Case Report

An undiagnosed giant right renal hydatid cyst treated laparoscopically: Case report and review of literature

Elsawi Osman, Ziauddin Khan, Abdulmenem Abualsel[1], Tanweer Bhatty

Departments of Urology and [1]General Surgery, King Hamad University Hospital, Al Sayh, Bahrain

Abstract

Hydatid disease caused by the tape worm *Echinococcus granulosus* is a rare occurrence in the urinary system in general. We are hereby presenting a case of a gentleman in his fourth decade with a giant right renal hydatid cyst. The clinical manifestations, radiological features, and serology were all not suggestive of hydatid disease; however, typical *Echinococcus* scolices were detected histologically following cyst aspiration. The giant cyst was successfully treated laparoscopically.

Key Words: Giant renal cyst, renal echinococcosis, renal hydatid cyst

Address for correspondence:
Dr. Ziauddin Khan, Department of Urology, King Hamad University Hospital, Al Sayh, Bahrain. E-mail: zia.khan@khuh.org.bh
Received: 13.09.2015, **Accepted:** 07.12.2015

INTRODUCTION

Hydatid disease or cystic echinococcosis is the larval cystic stage of the tape worm (*Echinococcus granulosus*) that infests humans as an intermediate host. The commonly affected organs are the liver and lungs.

Renal hydatid disease is rare constituting around 2–3%[1] becoming even rarer when it is an isolated involvement. In the absence of frank hydatiduria (passage of small white grape-like structures), diagnosis is confirmed by imaging in the majority of cases.

We are reporting a case of an isolated (23 cm × 16 cm × 15 cm) clinically palpable right renal hydatid cyst that was diagnosed on microscopy of fluid aspirated from the cyst. The classical computed tomography (CT) scan appearance of daughter cysts was negative as well as serological tests.

Access this article online	
Quick Response Code:	Website: www.urologyannals.com
	DOI: 10.4103/0974-7796.192089

CASE REPORT

A 36-year-old male patient, presented to the emergency department on the 10th of January 2014, with intermittent right sided abdominal pain for the past few months that was becoming severe in the preceding few days. The nature of pain was nonspecific and the location was diffuse. There were no associated lower urinary tract symptoms or fever. He has no comorbidities or history of urolithiasis. He was a smoker for the last 20 years. Physical examination revealed right-sided renal angle fullness. Rest of abdominal examination was unremarkable.

Urinalysis showed microscopic hematuria with some proteinuria. Full blood count was within normal limits, whereas renal function test showed an elevated creatinine

How to cite this article: Osman E, Khan Z, Abualsel A, Bhatty T. An undiagnosed giant right renal hydatid cyst treated laparoscopically: Case report and review of literature. Urol Ann 2016;8:471-3.

of 150 μmol/L. A plain abdominal film showed; a large, well-defined soft tissue swelling in the right hypochondrium and lumbar region. The patient was initially seen by the nephrology services, who arranged renal tract ultrasound (US), which showed a large clear cystic lesion measuring 20 cm × 16 cm in the right subhepatic region occupying the entire right lumbar quadrant. No contents seen with no septation. The right kidney was compressed by the cyst and could not be separately imaged from this lesion. The contralateral kidney was unremarkable. He was referred to urology clinic, where he was found to have a palpable mass that was dull to percussion occupying the right renal angle. After taking necessary measures against contrast nephropathy, the patient had a CT scan with intravenous and oral contrast of the abdomen and pelvis [Figure 1] that showed a large thick-walled nonseptated noncalcific right renal cortical cyst (23 cm × 16 cm × 15 cm) showing enhancement of its thick walls, no right perinephric/pericystic fat stranding, preserved tissue planes with surrounding related organs.

For further assessment of drainage and function, the patient had an MAG3 renogram that showed a small right kidney with poor perfusion and excretion of the tracer. It contributed around 9% to the total renal function. In the view this poor function, in addition to the patient's worsening symptoms, this giant cyst was aspirated under US guidance on the 26th of May 2014. A total of 4.3 L of straw colored fluid was aspirated resulting in symptomatic improvement. A specimen of the fluid was sent for culture as well as cytology, which unexpectedly confirmed the presence of numerous viable *Echinococcus* scolices. Accordingly, the patient was started on oral albendazole in consultation with infectious disease team. Serological tests (*Echinococcus* IgG) were reported as negative. He was discharged in a satisfactory condition without any complications related to the aspiration.

