A Case Report

Renal Hydatid cyst

Sadia Armin Khan[1], Abu Ahmed Ashraf Ali[2], Mahmud Riyad[3], Ahmed-Al-Hasan Mahmud[4]

Abstract

Echinococcosis or hydatid cyst disease of the kidney is extremely rare and constitutes only 2-4% of all cases of hydatid disease. Its diagnosis is easy and mainly based on ultrasound and CT-scan. The treatment is mainly surgical, by open surgery or by laparoscopic management. Here, we present a case; with only renal localization, was managed by conventional surgery. The follow-up showed no residual disease.

Key words : Echinococcosis, kidney.

Case history

A 27-year-old woman with no significant medical history presented with urinary urgency and left flank pain. The patient came from rural sheep farming community.

At physical examination, the patient was afebrile, anaemic and there was palpable fullness in the left upper quadrant of the abdomen and with left flank tenderness. Initial laboratory test results were normal except reduced Hb% and microscopic hematuria.

Enhanced computed tomography (CT), which was performed resulted in the incidental discovery of a large, multiloculated, cystic left renal mass. Further laboratory test results revealed substantially elevated serum Echinococcus antibody titers, a finding that supported the diagnosis of renal hydatid disease. The patient went for surgical treatment, and an open left nephrectomy was performed.

1. Assistant Professor, Department of Surgery, Ad-din Women's Medical College Hospital.
2. Prof & Head, Department of Surgery, Ad-din Women's Medical College Hospital.
3. Associate Professor, Department of Surgery, Ad-din Women's Medical College Hospital.
4. Registrar, Department of Surgery, Ad-din Women's Medical College Hospital.

Correspondence : Sadia Armin Khan, Assistant Professor, Department of Surgery, Ad-din Women's Medical College Hospital, Mobile: 01720-809726,
E-mail: arminbd @yahoo.com

Unenhanced axial CT image (Fig-1) shows a well-defined complex cystic mass within the left upper quadrant. The mass contains multiple smaller, peripheral, thin-walled cysts.

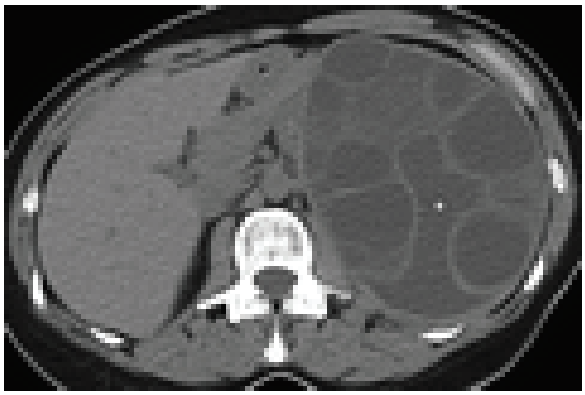

Fig-1

Gross pathologic examination revealed a 17 × 12 × 11-cm cystic mass located in the superior aspect of the left kidney. The mass was well demarcated by an apparent pseudocapsule and contained multiple free-floating internal cysts that ranged from approximately 1 to 7.5 cm in diameter. These daughter cysts were smooth and gelatinous, with white outer capsules. The external and internal surfaces of the cysts were similar, and they were filled with translucent fluid. No internal projections or solid structures were identified.

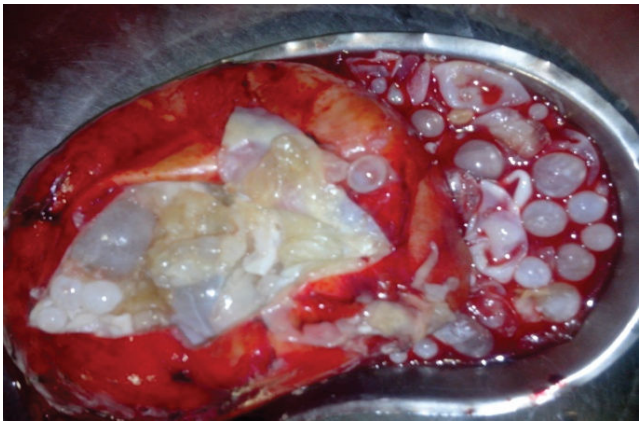

Fig-2

Photograph of the left nephrectomy (Fig-2) specimen shows the incised cystic mass and the multiple smaller, smooth-walled daughter cysts, which are filled with translucent fluid.

