Isolated complex renal cyst mimicking kidney mass

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Abstract Hydatidosis is an endemic parasitic disease in Mediterranean region, Middle east, Australia, parts of Africa, Latin America and Turkey. The cysts are mostly evident in the liver or lungs, while urinary tract involvement is uncommon, comprising only 2–4 % of all cases. Isolated renal involvement is extremely rare. Its diagnosis may be difficult because of nonspecific complaints and absence of pathognomonic laboratory findings except from hydatiduria. Although radiological studies have a more important role in the diagnosis, they cannot always show a specific sign or lesion for hydatid disease. Herein we present a rare case with isolated renal hydatid cyst mimicking a renal mass treated with right radical nephrectomy. Isolated renal cyst hydatid should be considered in differential diagnosis of both cystic and solid renal masses.

Keywords Kidney · Hydatid disease · Renal cyst · Diagnosis

Introduction

Cystic hydatid disease or Echinococcosis is a parasitic infestation caused by the cestode *Echinococcus granulosus* which can be endemic in many parts of the world. Close contact with dogs, sheep and cattle is related with the Hydatidosis. Cysts are mainly found in liver and lungs yet isolated renal involvement is extremely rare. Isolated hydatid cyst with uncommon localizations may complicate the process of diagnosis and treatment. Although isolated

renal cyst hydatid is uncommon, it should always be considered in the differential diagnosis of renal masses, especially suspicious cases in endemic areas, even without accompanying involvement of other organs.

Case

A 40-year-old male patient came to our department with 8-month history of moderate right flank pain. During physical examination, he had a palpable mass felt at the right renal region. In detailed history, he was living in a city and had no history of contact with dogs, sheep or cattle. The patient's urinalysis, blood count and blood chemistry levels were unremarkable and he had no eosinophilia or hydatiduria. The indirect fluorescent antibody (IFA) test was negative at 1/100 dilution in our case. Ultrasonography (USG) of the abdomen revealed a $8 \times 6 \times 10$ cm enhancing heterogeneous mass lesion with cystic areas filling the most part of the right kidney. Computed tomography (CT) showed a solid and cystic lesion with a diameter of 10 cm which originated from the right kidney which confirmed this lesion.

Magnetic resonance imaging (MRI) revealed a 10×6 cm enhancing heterogeneous, complex solidocystic mass which infiltrated 2/3 lower part of right kidney (Figs. 1, 2). There were no cysts in the liver and lungs. The patient was initially diagnosed as having a right renal tumor and underwent right radical nephrectomy with Chevron incision. On pathological examination, mass was diagnosed as renal hydatid cyst. The postoperative period was uneventful. During the postoperative period, albendazol treatment was started. The patient was discharged 4 days after nephrectomy. No complication was noted after the sixth month of the follow-up.

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Fig. 1 Coronal magnetic resonance image of the renal cyst

Fig. 2 Horizontal magnetic resonance image of the renal cyst

Discussion

Echinococcosis is a parasitic infestation caused by the larval form of *Echinococcus granulosus* [1]. The adult form is found in the small intestine of dogs and other canine species. Human is the intermediate host and infection occurs by ingesting contaminated vegetables and water. Ingested eggs emerge in the duodenum, then penetrate the mucosa and join the portal circulation [2]. Peak incidence of hydatidosis has been reported between the 3rd

and 5th decades of life. Although hydatidosis can develop in any part of the human body, urinary tract involvement is uncommon, comprising only 2–4 % of all cases, even where the hydatid disease is endemic. Thus, isolated renal hydatid cyst is very rare [3, 4]. Although there are no specific signs or symptoms and disease can be remained asymptomatic for years, hydatid cyst of kidney has many clinical findings such as flank mass in 84 %, pain in 73 %, and hydatiduria in 29 % of the cases [5]. Except from hydatiduria, none of these findings are specific for renal hydatidosis. Hydatiduria was not detected in our patient.

There is no serological or immunological findings pathognomonic for hydatid disease. Blood tests are generally normal. Eosinophilia is detected in 20–50 % of patients and it is not specific [1]. The Casoni test produces positive results in about 25–50 % of patients, while complement fixation test yields about 40 % positive results and even indirect hemagglutination test has a higher positive yield about 75 % for hydatid disease. As a result of these tests, negative serology does not exclude hydatid disease and positive ones do not confirm the diagnosis [2]. The indirect fluorescent antibody (IFA) test was negative at 1/100 dilution in our case.

