

Development of anaphylaxis during biopsy of cardiac, hepatic, and subcutaneous hydatid cysts

Kardiyak, hepatik ve deri altı hidatik kistlerin biyopsisi sırasında anafilaksi gelişimi

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ABSTRACT

This case report presents a rare occurrence of both subcutaneous and cardiac hydatid cysts in a pediatric patient. A 10-year-old girl admitted with a rapidly enlarging, painful mass in the right dorsal scapular region. During a biopsy procedure under sedation, the patient developed an anaphylactic reaction and subsequent cardiopulmonary arrest. After successful resuscitation, cardiac echocardiography revealed a large hydatid cyst in the interventricular septum. In conclusion, potential complications should always be considered during invasive procedures. In addition, in patients with musculoskeletal masses, a whole-body magnetic resonance imaging may detect and prevent potential complications at an early stage.

Keywords: Anaphylaxis, cardiac hydatid disease, hydatid cyst, subcutaneous cyst.

Cystic echinococcosis (CE) is a protozoal infection caused by the larval stage of *Echinococcus granulosus* (*E. granulosus*).^[1-3] Hydatid cysts in the subcutaneous tissue have been reported in only 0.6 to 2.6% of patients in the literature.^[4] Cardiac involvement is quite rare which is seen in 0.5 to 2% of patients.^[5] It is extremely difficult to distinguish subcutaneous and intramuscular hydatid cysts from soft tissue tumors. Biopsy is of critical importance in the diagnosis of any mass in orthopedic oncology. Biopsy of superficial

ÖZ

Bu olgu sunumunda pediatrik bir hastada hem subkutan hem de kardiyak hidatik kistlerin nadir bir birlikteliği sunuldu. On yaşında bir kız çocuğu, sağ dorsal skapular bölgede hızla büyüyen, ağrılı bir kitle ile başvurdu. Sedasyon altında yapılan biyopsi işlemi sırasında hastada anafilaktik reaksiyon ve ardından kardiyopulmoner arrest gelişti. Başarılı resüsitasyon sonrasında, kardiyak ekokardiyografi ile interventriküler septumda büyük bir hidatik kist tespit edildi. Sonuç olarak, invaziv işlemler sırasında muhtemel komplikasyonlar her zaman akılda tutulmalıdır. Bunun yanı sıra, kas-iskelet kitleleri olan hastalarda, tüm vücut manyetik rezonans görüntüleme ile muhtemel komplikasyonlar erken aşamada tespit edilebilir ve önlenebilir.

Anahtar sözcükler: Anafilaksi, kardiyak hidatik hastalığı, hidatik kist, subkutan kist.

masses can usually be performed in the outpatient setting.

In this article, we present a case of development of anaphylaxis during biopsy of cardiac, hepatic, and subcutaneous hydatid cysts.

CASE REPORT

A 10-year-old female patient was admitted to the Orthopedics and Traumatology outpatient clinic with

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Table 1. Preoperative laboratory findings of the case

	Value	Range
Erythrocyte sedimentation rate	29	0-30
White blood cells	12.6	4.49-12.68
Neutrophils	4.7/37.6%	2.1-8.89/42.9-74.3%
Lymphocytes	2.6/20.4%	1.26-3.35/18.3-45.7%
Monocytes	0.7/5.4%	0.25-0.84 /4.2-11.8%
Eosinophils	4.6/36.3%	0.01-0.4/0.2-5.3%
Hemoglobin/hematocrit	11.3/36.4%	10.6-13.5/36.6-44%
Platelets	200	150-400
C-reactive protein	13.8	0-5
Glucose	82	74-106
Urea/creatinine	31.4/0.43	17-43/0.67-1.17
Aspartate aminotransferase/alanine aminotransferase	21/15	0-50/0-50
Alkaline phosphatase	215	43-115
Gamma-glutamyl transferase	23	0-55
Lactate dehydrogenase	334	0-248
Total bilirubin/direct bilirubin	0.29/0.08	0-1.2/0-0.2

a complaint of a mass in the right dorsal scapular region growing rapidly and causing pain for the past three weeks. Her medical history revealed no known systemic or cardiac disease or trauma. On her physical examination, rhythmic heart sounds were normal and no significant murmur was heard. Respiratory system examination was also found to be normal. No pathology was detected in other systemic evaluations. She had no

risk factors for CE such as living in endemic areas or a close contact with animals. Doppler ultrasonography (USG) revealed a cystic lesion measuring 47×75 mm with no blood flow. Based on these findings, the patient underwent routine biochemical tests and advanced imaging of the mass (Table 1 and Figure 1). The reduction in contrast enhancement on magnetic resonance imaging (MRI) indicated a benign lesion.

