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Renal Hydatid Cyst in a Child Managed with Albendazole

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ABSTRACT

Primary Renal hydatid cyst is a rare entity. We report a case of isolated right renal hydatid cyst in a 13-year-old female who presented with pain in the right lumbar region for 4-5 months and a palpable mass in the right upper quadrant. The radiological features were suggestive of a hydatid cyst in the right kidney with no cyst in the liver, lungs, or left kidney. She was managed medically with oral Albendazole tablets (400 mg twice daily). A total of 6 cycles of Albendazole were given with each cycle lasting for 4 weeks and a drug-free period of 2 weeks in between two consecutive cycles and kept on follow-up for a year. Her condition improved with no recurrence on follow-up after one year.

Keywords: Albendazole; echinococcus granulosus; renal hydatid cyst.

INTRODUCTION

Hydatid cyst is a zoonotic disease caused by *Echinococcus granulosus*. Its life cycle is maintained between dogs, a definitive host, and livestock, such as sheep, an intermediate host. Humans get infected when contaminated water or food containing the egg of the parasite is consumed.[1,2] From the gastrointestinal tract, these parasites can reach the liver (most commonly affected) and lungs and can disseminate anywhere in the body via systemic circulation. Isolated involvement of the kidney is rare (2-4 % of all cases).[1] For renal hydatid cysts, the best method of treatment is surgery.[1] Only a few cases of medical management have been reported.

CASE REPORT

A 13-year-old female student from Nawalparasi, Nepal, presented with complaints of dull pain in the right flank region for the past 4-5 months. The pain was insidious in onset and gradually progressive with no aggravating or relieving factors. There were no urinary symptoms. She used to take over-the-counter medicines intermittently for dyspepsia.

She was afebrile, and her vital signs were stable. On abdominal examination, a ballotable lump, measuring approximately 5cm × 7cm, was noted in the right upper quadrant. The lump moved with respiratory movements and was mildly tender and firm in consistency.

Regarding investigations, her complete blood count showed slight leucocytosis (TLC= 11,750) with 75% Neutrophil. No eosinophilia was seen. Her renal and liver function tests were within the normal range.

Sonography of her right kidney showed a large thick-walled exophytic cystic lesion measuring 81 × 63 mm arising from the pelvis and lower pole of the kidney. There was a daughter cyst measuring 15 × 13 mm within. Computed tomography (CT) urography reported a single renal cortical cyst in the lower pole of the right kidney measuring 73 mm × 72 mm with thin septations within (Figure 1). Results of sonography and CT scan showed no evidence of other cysts in the liver, lungs, or left kidney. Echinococcus IgG Antibody titers (via ELISA) were sent to further strengthen the diagnosis, which came back positive (2.2; Negative<0.9; Equivocal: 0.9-1.1; positive if >1.1).