At microscopy, the diagnosis of renal echinococcosis (hydatidosis) was confirmed. The cyst wall consisted of an outer pericyst, a middle laminated membrane, and an inner germinal layer. Scolices were seen within the fluid of both the parent and daughter cysts. Histologic features of the renal parenchyma were normal.

The patient has received albendazol-based medical treatment for two months. The evolution is good within a follow up of one year.

Discussion

The RHC is the third localization of the hydatid cyst after liver and lungs. The RHC represents about 2.5% of the whole localizations and most often unilateral and unique, however cases of multiple and even bilateral were reported[1,2]. The RHC might remain asymptomatic for years in case of slow evolvement[3-7]. Frequently, The RHC is revealed by an abdominal mass syndrome that is often associating signs varying from general to particular such as urinary, lumbar pain; dysurea or hematuria[2,3,5]. The pathognomonic sign consisting of hydaturia should indicate the rupture of cyst and the diffusion of the content in the excretory tracts[4,8] which was not seen in our patient.

Renal hydatid cysts typically are unilateral, solitary, and found in the cortex of the upper or lower pole of the kidney. Imaging appearances vary with the development of the parasite, and three types of cysts may be distinguished: Type 1 cysts correspond to the initial developmental stage of the parasite and appear unilocular, without internal architecture; type 2 cysts are seen at an intermediate stage of parasitic development and contain multiple daughter cysts; and type 3 cysts are completely calcified and represent the death of the parasite[9-11].

Abdominal radiography may depict a soft-tissue mass that corresponds to the hydatid cyst. Ring-shaped or curvilinear calcifications may be seen in 20%–30% of cases because of calcification of the pericyst[10]. Complete calcification also may occur during the healing phase. Infundibular and caliceal distortion is the most common finding at excretory urography, but obstruction and renal dysfunction also may be seen[11].

At ultrasonography (US), the appearance of renal hydatid disease varies. A unilocular (type 1) cyst may mimic a simple renal cyst. Multiseptated daughter cysts (type 2) may be mistaken for polycystic kidney disease. However, the presence of a thick, bilayered wall is suggestive of hydatid disease[9,11,16]. The "falling snowflake" or "snowstorm" sign—multiple echogenic foci produced by hydatid sand that is dispersed when the patient rolls—is pathognomonic of hydatid disease[9,11,16]. Detachment of the endocyst from the pericyst with a "floating membranes" appearance also is characteristic[16]. Multiple daughter cysts separated by a fluid matrix that contains a mixture of membranes of broken daughter vesicles, scolices, and hydatid sand with mixed echogenicity may give rise to a "wheel-spoke" pattern[9]. Type 3 cysts appear as a bright echogenic focus with strong posterior acoustic shadowing[11].

Typical CT findings of renal hydatid disease include a unilocular cyst (type 1), a multilocular cyst (type 2) with mixed internal attenuation and daughter cysts with lower attenuation than that of the maternal matrix, and a completely calcified cyst (type 3)[9,11,16]. In type 1 and type 2 cysts, the cyst wall may be thick or calcified, and both the wall and internal septa often enhance after contrast material is administered[11].

Treatment of renal hydatid disease is primarily surgical and consists of total or partial nephrectomy. Kidney-sparing surgery with enucleation, marsupialization, and cystectomy has been described and is an alternative[17-19]. Percutaneous management, which consists of aspiration, injection of a scolicidal agent (eg, 10% povidone iodine or 95% ethanol), and reaspiration, has proved safe and effective in small studies, but concerns remain about possible risks of fluid dissemination and fatal anaphylactic reaction[17, 20-22].

Although the clinical manifestations of renal hydatid disease often are nonspecific, characteristic imaging findings coupled with a history of living in an endemic region are strongly suggestive of the diagnosis.

