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Case Report

Hydatiduria: a rare case of renal hydatidosis

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ABSTRACT

Hydatidosis is a zoonotic condition caused with prolong history of contact with dog by *Echinococcus granulosus*. It affects liver and lungs, but renal involvement is rare. We report a female patient who presented in the urology department with intense perineal itch and occasional flank pain. The patient was advised pathological and radiological investigations which revealed the presence of ruptured urinary hydatid cyst, an uncommon presentation of *Echinococcus granulosus* of the kidney. This case bears both clinical and laboratory importance required for early medical treatment of the patient to avoid surgical intervention. A diagnosis of renal hydatid cyst may be considered in patients presenting with perineal itch, flank pain and had a prolonged history of contact with a pet.

Keywords: Hydatosis, Renal, Echinococcus, Hydatiduria, Anaphylaxis

INTRODUCTION

Hydatidosis is a condition caused by the cestode *Echinococcus granulosus*.[1] The primary host is the dog and other canines, where the parasite completes its sexual cycle in their small intestine and passes eggs into faeces. Humans serve as intermediate hosts, where the parasite's larval stage develops into cysts.[1] Most commonly affected organs are the liver and lungs, with kidney involvement reported in <5% of cases.[2] The common clinical features are renal colic and fever when the cyst is intact, or hydatiduria and anaphylaxis, causing severe itch if the cyst is ruptured.[3] Computer tomography (CT) and magnetic resonance imaging (MRI) are the main radiological modalities for diagnosis, and the demonstration of scolex and hooks on histopathology is the gold standard.[3] Conditions mimicking renal hydatid cysts vary from simple cysts to renal cell carcinoma.

CASE REPORT

A 29-year-old female presented in the urology department with moderate itch in the perineal area and mild left-sided flank pain for one and a half months. The past history revealed contact with pet dog for 15 years. The clinical examination showed no major abnormality except for mild perineal rash. The microscopy laboratory investigations advised were urine routine and swab microscopy from the perineal area and imaging investigations include ultrasound (US) and CT of lower abdomen. Ultrasound was already reported outside that showed the presence of a complex cyst. CECT whole abdomen revealed a complex cyst in the lower pole of the left kidney with internal septations and multiple small variable-sized cystic areas, possibly daughter cysts, and suggested the possibility of a hydatid cyst of the left kidney (Figure 1a). The patient left the hospital without lab investigations. After 10 days, patient returned with severe perineal itch and underwent lab investigations. When she passed urine to collect sample for routine microscopy, she noted a white, sheath-like structure passed after urine sample was collected (Figure 1b). Urine microscopy showed 3-5 pus cells. A perineal swab was taken, smears made were stained with 10% KOH and Gram stains to rule out fungal and bacterial possibility which were negative for fungal and bacterial organisms.

Two direct smears were made using normal saline drops on swab specimens and seen under the microscope at 40×; numerous nucleated to anucleated epithelial cells were observed (Figure 1c). At some places, hooklet structures noted confirming the CECT diagnosis of *Echinococcus granulosus* (Figure 1d). Serum enzyme immunoassay (EIA) was advised for *Echinococcus* IgG antibody, which showed an equivocal result. The expelled whitish sheath that was passed through urine was sent for histopathological examination, confirming the diagnosis of *Echinococcus granulosus*. The patient was managed with albendazole 400 mg BD for 1 month.