Radiological studies are the key for diagnosis [4]. On plain X-ray, ring-shaped or peripheral curvilinear calcifications can be visualized but these are nonspecific. Intravenous urography shows distortion of calyces or upper urinary tract as a result of a mass involving the collecting system or a filling defect or a nonfunctioning kidney [1, 2]. Ultrasonography is the best method for the differential diagnosis in cystic renal masses with sensitivity of 95 % and its advantages including cost-efficiency and non-invasiveness. The mainly classification of hydatid cysts, based on USG features, consists of five types. In type 1, well-defined, anechoic lesion with posterior acoustic enhancement that may be undistinguishable from simple renal cysts. Type 2 refers to a cyst with detached membrane or a floating membrane (the “water lily” sign is formed by the undulating membrane). Type 3 is characterized by septa and intraluminal daughter cysts. Type 4 is a nonspecific solid mass with or without heterogeneous appearance. Thus type 4 should be differentiated from infected renal cysts, abscesses, and neoplasms. But, the accuracy of ultrasound depends on the operator [4]. In our case, USG of the abdomen revealed a $8 \times 6 \times 10$ cm enhancing heterogeneous mass lesion with cystic areas filling the most part of the right kidney. Usually, CT shows a hypoattenuating, expansible mass with a well-defined wall and daughter cysts. The central of the cyst has attenuation, in contrast to the much lower attenuation of the fluid in the surrounding cysts [4, 6]. Also CT can detect calcification and daughter cysts more sensitive and accurate than USG [8]. In this case, CT showed a solid and

Fig. 3 Macroscopic image of excised kidney

cystic lesion with a diameter of 10 cm which originated from the right kidney. Although MR is considered an acceptable alternative to the CT, some studies have been reported that it has no advantages over CT [1, 4]. In MR images: hydatid fluid is hypointense on T1-weighted and hyperintense on T2-weighted images, although an heterogeneous signal intensity may also be detected on T1-weighted images [7]. In our patient, MR revealed a 10 × 6 cm enhancing heterogeneous, complex solidocystic mass which infiltrated 2/3 lower part of right kidney (Figs. 1, 2).

Age, kidney function, and typology of cysts should be considered in treatment. Treatment of hydatid disease is mainly surgical. Total excisions of cyst, partial nephrectomy, partial cystectomy, kidney sparing surgery or nephrectomy are all surgical options for renal hydatid cyst. Laparoscopic applications can have some advantages over open surgery, but risks of cyst rupture and dissemination, have been reported in the literature [4]. Our case was initially diagnosed as having a right renal tumor and underwent right radical nephrectomy. On pathological examination, the cut surface of the kidney revealed semi-solid cystic lesions containing white–gray membranous structures. On microscopic examination, sections were stained with Hematoxylin–Eosin (HE). Histological examination revealed the lamellary cuticular membrane of the hydatid cyst (HE×20). The macroscopic and microscopic findings are shown in Figs. 3 and 4; respectively.

Fig. 4 Histological image of the cuticular membrane

During the postoperative period, albendazol treatment was started. The patient was discharged 4 days after nephrectomy. No complication was noted after the sixth month of the follow-up.

Specially, in endemic areas complex cysts in a kidney should be considered in differential diagnosis of hydatid disease. Clinical experiences can be important for correct diagnosis and proper treatment to protect a kidney.

Conflict of interest The authors have declared that no conflict of interest exists.

References

1. Göğüs Ç, Safak M, Baltacı S, Türkölmez K. Isolated renal hydatidosis: experience with 20 cases. *J Urol.* 2003;169:186–9.
2. Kilciler M, Bedir S, Erdemir F, et al. Isolated unilocular renal hydatid Cyst: a rare diagnostic difficulty with simple cyst. *Urol Int.* 2006;77:371–4.
3. Metin A, Kandıralı E, Semerciöz A, et al. Isolated renal hydatid cyst; from an unusual course to diagnosis. *Int Urol Nephrol.* 2007;39:19–21.
4. Granata A, Basile A, Bruno GA, et al. A complex renal cyst: it is time to call the oncologist? *Int J Nephrol.* 2011. 3. Article ID 893985.
5. Fekak H, Bennani S, Rabii R, et al. Hydatid cyst: 90 case reports. *Ann Urol.* 2003;37(3):85–9.
6. Turgut AT, Odev K, Kabaalioglu A, Bhatt S, Dogra VS. Multitechnique evaluation of renal hydatid disease. *Am J Roentgenol.* 2009;192(2):462–7.
7. Sayek I, Tirnaksiz MB, Dogan R. Cystic hydatid disease: current trends in diagnosis and management. *Surg Today.* 2004;34(12): 987–96.
8. Angulo JC, Sanchez-Chapado M, Diego A, et al. Renal echinococcosis: clinical study of 34 cases. *J Urol.* 1997;157:787–94.