

# Isolated Giant Hydatid Cyst in Kidney

## Böbrekte İzole Dev Kist Hidatik

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### ABSTRACT

Cyst hydatid of the kidney is parasitic condition caused by *Echinococcus granulosus* and identified in many countries, especially associated with sheep farming. *Echinococcal larvae* enter the bloodstream using the digestive system and invade any organs in the human body. The urinary system is the third most common area affected by parasitic infection after liver and lungs, but isolated renal involvement is a very rare situation, even in endemic areas. In our case, we aimed to report a 57-year-old female patient with an 18-centimeter isolated renal cyst hydatid treated by retroperitoneal nephrectomy. The diagnosis was based on imaging findings and confirmed by histopathologically. (*Türkiye Parazitol Derg* 2014; 38: 124-6)

**Key Words:** *Echinococcus granulosus*, cyst hydatid, parasitic infections

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### ÖZET

Böbrek kist hidatiği *Echinococcus granulosus* tarafından oluşturulan parazitik bir hastalıktır ve özellikle koyun yetiştiriciliğinin olduğu birçok ülkede görülür. Ekinokok larvaları sindirim sistemini kullanarak kan dolaşımına girer ve insan vücudunda herhangi bir organı tutabilir. Üriner sistem tutulumu karaciğer ve akciğerlerden sonra en sık tutulan bölgedir ama izole böbrek tutulumu endemik bölgelerde bile çok nadir görülür. Vakamızda 18 santimetre boyutunda izole renal kist hidatik tutulumu olan ve retroperitoneal olarak nefrektomi yapılan 57 yaşında bayan hastayı sunmayı amaçladık. Taniya görüntüleme yöntemlerine dayanılarak ulaşıldı ve histopatolojik olarak doğruluğu desteklendi. (*Türkiye Parazitol Derg* 2014; 38: 124-6)

**Anahtar Sözcükler:** Ekinokokkus granulosus, kist hidatik, parazitik infeksiyonlar

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### INTRODUCTION

Although we are in the age of antibiotics, parasitic infections continue to be a reason of serious health problems. Echinococcosis, also known as hydatid disease, is endemic trouble in many parts of the world caused by infection with a larval form of parasitic tapeworm *Echinococcus granulosus* (1). Dogs are typically a definitive host, and many herbiv-

orous livestock creatures-called intermediate hosts-contain parasites in intestines and are also sources for transmission to human. Humans are accidental hosts for echinococcus, and foods contaminated by eggs of the parasite play a role in transition. After the entry of embryos (oncosphere) into the bloodstream, the oncosphere could invade various organs and develop into a hydatid cyst (2-3). Kidney is the third most common organ involved after the liver (75%) and the

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lungs (15%), but isolated renal involvement is a rare condition, with a 2% incidence (4). Also, different clinical manifestations of the disease cause difficulties for diagnosis. In this report, we aim to present a patient with isolated renal hydatid cyst (RCH).

### CASE REPORT

A 57-year-old obese (BMI: 32.2 kg/m<sup>2</sup>) female patient was admitted to the hospital with asthenia, intermittent hematuria, and left flank pain of 14 months in duration. She had a history of uncontrolled hypertension without using any drug. In the physical examination, there were no pathological findings. Complete blood count and biochemical tests, including creatinine and electrolytes, were at normal levels. Urine analyses and chest graphy showed no abnormalities, but abdominal ultrasonography presented a cystic lesion, including a solid area in the left kidney and suspected renal cancer. Computed tomography revealed an 18-centimeter heterogeneous and multivesicular cyst with calcified wall; also, daughter cysts were described (Figure 1). The giant cyst had a deteriorated renal parenchyma, and because of its size, open total nephrectomy was indicated and performed. Operation was performed with a left flank incision. Cystic fluid was aspirated to facilitate control of the renal vessels and obtain lower intracystic pressure. Surrounding tissues were protected by using hypertonic 20% saline packs. Operation time was 105 minutes, and estimated blood loss was 110 cc. No complications occurred. The post-operative period was uneventful, and the patient was discharged 2 days after the operation. The histopathological findings confirmed the diagnosis (Figure 2). The patient received 10 mg/kg albendazol for 1 week preoperatively and for 3 weeks postoperatively.

