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Isolated Renal Hydatid Cyst: A Rare Occurrence

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ABSTRACT

A 20-year-old female presented with upper abdominal pain. The renal function tests and liver function tests were within normal range. The abdominal ultrasound revealed a complex cystic mass in the left kidney. The contrast-enhanced CT scan showed a hypoattenuating, left-sided cystic renal mass at the upper pole with a well-defined margin and fine areas of calcification. Immunological tests for hydatid disease were positive. The patient was pre- and postoperatively managed with 10 mg/kg per day of albendazole for 2 weeks, and the hydatid cyst was excised through the retroperitoneal route. The cut section and histopathological examination were consistent with a hydatid cyst. Follow-up with a renal ultrasound showed normal findings and no evidence of new cyst reappearance. The patient is doing well in follow-up care.

INTRODUCTION

Isolated renal involvement by hydatid disease is extremely rare with an incidence of 2 to 3% [1,2]. The most common organ involvement is the liver (50 to 70%) followed by the lungs (20 to 30%) [2,3]. Isolated renal involvement is usually asymptomatic for years, and most of the time it is an incidental diagnosis. The clinical presentations are flank pain, flank mass, subcostal pain, and bowel-related symptoms due to compression [3,4]. The renal ultrasound and contrast CT scan remain the key diagnostic modalities supported by the presence of eosinophilia in 10 to 20% cases and immunological tests [6-8]. Herein we present a rare case of isolated renal hydatid cyst discovered incidentally during an evaluation of non-specific abdominal pain.

CASE REPORT

A 20-year-old female presented with upper abdominal pain for the first time, which was associated with heartburn and nausea. There were no other associated symptoms. Her general physical and abdominal examinations were unremarkable. Her hemogram showed 10 gm/dl of hemoglobin, the total leukocyte count of 8900/cm3, with 55% polymorphs, 15% lymphocyte, and 30% eosinophil as a differential leukocyte count. Her renal function tests and liver function tests were within normal range. Her abdominal ultrasound showed a complex cystic mass in the left kidney (Figure 1). The contrast-enhanced CT scan of the abdomen showed a hypoattenuating, left-sided cystic renal mass at the upper pole with a well-defined margin and fine calcification (Figure 2). The cyst had an attenuation value of 32 HU in the central part and 10 HU in the peripheral part. The immunological test for hydatid disease was positive. The patient was put on 10 mg/kg of albendazole per day for 2 weeks, followed by the excision of the hydatid cyst through the retroperitoneal route. The completely excised cyst showed jelly-like material on a cut section, which is consistent with hydatid cysts (Figure 3). The histopathological examination of the specimen showed an eosinophilic, laminated cystic wall with an inner germinal layer at places (Figure 4). There were no daughter cysts (the patient was on albendazole before the operation). There were a fair number of renal tubules with hydropic degeneration, chronic thyroidization, and occasional glomeruli showing the obliteration of the Bowman capsule. Moderate inflammatory infiltrates were present, with dilated and congested blood vessels in the surrounding stroma. In the postoperative period, the patient was given 10 mg/kg of albendazole per day for 2 weeks. The postoperative period was uneventful. A follow-up renal ultrasound at 6 months

KEYWORDS: Hydatid cyst, renal hydatid, isolated renal hydatid, echinococcus cyst, cystic renal mass

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Figure 1. An abdominal ultrasound showing a complex cystic mass in the left kidney.

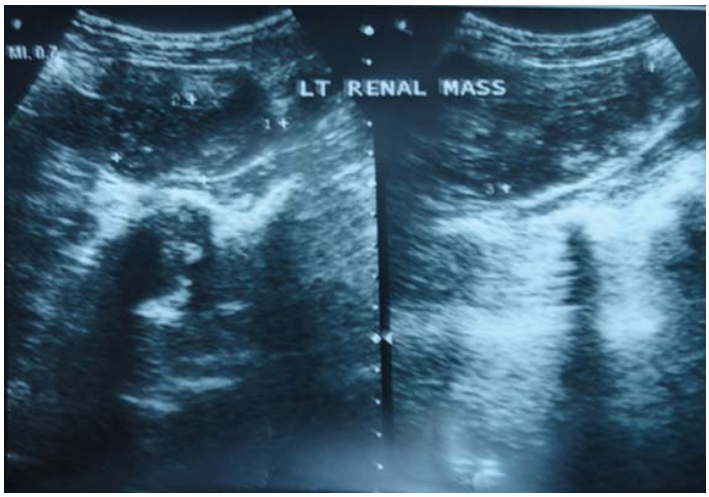


Figure 2. The contrast-enhanced CT scan of the abdomen showing a hypoattenuating, left-sided cystic renal mass at the upper pole with a well defined margin and fine areas of calcification.