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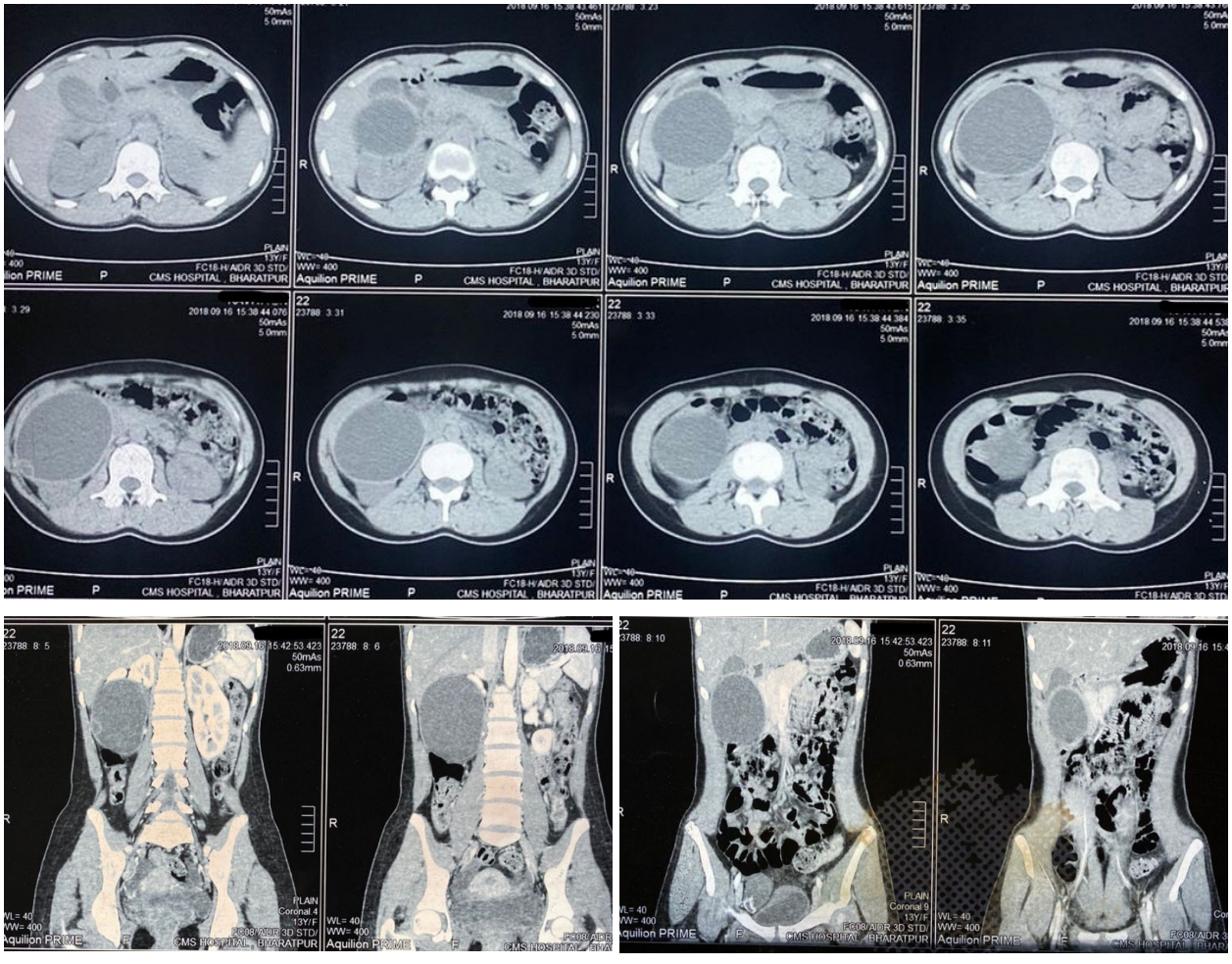

Figure 1. Computed Tomography (CT) Scan of Abdomen and Pelvis: 1a. Axial view and 1b. Coronal view shows cyst arising from lower pole of Right kidney with thin septa.

For further management, the patient and her parents were counseled for cystectomy, followed by a histopathological examination of the specimen. But her parents refused any surgical intervention and insisted on conservative management.

She was started on oral Albendazole tablets (400 mg twice daily) in similar doses that are recommended in cases of hydatid liver disease. A total of 6 cycles of Albendazole were given, with each cycle lasting for 4 weeks and a drug-free period of 2 weeks in between two consecutive cycles. She was on regular follow-ups in between with relevant tests. The size of the cyst decreased gradually, and the patient had no associated adverse events. Disease-specific antibody levels were at an undetectable level after the end of the drug therapy.

At the end of 6 cycles, she had no symptoms. USG showed no evidence of cysts. Repeat CT of the abdomen and pelvis after five and half months revealed the resolution of the cyst (Figure 2). Afterward, the patient was followed up for 1 year with periodical USG, and no recurrences were noted.

