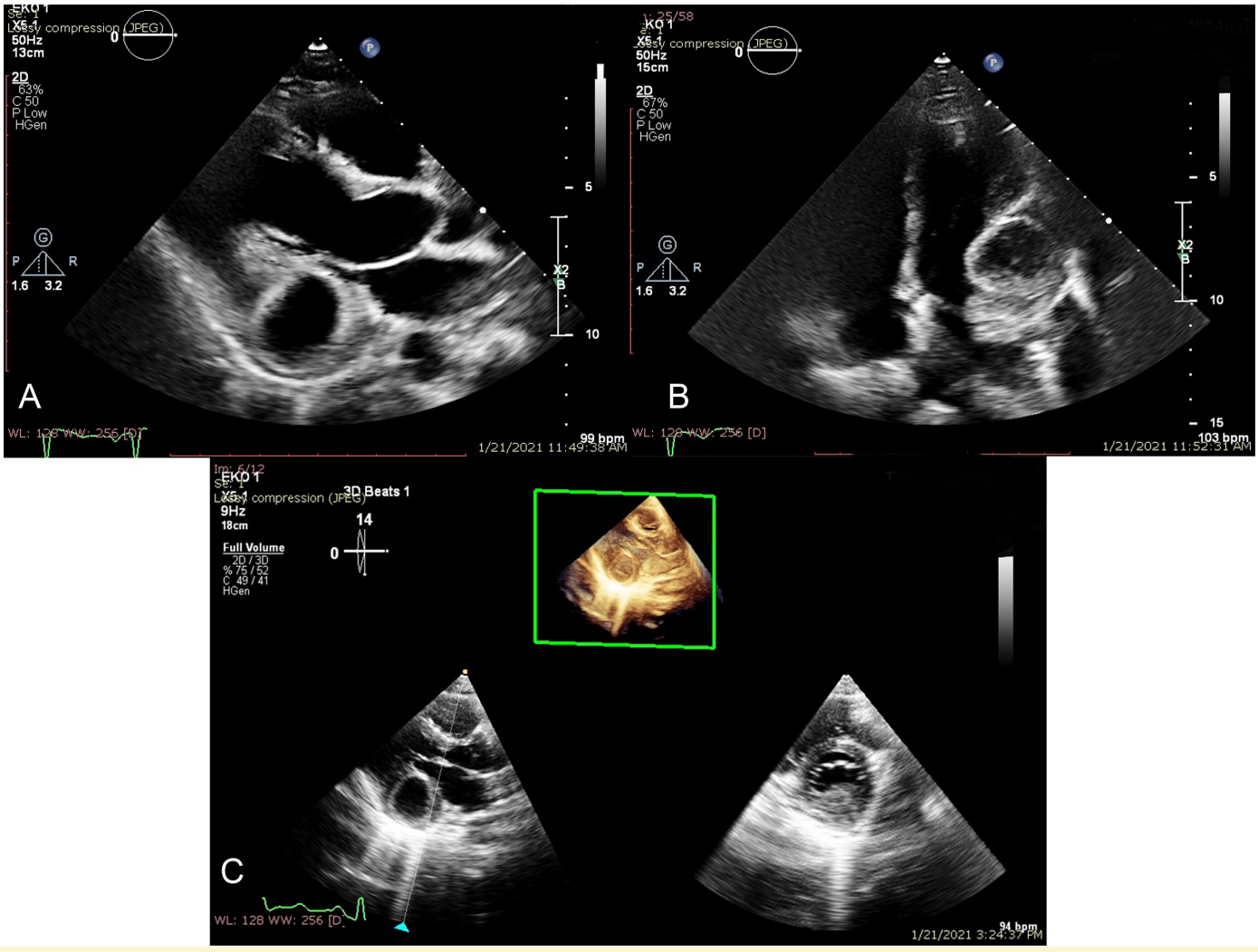

Figure 1. A–C. Echocardiographic imaging of the cyst hydatic. (A) PLAX orientation shows the cystic structure located in posterobasal segment of the LV. (B) A4C orientation. (C) cystic structure imaging by using 3D full volume sequence. A4C, apical 4 chamber; PLAX, parasternal long axis; LV, left ventricle; 3D, 3 dimensional.

bypass technique under general anesthesia. Myocardial dissection was performed, and the cystic tissue was demarcated from the surrounding tissues. Hypertonic saline was injected into the cyst and residual myocardial tissue was sutured with teflon flats. Histopathological examination of the emanated tissue showed *E. granularis* scolex and lamellar structures. The patient was started on albendazole for the management of *E. granulosus* infection and pyrazinamide, isoniazid, ethambutol, and rifampicin for the management of tuberculosis. Following 2 months, the lesions in peritoneum were regressed and patient was entirely free of symptoms.