On clinic follow-up in September 2014, the patient continued to have loin discomfort, with an interval US scan showing the cyst to have a size of 16.2 cm × 10.9 cm, and it was described as irregular and thick-walled [Figure 2]. Therefore, the patient was advised to continue on albendazole, and a definitive procedure of laparoscopic aspiration with injection of 10% betadine and decortication of the cyst was carried out on the 17th of September 2014. Intraoperatively, the cyst was accessed directly by a laparoscopic trocar under vision through that trocar a large caliber suction tube was inserted, which made the aspiration process very controlled without any leakage or risk of seeding. This was followed by de-roofing and excision of the cysts germinal layer. The postoperative course was smooth, and the patient was discharged in a satisfactory condition and was advised to continue albendazole. A follow-up US, on the 3rd of June 2015 showed normal appearance of the right kidney with complete disappearance of the cyst [Figure 3].

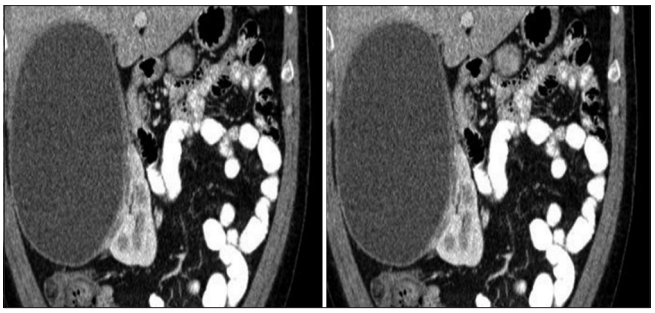

Figure 1: Computed tomography appearance of the giant right renal cyst compressing the kidney. Sagittal view on the left and coronal view on the right, both showing no evidence of daughter cysts

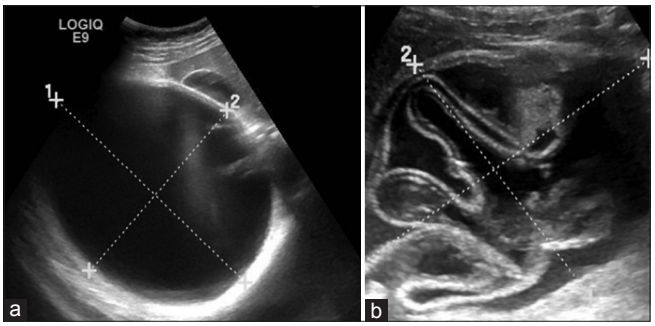

Figure 2: Ultrasound views of the cyst. (a) Preaspiration view. (b) Postaspiration, showing a septated, thick-walled cyst

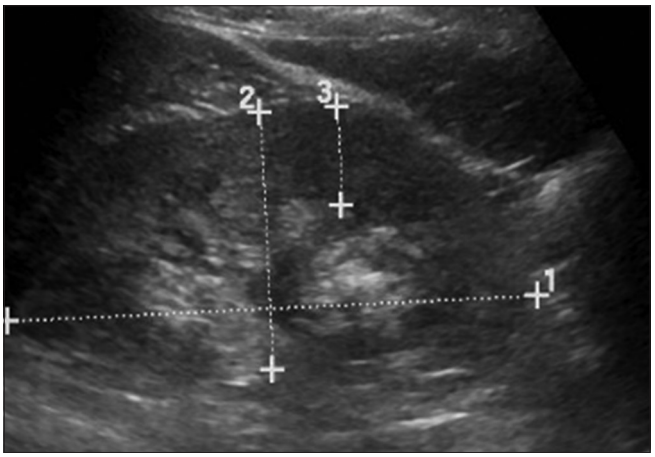

Figure 3: Postlaparoscopic aspiration and decortication ultrasound along with albendazole orally, showing normal appearance of the right kidney

DISCUSSION

Genitourinary echinococcosis is mainly caused by *E. granulosus*; however, renal, ureteral, and testicular echinococcosis could be caused by *Echinococcus multilocularis*. Direct contact other hosts such as sheep and dogs and ingestion of contaminated food are the main predisposing factors. Interestingly[2] reported a case of renal hydatid cyst in a laboratory technician, who has spent several years in contact with specimens, suggesting laboratory associated transmission. The mechanism by which the worm reaches the kidney is still not clear and both

hematogenous and lymphatic spread were postulated. Another rare site related to the genitourinary system is the retrovesical location with a recently publishes series of four cases.[3]