### DISCUSSION

Renal echinococcosis, or hydatid cyst of the kidney, is an acquired disease caused by *echinococcus* parasites. *Echinococcus* (*E. granulosus*, *E. multilocularis*, and *E. rarer*) are flatworm belonging to the order cestoda and the tenia family (5). Adult forms of parasites live in the bowel of dogs or foxes, and sheep are intermediate hosts. Accordingly, echinococcal disease continues to be endemic in sheep-raising countries, such as Algeria, Tunisia, Australia, Egypt, and Canada (6). Humans get eggs of parasites from contaminated foods and water, thus accidentally taking the place as intermediate host in the parasitic cycle. The embryos migrate into the duodenum wall and enter the circulation system. Liver and lungs are the two most common organs involved by echinococcus. Hydatid cyst of the urinary system has been seen in 4% of all cases, and kidney is the most commonly affected organ. In addition, involvement of the vesiculoseminalis, bladder, prostate, and spermatic cord have been seen in various case reports (7).

Generally, there are no specific symptoms or indications to diagnose RCH. The disease usually continues asymptotically for years and is then discovered incidentally. Flank pain, fever, intermittent hematuria, dyspepsia, abdominal distension, vomiting, and weight loss are the most common symptoms (8). Rarely, palpable mass is determined in the physical examination. Only hydaturia-grabe like material in urine is a pathognomonic sign and reveals with rupture of the cystic lesion into the collecting system. Hydaturia is uncommon and has been reported in 5%-



Figure 1. Cyst hydatid in left kidney in 18 centimeter size

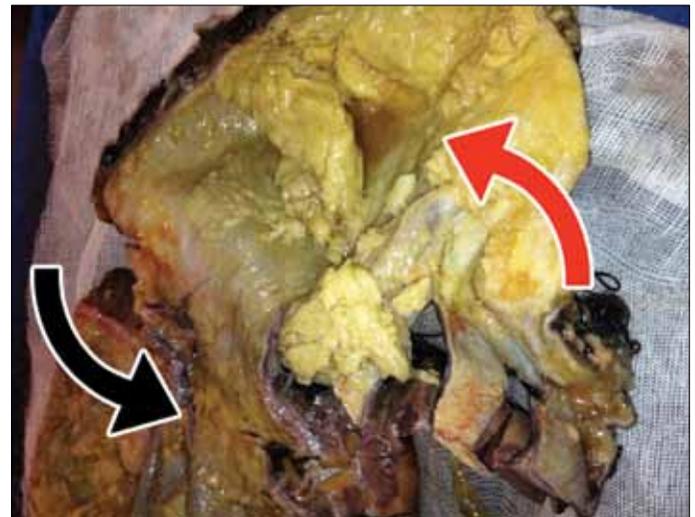


Figure 2. Macroscopic examination of pathological specimen

10% of all renal hydatid disease (9). In our patient, hydaturia was not detected.

Laboratory tests might be helpful, but there is no immunological and serological test for the definitive diagnosis. Eosinophilia is determined in 25% of patients, but false-positive results may occur in different conditions, such as other parasitic infections and autoimmune diseases. Recently, the Casoni test has almost been abandoned because of its low accuracy. Even the complement fixation test and indirect hemagglutination test have higher accuracy diagnostic rates; a positive test does not completely confirm the diagnosis (10).

Radiological procedures are the most important tool in the diagnosis of hydatid cyst. Plain abdominal graphy and intravenous urography are historical tools, and today, diagnosis is dependent mainly on ultrasonography. Detection of daughter cysts and floating membrane are characteristic findings of hydatid cyst in ultrasonography. Cost-effectiveness and non-invasiveness are the other advantages, but the effectiveness of ultrasonography is based on the operator and changeable, as in our case. Daughter

cysts are reported as solid lesions in our ultrasonography report. If there are any doubts, computed tomography or magnetic resonance imaging is performed. But, high-radiation dose CT can determine daughter cysts and calcification more easily when compared with USG (11). Parameters, such as size, location of hydatid cyst, and relationship with adjacent organs, are described more accurately with CT. MRI is an acceptable alternative to the CT scan. MRI detects a multiple or solitary lesion with high signal intensity, consisting of multiple thin walls and surrounded by a thick, hypointense rim.

The goal of the treatment is to remove all cyst contents in the kidney, and surgical modalities are the main treatment for renal hydatid cyst. Puncture-aspiration-injection-re-aspiration (PAIR) therapy is an alternative method for patients who can not tolerate operation or who do not wish to undergo operation, but its success is low, especially in multiocular cases (12). Partial nephrectomy, total cyst excision, and partial cystectomy are the kidney-sparing surgical therapies and are performed in 75% of all renal hydatid cyst cases. If the kidney is non-functional or is completely damaged by hydatid cyst, total nephrectomy is performed, as in our case (13). A laparoscopic approach is an alternative method but must be careful of risks of cyst rupture and dissemination.

## CONCLUSION

In this case, we report an unusual presentation of Echinococcus granulosis. Particularly, in epidemic areas, as our country, physicians must have good knowledge about the disease and must be aware of its clinical presentations and complications.

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