Isolated renal hydatid cyst in a diabetic postmenopausal female

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ABSTRACT

Isolated renal hydatid disease is very uncommon and is usually an unexpected disclosure during radiological imaging. Since it affects the kidney, renal mass, or colic, hematuria, pyuria, and dysuria are the predominant symptoms. We present a case of a 48-year-old diabetic postmenopausal female incidentally diagnosed with an isolated giant renal hydatid cyst while evaluating the cause of recurrent flank pain.

Key Words: Echinococcosis, hydatid cyst, renal

INTRODUCTION

Hydatid disease, also known as Echinococcosis, is a zoonotic disease caused by the larval stage of the Echinococcus tapeworm. The two main types are Echinococcus granulosus and Echinococcus multilocularis belonging to the order Cestoda and the family Taenia. Humans may become intermediate hosts through contact with a definitive host (dogs and other carnivores) or ingestion of contaminated water or vegetables. The worm affects commonly the liver (65%) and the lungs (25%), less commonly bones 5%, kidney 2-4%, spleen 2%, heart 1%, pancreas 1%, and central nervous system 1%; however, no organ is immune.[1] Hydatid cysts typically remain asymptomatic for years, and therefore grow enormously until detected. Renal hydatid cysts remain unnoticed until they present with renal pain, hematuria, pyuria, or intermittent fever.[2]

CASE REPORT

A 48-year-old diabetic postmenopausal lady presented with left-sided recurrent flank pain for 4 years with intermittent dysuria and hematuria. She had been prescribed anti-spasmodics, analgesics and antibiotics off and on, suspecting it to be either renal colic or recurrent urinary tract infection. Her diabetes was well controlled on insulin and she had no evidence of target organ damage. On abdominal examination, the abdomen was soft and a vague cystic swelling was palpable in the left hypochondrium and lumbar region. Rest of the systemic examination was unremarkable. Laboratory investigations revealed eosinophilia 1200 cells/mm³, normal liver function tests, and mildly deranged renal functions (blood urea 45 mg/dl and serum creatinine 1.4 mg/dl). The chest radiograph was normal. Ultrasonography revealed a multiseptate cystic mass in the left kidney replacing the whole renal tissue. The liver and right kidney were normal. The computed tomography (CT) scan revealed a large well-defined soft tissue attenuating mass lesion showing multiple cystic areas within it, arising from cortex of upper pole of left kidney replacing the renal tissue [Figure 1a and b]. No obvious contrast enhancement was noted on arterial or venous phase and no calcification was seen. These findings were suggestive of renal Echinococcosis. Hydatid serology using the

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Renal hydatid cysts are very rare, mostly unilateral, solitary and located in upper or lower renal cortex.\cite{3-5} Clinical features are generally late and non-specific, unless there is gross hydatiduria, which sparks the clinical diagnosis. Thus, the identification of primary hydatid cyst of the kidney is usually radiological; however, a positive serology often helps in preoperative confirmation. The pathogenesis of isolated renal Echinococcus is speculative. It is not known how the hydatid embryo primarily affects kidney, but it is assumed that it passes through the portal system and retroperitoneal lymphatics without getting lodged there.\cite{6} Renal hydatid may be complicated by rupture or superadded bacterial infection. Cystic rupture into the collecting system causes hydatiduria, seen in only 10-20% of renal hydatid and is usually microscopic. Gross passage of the daughter cyst is rather uncommon.\cite{4}

Plain abdominal films may show ring-shaped or curvilinear calcifications delineating a pericyst or a soft-tissue mass corresponding to the hydatid cyst. Excretory urography commonly depicts infundibular and caliceal distortion. Intravenous urogram can reveal a communication with renal ductal system and functioning of kidneys. At ultrasonography, hydatid disease is suggested by the presence of a thick, bilayered wall, “falling snowflake” or “snowstorm” sign — multiple echogenic foci produced by hydatid sand that is dispersed when the patient rolls, and detachment of the endocyst from the pericyst with a “floating membranes” appearance. Other characteristic appearance is “wheel-spoke” pattern or “racemose” pattern, wherein multiple daughter cysts separated by a fluid matrix containing membranes, scolices, and hydatid sand demonstrate mixed echogenicity.\cite{6} Newer radiological techniques like computed tomographic (CT) scan and magnetic resonance imaging (MRI) remain the mainstay of diagnosis. Depending upon the developmental stage of the parasite, imaging appearances vary. The CT scan demonstrates an expansile, well-defined, hypo-attenuating cystic lesion giving a wheel-like or rosette appearance, and four types of cysts can be identified. Type 1 cysts are unilocular and correspond to the initial development and may mimic a simple renal cyst. Type 2 cysts are multilocular with mixed internal attenuation containing multiseptated daughter cysts, which are seen at the intermediate stage of parasitic development and may be mistaken for polycystic kidney disease. Type 3 cysts are completely calcified and symbolize death of the parasite. Type 4 cysts are complicated, that is, have either ruptured or superinfected. Type 1 or 2 cysts may have thick or calcified walls. MRI is often utilized, but is not really superior to CT. On T2-weighted MR images, hydatid cysts characteristically have a low-signal-intensity thick rim and hyperintense maternal matrix, which appears hypointense on T1-weighted images.\cite{4}

Peripheral eosinophilia may be present in almost half of the patients. Serological tests may help in confirming pre-operative diagnosis; commonly employed tests are immuno-electrophoresis, enzyme-linked immunosorbent assay, immuno-hemagglutination test, and complement fixation test. The Casoni and Weinberg tests are unreliable and outdated. A combination of investigations yields a diagnosis in almost 50% of cases.\cite{9} The confirmatory test is arc 5 immunoelectrophoresis. A polymerase chain reaction may be required rarely to define the particular species of Echinococcus.

Kidney-sparing cyst excision surgery is the mainstay of treatment; however, the surgeon may resort to partial or complete nephrectomy in difficult cases or when the kidney is non-functioning. Spillage of contents should be prevented at all costs. Pre- and postoperative albendazole is advised to sterilize and decongest the cyst and decrease anaphylaxis risk. During surgery, scolicidal agents preferably hypertonic saline or povidone iodine should be injected into the cyst to kill the infective daughter cysts. Transperitoneal approach could be safer than a retroperitoneal approach.

**Learning points**

Recurrent urinary infections must be investigated for structural uro-genital abnormalities. Primary renal hydatid...
disease should be suspected in cases of unexplained flank pain, recurrent dysuria, or palpable renal lump. Diagnosis is straightforward with radio-imaging techniques and surgical excision is the cornerstone of management. However, an early thoughtful diagnosis could potentially spare the kidney by timely institution of medical therapy.

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Conflicts of interest
There are no conflicts of interest.

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