Renal Hydatid Cyst: Typical Features on Sonography

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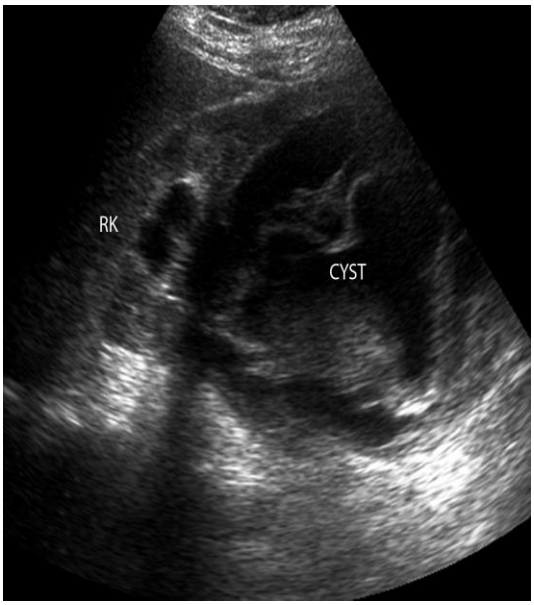
INTRODUCTION

Echinococcosis or hydatid cyst disease of the kidney is a rare condition and accounts for 3% of all cases of hydatid disease [1]. It is caused by larva of the tapeworm Echinococcus. Liver and lungs are the most common organs involved by Echinococcus. Other less common sites include bone, spleen, pancreas, heart and central nervous system [2, 3].

CASE REPORT

A 28 years old female presented with intermittent pain in right lumbar region for 5 months. Pain was not associated with fever and vomiting. For relieving pain, she was advised analgesics. There was history of one episode of similar pain for few hours in the right lumbar region one year back. She belonged to an urban area and there was no history of any contact with animals. On physical examination, palpable mass was felt in right lumbar region. Hematological investigations were within normal limit with no eosinophilia. Urinalysis was within normal limit. Ultrasonography (USG) of the abdomen revealed enlarged right kidney with a large cystic mass (14.2 x 13.6 x 11.6 cm) with internal echoes and echogenic band-like structures floating within the cyst in the mid and lower pole regions (Figure 1, 2a and 2b). There was mild to moderate hydronephrosis of the right kidney due to compression by the cyst (Figure 1). The USG diagnosis was renal hydatid cyst. Left kidney was normal in size and echotexture. Liver, spleen, gallbladder and pancreas were normal. Albendazole was prescribed 10 mg/kg per day for 9 days followed by exploratory laparotomy. Right nephrectomy was done without cyst perforation or spillage of cyst contents. On surgery there was large cyst in the lower and mid pole region of right kidney and no other cysts were seen in the abdomen. Postoperative period was uneventful and patient was advised albendazole 10 mg/kg per day for 1 month. On follow-up after three months, she had fully recovered without recurrence of her symptoms.

Figure 1: Ultrasound image (longitudinal plane) of a large hydatid cyst with internal echoes and echogenic band-like structures floating within the cyst in the mid and lower pole regions of right kidney along with mild to moderate hydronephrosis (RK - right kidney)

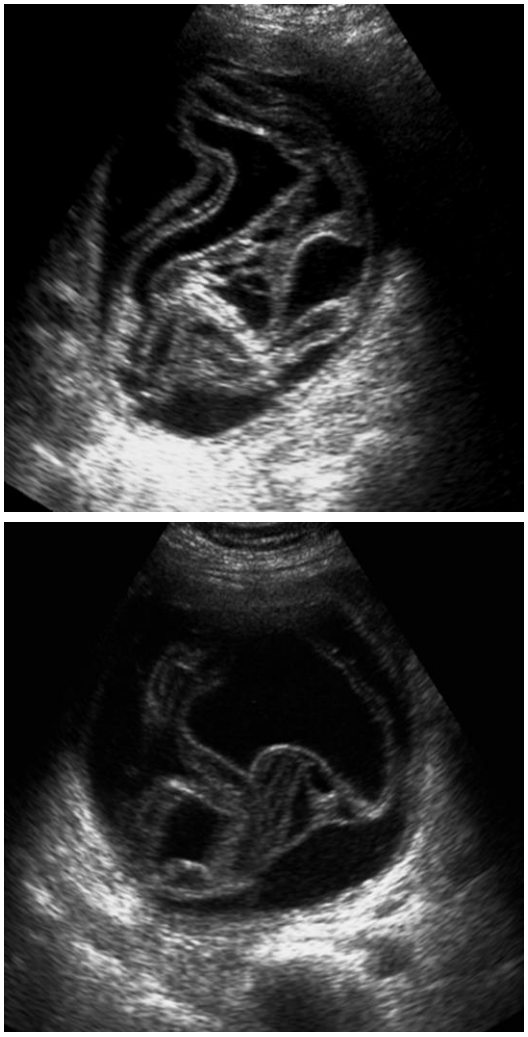


DISCUSSION

Clinically, renal hydatid cysts may remain asymptomatic for many years or may present with lumbar pain, hematuria, or intermittent fever. Most diagnoses are based on serology and imaging studies [3, 4]. Serology consists of immunoelectrophoresis, immunohemagglutination test and complement fixation test. Enzyme-linked immunosorbent assay (ELISA) and polymerase chain reaction (PCR) are widely used assays. USG and computed tomography (CT) scan are the common imaging modalities for the diagnosis of hydatid disease [4].

On USG, hydatid cyst appears as a unilocular or

Figure 2a and 2b: Ultrasound image (transverse plane) showing a large hydatid cyst with internal echoes and echogenic band-like structures floating within the cyst in right kidney



multilocular cyst. The detached endocyst inside the cavity is highly specific for hydatid disease and is known as "water lily sign". Multivesicular cysts appear as well-defined fluid collections in a honeycomb pattern, with multiple septa representing the walls of the daughter cysts separated by the hydatid matrix, consistent with a "wheel spoke" pattern. The detached membrane containing vesicle and scolices may precipitate to the bottom of the hydatid fluid and are called as hydatid sand. Ring-like or total calcification can be seen during the natural evolution which is commonly seen in the liver, spleen, and kidney [1, 2]. If a hydatid cyst ruptures into the collecting system, the disease can spread to the ureters or bladder [5].

The accuracy of ultrasound evaluation remains operator-dependent. Advanced radiological techniques like CT scan and MRI (magnetic resonance imaging) remain the mainstay of diagnosis. The CT scan has an accuracy of 98% to demonstrate the daughter cysts [1].

Surgery is the treatment of choice in renal hydatid cyst and renal sparing surgery is done in 75% of cases; however, nephrectomy is the last option in 25% of cases [4]. Albendazole (preoperative and postoperative) is given to sterilize the cyst, to decrease the incidence of anaphylactic reaction, to reduce the tension in the cyst wall and to decrease the postoperative recurrence rate [2].

Similar cases have been reported in the literature. Mongha R et al [1] have reported a case of hydatid disease primarily involving the right kidney and ureter, presenting with gross hydatiduria. Amin et al [6] reported a case of renal hydatid cyst in a 25-year-old male who presented with hydatiduria. Hydatiduria is an extremely rare manifestation of renal hydatid cyst. Safdar et al [7] have presented a case of renal hydatid disease in a 60-year-old female with sonographic and CT findings in which nephrectomy was performed.

In conclusion, renal hydatid disease is a rare entity and should be considered in the differential diagnosis of unusual cystic lesion in kidneys. Sonography plays important role in aiding the diagnosis by its typical features.

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