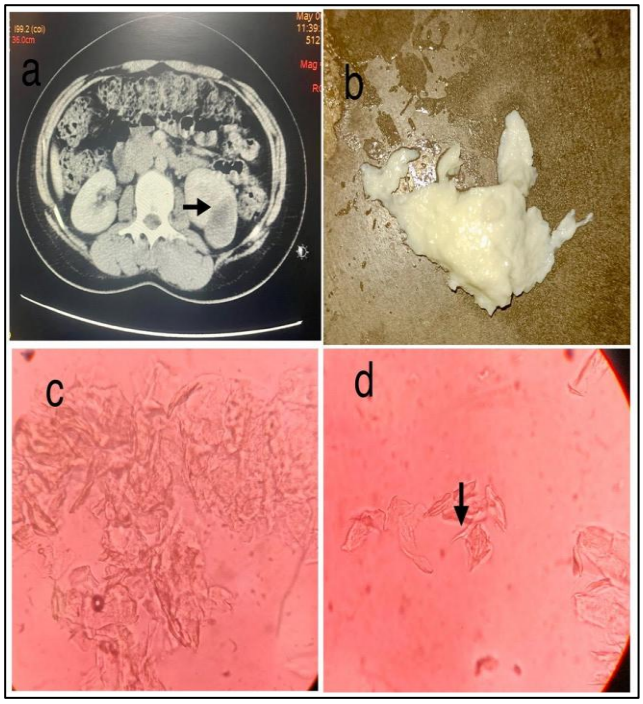

Figure 1 (a-d): A-CT scan showing complex cyst in left kidney. B-White cystic structure passed through urine. C-Many epithelial cells lining the cyst on direct smear 40×. D-Hooklet of the parasite detected on direct smear 40×.

DISCUSSION

A hydatid cyst is an anthropozoonotic disease that occurs due to the larval form of cestode *Echinococcus granulosus*. The liver (60%) and lungs (30%) are more commonly affected organs. Renal involvement is not common and represents only <5% of visceral involvement. The definitive hosts of *E. granulosus* are carnivores. When the eggs leave the body through faeces, they are consumed by an intermediate host, which is an herbivore, mostly sheep. Humans are infected by ingesting *E. granulosus* eggs accidentally through the consumption of contaminated food or when they come into contact with an infected dog or herbivore.[1-3] This condition occurs more in backward or rural areas, as the likelihood of promiscuity with animals such as dogs and other herbivores is higher in such areas. Our patient belonged to a middle-class family in a village and showed past history of contact with a dog as pet for 15 years with whom she used to play since childhood. She presented with severe perineal itch and mild flank pain. In 60-80% of cases, low back pain is the most common symptom. The severe itch may be an allergic reaction due to the rupture of the cyst and release of interleukins.[3] Hydatiduria is pathognomonic of *Echinococcus granulosus*.

Imaging modalities like ultrasound, CT and MRI give a success rate of 40-70% in diagnosing renal hydatid cysts. The characteristics of hydatid cysts on imaging include the presence of some liquid area, calcifications, and daughter vesicles.[4] In our case, CT proved to be the primary mode of investigation, suggesting the possibility of an *Echinococcus* cyst which could be further investigated pathologically. In lab investigations, the swab of the presented itchy area holds importance to rule out the possibility of bacterial and fungal infections which are the most common causes of perineal itch in female patients. Our case was negative for both and revealed numerous epithelial cells on 10% KOH stain which represented the lining cells of cyst wall with some hooklet structures also noted down. Some previous studies also reported hooklets on direct smears to diagnose *E. granulosus*.[5,6]

The complete blood count (CBC) shows increased eosinophils, which can be observed in 20-50% of cases and is more significant when cyst ruptures.[2] Other tests include serological tests like indirect hemagglutination which is highly sensitive and has an accuracy rate of 70%.[7-10] We outsourced the blood sample for the detection of IgG antibody for *Echinococcus*, which showed an equivocal result. Some studies show that if the cyst is ruptured, the chances of IgG antibody detection are reduced.[2,7-10] The expelled whitish specimen was sent for histopathology confirming the diagnosis. The patient was managed with albendazole 400 mg BD for 1 month.

This case holds importance as hydaturia with severe perineal itch is an uncommon presentation and should be considered in the differential diagnosis of a patient when presents with perineal itch with flank pain so that the patient can be managed timely to avoid surgical intervention later on. The proper history of the patient having contact with any pet is also important to make the diagnosis.

CONCLUSION

Perineal itch in a female patient presenting with mild to moderate colic pain in the flank should raise the suspicion of renal pathology. Hence, a required vivid spectrum of investigations is needed to come to a final diagnosis and to manage the patient promptly.

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