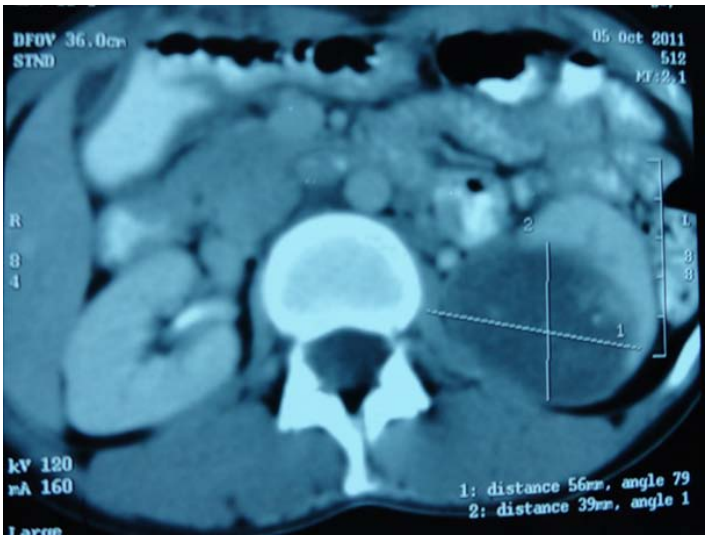


Figure 3. A completely excised cyst showing the jelly-like material on a cut section, which is consistent with a hydatid cyst.

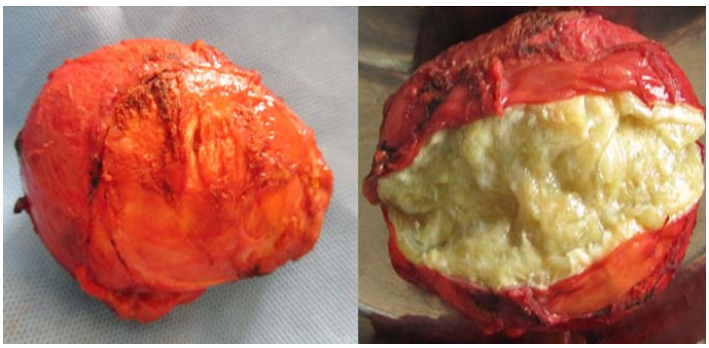
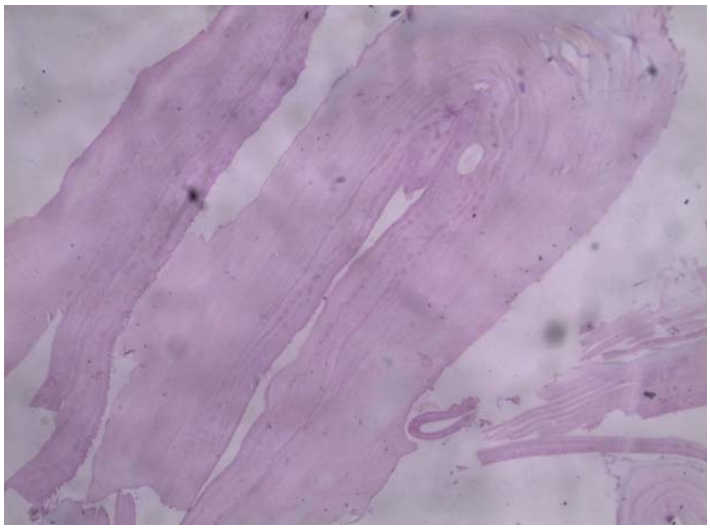


Figure 4. The microphotograph of the specimen showing an eosinophilic laminated cystic wall with an inner germinal layer at places. There was no daughter cyst. (H&E staining, 400 micron magnification.)



showed normal findings, and there was no evidence of cyst reappearance. The patient is doing well in follow-up care.