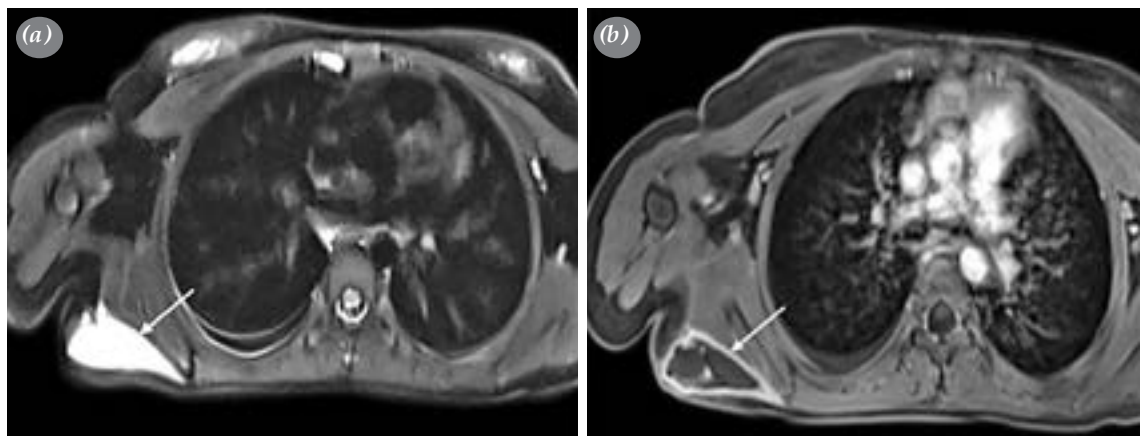


Figure 1. Preoperative posteroanterior contrast-enhanced MRI for cystic lesion. There is a cystic lesion located subcutaneously in the posterior right hemithorax. (a) It is hyperintense on the axial fat-suppressed T2-weighted image and (b) has not any contrast enhancement on the axial post-contrast T1-weighted image (white arrows).

MRI: Magnetic resonance imaging.



Figure 2. The hyperintense hydatid cyst lesion is observed in the interventricular septum on the axial T2-weighted image (A, white arrow). (a) Bilateral pleural effusion is also detected (black asterisks). (b) There is no contrast enhancement on the axial post-contrast T1-weighted image, white arrow). (c) Another hydatid cyst lesion with peripheral calcification (5 cm) is observed in the left liver lobe (white arrow).

The patient underwent biopsy of the lesion in the dorsal region under sedoanalgesia and local anesthesia. However, during the biopsy, the patient developed an anaphylactic reaction, followed by cardiopulmonary arrest. The patient was given 80 mg of methylprednisolone and 0.3 mg of epinephrine hydrochloride every 15 min. In addition, the patient underwent orotracheal intubation and cardiac massage was performed. Thankfully, the Emergency Team was able to successfully stabilize the patient, and subsequent echocardiography revealed a large hydatid cyst. On echocardiography, the patient's systolic functions were found to be normal. Hydatid cyst lesions were detected in the interventricular septum and left liver lobe on MRI and computed tomography (CT) images (Figure 2). In addition, fluid taken from the scapular region was sent for cytological and pathological examination. Indirect hemagglutination test for hydatid cysts (*Echinococcus* antibody) resulted in 1/640 positive. Hydatid serology was positive and enzyme-linked immunosorbent assay (ELISA)-based qualitative assessment of *E. granulosus* immunoglobulin (IgG) antibodies confirmed the diagnosis of echinococcosis. Antiprotozoal drug therapy was initiated. After the patient was stabilized, she was referred to a tertiary cardiac center for the placement of cardiac pacemaker for complete atrioventricular block. A written informed consent was obtained from the parents and/or legal guardians of the patient.

DISCUSSION

Hydatid cysts in the subcutaneous tissue constitute only 1.5% of all cases ranging from 0.6 to 1.6%).^[2,6] These cysts are rare conditions which mostly develop secondary to iatrogenic spillage of

cyst contents into the incision area during visceral hydatid cyst surgery. However, primary hydatid cyst involvement of the subcutaneous tissue is extremely rare, even in endemic areas.^[6] Therefore, we did not consider hydatid cyst in the cystic lesion in the dorsal subcutaneous tissue in our case and we planned a biopsy and did not give further albendazole treatment beforehand.

Orthopedic tumors are included in rare disease groups and gaining experience in this regard may take a long time. Many patients are admitted to orthopedic clinics with complaints of masses. If musculoskeletal tumors are suspected, a biopsy is planned. When possible, biopsies are performed in the outpatient setting, thereby reducing both costs and providing more rapid results.

This case demonstrates that potential complications should always be considered during surgical and invasive procedures. All surgical interventions should be performed cautiously, and necessary conditions for anesthesia and intubation should be meticulously provided during all types of procedures, such as biopsy. In addition, in patients with musculoskeletal masses, a whole-body MRI scan may be recommended to identify rare cases. Thus, potential complications can be prevented at an early stage.

As subcutaneous hydatid cysts may occur as a result of the spillage of cyst content into the incision area during visceral hydatid cyst surgeries, the risk of anaphylactic shock is high during the spreading or spillage of cyst content.^[7]

In conclusion, fatal complications such as anaphylactic shock should be considered and necessary precautions should be taken during all

invasive procedures, such as biopsy. Rare cases provide important contributions to clinical practice and literature.

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

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