A Case of Isolated Renal Hydatid Disease in a Child Presenting as a Renal Tumor

BÖBREK TÜMÖRÜNÜ TAKLİT EDEN ÇOCUKLUK ÇAĞI İZOLE BÖBREK KİST HİDATİK OLGUSU

Ekrem ÜNAL, MD,[a] Yavuz KÖKSAL, MD,[a] Kemal ÖDEV, MD,[b] Engin GÜNEL, MD,[c] Müslim YURTÇU, MD,[c] Melike KESER, MD,[a] Ümran ÇALIŞKAN, MD[a]

Departments of [a]Pediatrics, [b]Radiology, [c]Pediatric Surgery, Selcuk University Meram Faculty of Medicine, KONYA

Abstract

Hydatid disease, a serious human cestode infestation, is of worldwide importance and presents medical, veterinary, and economic problems in many countries. The principal organs involved are the liver and lungs. Isolated hydatid cyst of the kidney is extremely uncommon. We report clinical and radiographic findings of an isolated renal hydatid disease in a 5-year-old girl; who was referred to our hospital, because of a left renal mass; which makes confusion on the differential diagnosis of renal tumors.

Key Words: Hydatid disease, kidney, child

Özet

Kist hidatik hastalığı ciddi bir paraziter enfestasyon olup hem gelişmiş hem de gelişmekte olan birçok ülkede tıbbi, veteriner ve ekonomik problemlere neden olmaktadır. Kist hidatik hastalığında akciğer ve karaciğer asıl etkilenen organlar olmakla beraber izole böbrek tutulumu çok nadirdir. Sol böbrek kitlesi nedeniyle hastanemize sevk edilen 5 yaşındaki kız olguda, böbrek tümörlerinin ayırıcı tanısında düşünülmesi gereken izole böbrek kist hidatiği tespit edilmesi üzerine klinik ve radyolojik özellikleri ile sunulmuştur.

Anahtar Kelimeler: Kist hidatik, böbrek, çocuk

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Hydatid disease (HD), a serious human cestode infestation, is endemic in many countries such as South America, Australia, India, the Middle East, and Mediterranean countries.[1] Hydatid disease is also a serious health problem in Turkey.[2,3] Most of adults have disease in the liver, while in children the lungs appear to be the most common site.[1-4] Hydatid disease of the kidney is rare, constituting 2-3% of all childhood patients.[2,6] Clinical presentation of renal hydatid disease is usually nonspecific and related to the mass effect of the enlarging cyst. Abdominal or lumbar pain is the most frequent presenting symptom. Other common symptoms are flank mass, hematuria, dysuria and hypertension.[1-13] If the cyst is secondarily infected, fever, rigors, pain and malaise may be present.[7,9,10] Herein we report the clinical and radiological features of a child with isolated renal HD, presenting as a renal tumor.

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Yazışma Adresi/*Correspondence:* Ekrem ÜNAL, MD,
Selçuk University Meram Faculty of Medicine
Department of Pediatrics, KONYA
drekremunal@yahoo.com

Case Report

A 5-year-old girl was referred to our department with a rapidly growing painful abdominal mass. Physical examination revealed fever (39.3 ºC) and a 15x20 cm, tender abdominal mass on her left abdomen. The peripheral blood count showed a hemoglobin level of 10 g/dl, a hematocrit value of 31.2%, a platelet count of 677.000/mm^3 and a white blood cell count of 16.900/mm^3 with neutrophil predominance of 75% in the peripheral blood smear. Erythrocyte sedimentation rate was 111 mm/h and C-reactive protein was 101 mg/L. Lateral and PA chest radiograms were normal. A plain

film of the abdomen demonstrated a huge soft tissue mass in the left renal area. Ultrasound (US) revealed a huge uni-locular renal cystic lesion with well-defined borders. Abdominal computed tomography (CT) showed that a large cystic lesion with low attenuation causing compression of the left kidney **(**Fig 1-A). MRI (Fig 1-B) and MR pyelography (Fig 1-C) were also performed. MR images in axial and coronal planes revealed a well-defined mass extending from the lower pole of the kidney to the perirenal area. The cystic mass had thin, low signal intensity rim and the fluid of the cyst showed low signal intensity on T1-weighted images and high signal intensity T2-weighted images. These radiological findings strongly suggested the diagnosis of renal HD. Additionally, MR pyelography demonstrated urinary obstruction. Chest X-ray; abdominal CT and US did not reveal any other organ involvement. Urine examination and culture were normal. Indirect haemagglutination test for the parasite was 1/80. Albendazole was began pre-operatively for prophylaxis of spillage at dose of 15 mg/kg/day per orally.