References:

1. Dumon H, Quilici M. Hydatidose chez l'enfant, Aspects statistiques et épidémiologiques récents. Ann Pediatr (Paris). 1987 May;34(5):405-9. This article on PubMed
2. Afsar H,Yagci F, Meto S, Ayabasti N. Hydatid disease of the kidney: evaluation and features of diagnosis procedures. J Urol. 1994 Mar;151(3):567-70. This article on PubMed
3. Cendron J. Infections spécifiques et parasitoses. urologie pédiatrique. Flammarion 1987
4. A Amrani, H Zerhouni, F F Benabdallah, R Belkacem, O Outarahout.[Renal hydatid cyst in children: report of 6 cases]Ann Urol (Paris). 2003 Feb;37(1):8-12 . This article on PubMed
5. Zmerli S, Ayed M, Horchani A, Chami I, El Ouakdi M, BenSlama MR. Hydatid cyst of the kidney: diagnosis and treatment.World J Surg. 2001 Jan;25(1):68-74. This article on PubMed
6. Panuel M, Goldstein P, Devred P, Guys LM, Faure F, Garnier FM. Kyste hydatique du rein de l'enfant. Pediatrie. 1992;47(11):779-83. This article on PubMed
7. Sayed S, Hentati M, Saied H. Le kyste hydatique du rein de l'enfant. J Urol. J Urol (Paris). 1982;88(2):75-9. This article on PubMed
8. Unsal A, Cimentepe E, Dilmen A, Yenidunya S, Saglam R. An unusual cause of renal colic: hydaturia. Int J Urol. 2001 Jun;8(6):319-21. This article on PubMed
9. Pedrosa I , Saíz A , Arrazola J , Ferreirós J , Pedrosa CS Hydatid disease: radiologic and pathologic features and complications. RadioGraphics 2000;20(3):795–817. [Abstract] [Medline]
10. Beggs I The radiology of hydatid disease. AJR Am J Roentgenol 1985;145(3):639–648. [CrossRef] [Medline]
11. Polat P , Kantarci M , Alper F , Suma S , Koruyucu MB , Okur A Hydatid disease from head to toe. RadioGraphics 2003;23(2):475–494. [Abstract] [Medline]
12. Ilica AT , Kocaoglu M , Zeybek N , et al. Extrahepatic abdominal hydatid disease caused by Echinococcus granulosus: imaging findings. AJR Am J Roentgenol 2007;189(2):337–343. [CrossRef] [Medline]
13. Engin G , Acunaş B , Rozanes I , Acunaş G Hydatid disease with unusual localization. Eur Radiol 2000;10(12):1904–1912. [CrossRef] [Medline]
14. Odev K , Kilinc M , Arslan A , et al. Renal hydatid cysts and the evaluation of their radiologic images. Eur Urol 1996;30(1):40–49. [Medline]
15. Gilsanz V , Lozano G , Jimenez J Renal hydatid cysts: communicating with collecting system. AJR Am J Roentgenol 1980;135(2):357–361. [CrossRef] [Medline]
16. Turgut AT , Ödev K , Kabaalioğlu A , Bhatt S , Dogra VS Multitechnique evaluation of renal hydatid disease. AJR Am J Roentgenol 2009;192(2):462–467. [CrossRef] [Medline]
17. Göğüş Ç , Şafak M , Baltaci S , Türkölmez K Isolated renal hydatidosis: experience with 20 cases. J Urol 2003;169(1):186–189. [CrossRef] [Medline]
18. Angulo JC , Sanchez-Chapado M , Diego A , Escribano J , Tamayo JC , Martin L Renal echinococcosis: clinical study of 34 cases. J Urol 1997;157(3):787–794. [CrossRef] [Medline]
19. Poulios C Echinococcal disease of the urinary tract: review of the management of 7 cases. J Urol 1991;145(5):924–927. [Medline]
20. Goel MC , Agarwal MR , Misra A Percutaneous drainage of renal hydatid cyst: early results and follow-up. Br J Urol 1995;75(6):724–728. [CrossRef] [Medline]
21. Akhan O , Ustünsöz B , Somuncu I , et al. Percutaneous renal hydatid cyst treatment: long-term results. Abdom Imaging 1998;23(2):209–213. [CrossRef] [Medline]
22. Baijal SS , Basarge N , Srinadh ES , Mittal BR , Kumar A Percutaneous management of renal hydatidosis: a minimally invasive therapeutic option. J Urol 1995;153(4):1199–1201. [CrossRef] [Medline]