With regards to diagnosis of renal hydatid cysts, clinical suspicion is not usually of high index as the disease in not common in the genitourinary tract, especially in nonendemic areas. In our case, the patient denied any contact with domestic animals on retrospective questioning. Serological tests aiming at detecting *Echinococcus* IgG could also contribute to the diagnostic process if available. One study from Egypt[4] compared the use of indirect haemagglutination (IHA) to the enzyme linked immunosorbent assay (ELISA) technique and showed that the sensitivity and specificity of ELISA were 96.7% and 97.5%, respectively, and that of IHA were 86.7% and 95%, respectively.

Radiologically, ultrasonography can be of help if the daughter cysts or hydatid sand are appreciated. This is demonstrated by changing the patient's posture under real time US, resulting in movement of hydatid sand, which may give rise to the "falling snowflake pattern." Nevertheless, it all depends on the operator's experience. CT scan has a better accuracy compared to the US. Rexiati *et al*.[5] in their series of 30 renal hydatid cysts correlated the imaging manifestations with the final histopathology and reported the diagnostic accuracy of 87.5% and 74% for CT and US, respectively. They also suggested that the (2001 WHO-IWG-E hepatic hydatid cyst imaging classification) can be used to guide the management of renal hydatid cysts as well.

The usual CT features are hypoattenuating lesion with a well-defined wall and daughter cysts within the parent cyst. The central cystic part of the lesion usually has an attenuation of 30–35 HU, in contrast to the much lower attenuation of the fluid in the surrounding cysts (5–15 HU), giving the mass a wheel-like or rosette appearance. Diffusion weighted magnetic resonance (MR) imaging may give supplementary information with regards to signal intensity compared to renal parenchyma. Moreover, MR spectroscopy may show certain amino acid peaks.[6] In our patient's case, both US and CT scan appearances were negative for all above features. Hence, the consensus opinion was to go for cyst aspiration as both diagnostic and therapeutic measure. In this regard, recent evidence suggested that the risk of anaphylactic reaction associated with percutaneous treatment is more of an exaggeration rather than a real concern.[7]

CONCLUSION

Isolated giant size renal hydatid cyst is a rare entity, with almost no specific clinical features to guide the diagnostic work up apart from hydatiduria that occurs in around 10%. Imaging is usually the key to diagnosis; however, the most commonly used modalities of US and CT scan are not completely reliable, leaving the final diagnosis to be revealed after the definitive treatment either surgically or percutaneously. A high index of suspicion should always be maintained in dealing with large renal cysts.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

REFERENCES

1. Warren D, Johnson JR, Christopher W. Parasitic disease of the genitourinary system. In: Walsh PC, Retik AB, Vaughan FD, editors. Campbell's Urology. 8th ed. Vol. 2. Philadelphia: Elsevier Saunders; 2002. p. 786 8.
2. Seetharam V, Khanna V, Jaiprakash P, Kosaraju K, Thomas J, Mukhopadhayay C. Primary hydatid cyst of the kidney and ureter with hydatiduria in a laboratory worker: A case report. Case Rep Nephrol 2012;2012:596923.
3. Saadi A, Bouzouita A, Cherif M, Rebai MH, Kerkeni W, Ayed H, *et al*. Retrovesical hydatic cyst: About 4 cases. Can Urol Assoc J 2015;9:E374-8.
4. El-Shazly AM, Saad RM, Belal US, Sakr T, Zakae HA. Evaluation of ELISA and IHAT in serological diagnosis of proven cases of human hydatidosis. J Egypt Soc Parasitol 2010;40:531-8.
5. Rexiati M, Mutalifu A, Azhati B, Wang W, Yang H, Sheyhedin I, *et al*. Diagnosis and surgical treatment of renal hydatid disease: A retrospectiveanalysis of 30 cases. PLoS One 2014;9:e96602.
6. Erdem G, Burulday V, Alkan A. Advanced magnetic resonance imaging findings of renal hydatid cyst. Med Sci 2014;3:1743-50.
7. Neumayr A, Troia G, de Bernardis C, Tamarozzi F, Goblirsch S, Piccoli L, *et al*. Justified concern or exaggerated fear: The risk of anaphylaxis in percutaneous treatment of cystic echinococcosis – A systematic literature review. PLoS Negl Trop Dis 2011;5:e1154.