Discussion: Hydatid disease is a cyclozoonotic parasitic infestation caused by *echinococcus granulosus* [1]. Human infestation is caused by the larval form, and humans are the intermediate host, contracting the disease by ingesting contaminated vegetables and water. Classically, hydatid disease involves the liver in 50 to 70% of cases and the lungs in 20 to 30% of cases, but any organ, including the kidney, can be involved. Isolated renal involvement is extremely rare, with an incidence of 2 to 3%, even in the endemic regions [1,3]. Most isolated renal involvement is asymptomatic, and the other presentations are dull aching flank pain, subcostal pain, digestive symptoms due to bowel compression, and problems related to the raised eosinophil counts [1,3-5]. The rupture

of cysts in the renal pelvicalyceal system causes microscopic hydatiduria (daughter cysts in urine), which is extremely rare but pathognomonic signs of renal hydatid cyst disease [4,5]. Hematuria could be the other presentation due to renal parenchymal distortion and destruction by compression [3,5].

The renal ultrasound is the most appropriate method of initial evaluation. Five types of renal involvement have been described. The type-1 hydatid cyst appears as a well-defined, anechoic lesion with posterior acoustic enhancement that may be indistinguishable from simple renal cysts. However, a double-contour, thick-wall cyst or a history of living in endemic regions strongly suggests a diagnosis of hydatid cysts. The type-2 cyst refers to a cyst with a detached membrane or a floating membrane (the "water lily" sign, formed by the undulating membrane). Septa and intraluminal daughter cysts characterize type-3 cysts. This is commonly misinterpreted as congenital polycystic disease of the kidney (diffuse and bilateral involvement can differentiate the entity). The type-4 cyst is the heterogeneous, nonspecific solid mass (differential diagnosis includes infected renal cysts, abscesses, and neoplasm). Calcification in a ring-like pattern occurs in the pericystic layer of the wall of the hydatid cyst in types 3, 4, and 5. The type-5 cyst is cystic cancer-like with calcifications [5-7, 9]. The contrast CT scan is the investigation of choice for abdominal involvement. An expansible, hypoattenuating mass with a well defined wall and daughter cysts within the parent cyst are typical findings. Usually the central part of the cyst has an attenuation of 30 to 35 HU and 5 to 15 HU for fluid in the surrounding, peripheral part of cysts. This gives the mass a rosette or wheel-like appearance [6-10]. Magnetic resonance imaging is an acceptable alternative to the CT scan, particularly if there is renal impairment and/or allergy to the iodinated contrast. The hydatid fluid is hypointense on a T1-weighted image and hyperintense on a T2-weighted image, although heterogeneous signal intensity may also be detected on T1-weighted images. MRI reveals a multiple or solitary high-signal intensity mass consisting of multiple, thin-walled lesions and is outlined by a thick, hypointense rim. The central part of a cyst has high-signal intensity while the peripheral fluid of a cyst is hypotense [6,8,10].

The main study in the literature is from Kaya et al. who reported 23 cases of renal and other extra-renal retroperitoneal hydatid cysts [11]. None had liver or lung involvement. In 18 patients, hydatid cysts were located in the kidney, 3 cysts were located at the iliopsoas muscle, 1 cyst was isolated in retroperitoneal space, and 1 cyst was isolated in retrovesical space. All renal hydatid cysts were unilateral and solitary. The cyst was bilateral and multilocular in 2 patients with iliopsoas hydatid cysts, whereas it was unilateral in the third. Isolated retrovesical hydatid cysts were unilocular and solitary [11].

In the present case, the patient was investigated for non-specific abdominal pain. The renal ultrasound showed a complex renal cystic mass, and the CT scan confirmed the same findings, suggestive of a complex renal cyst. There was no evidence of any other intra-abdominal organ involvement. The patient had a high eosinophilic count for which an immunological test was done that proved positive, and the diagnosis of isolated renal hydatid disease was confirmed. The patient was initially put on 10 mg/kg of albendazole for 2 weeks, followed by cyst excision. The cyst excision has also been reported by others [3,5,8,10,12]. Postoperatively, albendazole was given for another 2 weeks to completely eradicate any potential contamination that occurred during the surgical procedure.

Our case was different. Although it appeared as a complex renal cyst, further evaluation with immunological testing showed a renal hydatid cyst. Whenever one encounters such presentation bear in mind the rare possibility of isolated renal hydatid cysts, and begin preoperative albendazole. We operated retroperitoneally, which prevents peritoneal spillage and was an attempt to prevent the recurrence of the disease.

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