ABBREVIATIONS

CT	Computed tomography
LAP	Lymphadenopathy
LV	Left ventricle
US	Ultrasonography

Discussion

Hydatid cyst is an infection caused by the Echinococcus family and is most commonly seen in developing countries.[2] Although hepatic involvement is the most common presentation, cardiac involvement is also rarely seen. The incidence of cardiac involvement is thought to be less than 2%.[3] The most common location in the heart is generally LV (50%-60%), interventricular septum (10%-20%), right ventricle (5%-15%), pericardium (7%), pulmonary arteries (6%), and right or left atrium (5%-8%) respectively.[4] According to a study, only 10% of the cardiac hydatid cyst cases were symptomatic, and the most common symptom was chest pain.[4]

Echocardiography is crucial for the detection of localization of the cyst and involvement of cardiac structures. In the contemporary approach, 3D transthoracic and transesophageal echocardiography can provide the precise location, volumetric calculations, and detection of any daughter cysts with the use of 3D volumetric rendering (Video 4*).[5] Computed tomography

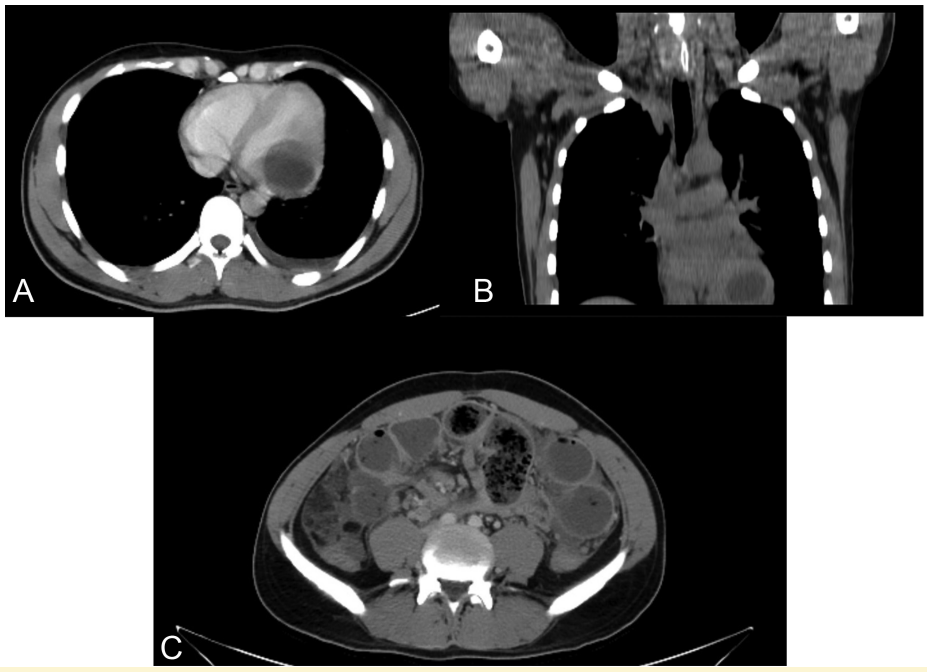

Figure 2. A–C. Computed tomography imaging of the thorax and abdomen. (A) Axial plane shows the hypodense cystic lesion on the left ventricle. (B) Coronal plane shows the cystic structure in the mediastinum. (C) Axial abdomen plane shows the peritoneal carcinomatosis and nodular lymph nodes.

evaluation is also helpful in the assessment of the solid or cystic structure, wall calcifications, extracardiac involvement, and differential diagnosis.[1,2,6] The treatment strategy is generally open surgical removal and long-term albendazole therapy.[3] To assess treatment progression, a serological follow-up using the indirect hemagglutination assay is recommended in addition to medical therapy.

The peritoneal tuberculosis incidence varies between 0.1% and 0.7%.[7] Hydatid cysts usually involve the liver, thus presenting with gastrointestinal symptoms, whereas the most common target of tuberculosis is lungs and typical presentation includes respiratory symptoms. The coexistence of a hydatic cyst and tuberculosis caused unanticipated cardiac and gastrointestinal symptoms in our case. Besides, to our knowledge, this is the first case report of the coexistence of myocardial hydatid cyst and peritoneal tuberculosis in an adult patient. The coexistence of tuberculosis and hydatid cyst disease has previously been published; however, the preponderance of the reported cases was the coexistence of pulmonary tuberculosis and hepatic hydatid cyst disease.[3] There is only 1 report which described the coexistence of pericardial hydatid cyst and tuberculosis in a pediatric patient.[3]

Conclusion

Clinicians should be aware that hydatic cyst disease and tuberculosis may coexist and clinical presentation could be largely atypical which may lead to initial misdiagnosis.

*Supplementary video files associated with this article can be found in the online version of the journal.

Informed Consent: Informed consent was obtained from the patient for the publication of the case report and the accompanying images.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – D.M., E.D., B.K.; Design – U.R., E.D., B.K.; Materials – S.N.Ö.; Data Collection and/or Processing – U.R.; Analysis and/or Interpretation – S.N.Ö., E.D.; Literature Review – D.M., M.C.; Writing – D.M., U.R.; Critical Review – M.C., S.N.Ö., B.İ., B.K.

Declaration of Interests: The authors have no conflict of interest to declare.

Funding: The authors declared that this study has received no financial support.

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