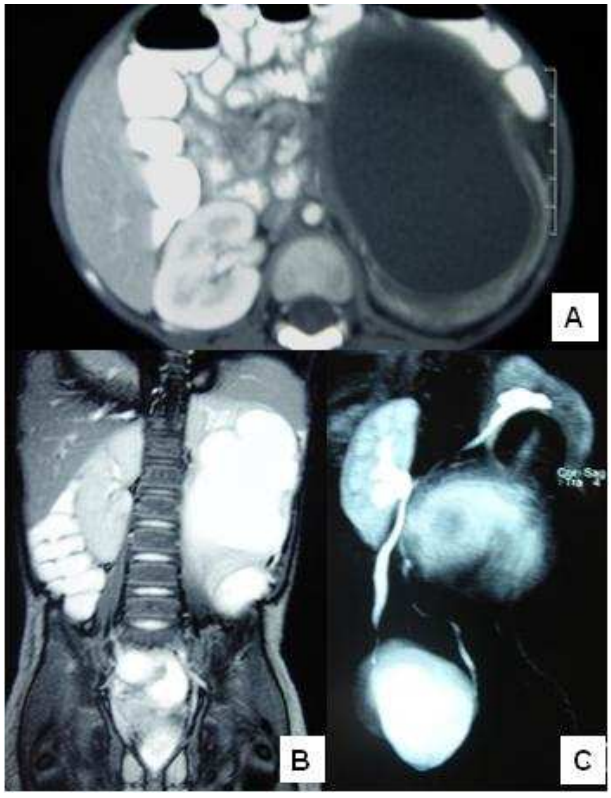

Figure 1. (A) Computed tomography showing a large cystic lesion with low attenuation causing compression of the left kidney. (B) Coronal T2-weighted image showed the cystic mass had thin, high signal intensity rim. (C) MR pyelography demonstrated the compression of the left kidney with obstruction of urine flow.

During operation, cystic lesion extending from the lower pole of the left kidney was explored by abdominal transperitoneal approach. Infectious fluid was aspirated from the cystic pouch and irrigated by saline solution after inserting a catheter to the pouch; the free drainage system was set up. Histopathological examination of the fluid revealed hydatid disease. Albendazole treatment has been continued for 1 month after the operation.

On the follow-up at 3 months, DTPA scanning revealed a well-functioning kidney. There was no evidence of hydatid disease in the perinephric space from spillage of the hydatid fluid on US examination.

Discussion

Hydatid disease is a cyclo-zoonotic parasitic infestation caused by *Echinococcus granulosus*. Hydatid disease most commonly affects liver and lung, but it can also be seen elsewhere in the body.[4] In adults, liver is the most frequently involved site and the lung is the second in frequency, while lung is the most frequently involved site in children.[1-4] Kidney involvement in echionococcosis is rare.[5-8] Yilmaz, et al. reported the urogenital system involvement rate as 2.15% in 372 hydatid disease cases.[2] The interesting point of our case is the isolated renal HD cysts in the absence of pulmonary and hepatic involvement.

The presence of a flank mass, hematuria, dysuria, pyuria, renal colic, ureteral colic, persistent fever, calculi, hypertension and so forth are all non specific for the really established diagnosis of renal HD.[7,8] The only pathognomonic sign of renal hydatid disease is hydatiduria, which occurs

when the cyst communicates with the collecting system; this has been reported in 5% to 28% of patients.[1,9] Hydatiduria was not determined at our patient's history and urine examination. Our patient presented with rapidly growing painful abdominal mass and fever. Even though the renal cyst had large dimensions, we speculated that it probably had caused symptoms after secondary infection.

Ultrasound, CT, and Magnetic Rezonans (MR) imaging are useful for delineating the location of the cyst, but the findings are nonspecific. Presence of daughter cysts, membrane detachment and wall calcifications are specific signs and facilitate differential diagnosis.[6-8] However, hydatid cysts in unusual localizations with simple cyst appearance may cause serious diagnostic problems. The disease may also mimic benign or malignant tumors, single or multiple metastases, abscesses, empyemas, infarcts, and other lesions.[7,8] Ultrasound reveals the typical lesion appearing as multicystic with daughter cysts and mural calcifications. In the absence of calcifications, the Intravenous pyelogram appearance can mimic that of a renal cyst or carcinoma. In addition, in old and complicated patients, the diagnosis cannot be easy every time. Isolated uni-locular renal hydatid cysts have been mistakenly interpreted as necrotic calcified renal cell carcinoma, and multi-locular cysts as cystic nephroma or cystic variant of renal cell carcinoma.[9,11] On CT of renal HD, uni-locular or multi-locular cysts with well-defined walls, which are frequently calcified, can be detected.[6-8] The differential diagnosis includes multi-locular cystic renal tumours: cystic nephroma and cystic partially differentiated nephroblastoma. Both lesions may present a capsule with low signal intensity on all MR sequences, and variable signal intensity of the cyst contents with no differences within the loculi.[1]

Serology may be helpful when in doubt and consists of immunoelectrophoresis, immunohaemagglutination test, and compliment fixation test. Casoni test has been largely abandoned, as it is unreliable. A combination of investigations yield a diagnosis in only 50% of patients.[4]

Surgery is the main form of treatment; especially for the multilocular variant of the disease surgery is the only form of treatment. Surgical management includes various options like total excision that consists of either wedge resection or partial nephrectomy and partial excision that includes partial pericystectomy followed by Capitonnage, re-approximation of the pericyst or marsupialisation.[4-6] Renal sparing surgery should be performed whenever possible.

Conservative management with oral albendazole is unreliable as being successful in some of patients.[4] Radiological intervention in the form of percutaneous aspiration, instillation of hypertonic saline or another scolicidal agent, and re-aspiration followed by percutaneous drainage is also successful and may replace open surgical procedures in uni-locular cysts**.** Patients can be started on a course of oral Albendazole treatment after surgery. In our patient, infectious fluid was aspirated from the cystic pouch and irrigated by saline solution. The free drainage system was set up. Albendazole treatment has been continued for one month after surgery.

In conclusion, isolated renal HD is a rare condition in children; which makes confusion with renal tumors on physical examination, but the differential diagnosis is feasible by imaging studies including US, CT and MRI.

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