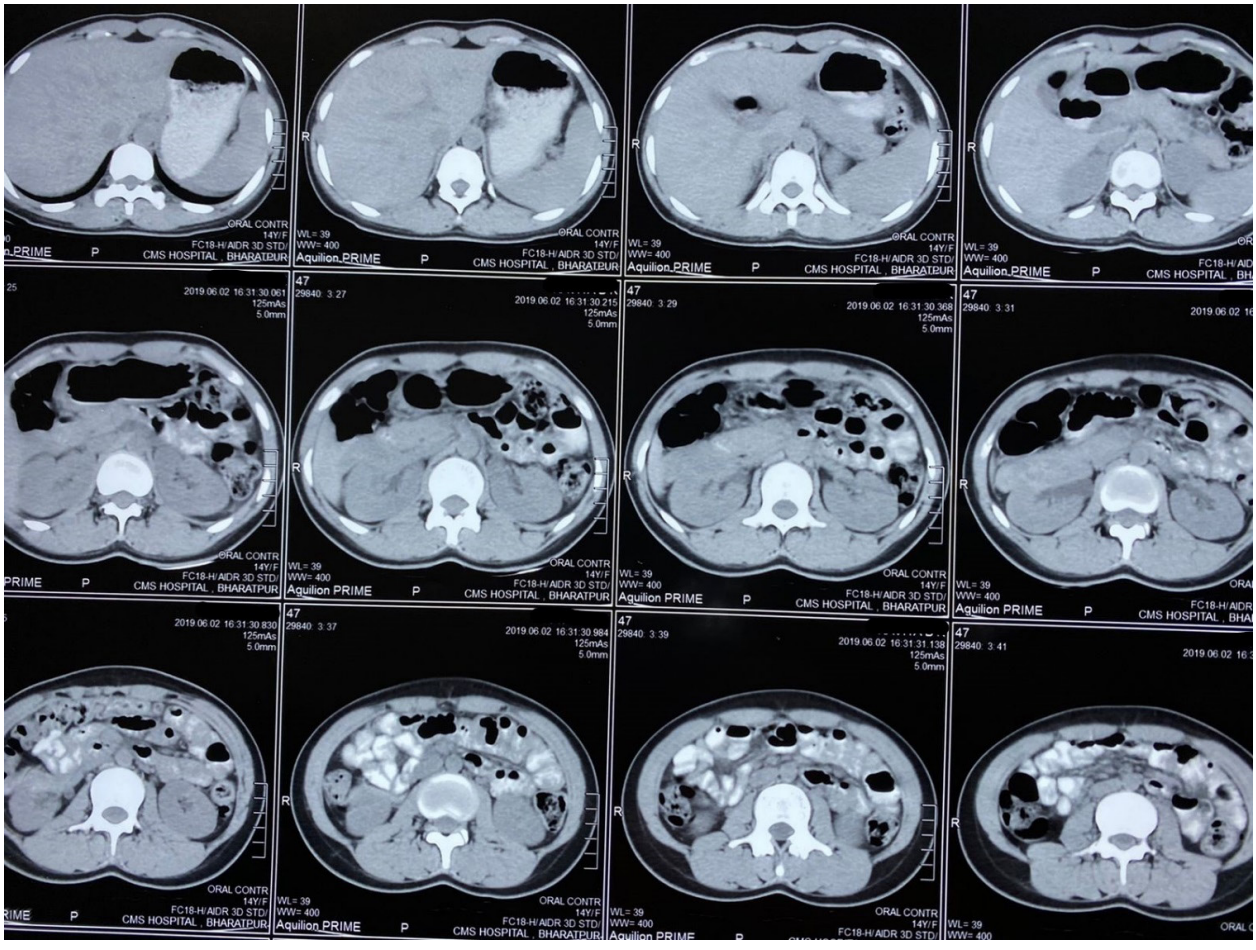

Figure 2. CT scan of abdomen and pelvis following resolution of cyst after five and half months.

DISCUSSION

In humans, the embryo of *Echinococcus granulosus* crosses the intestinal wall to reach the portal venous system or lymphatic system and first reaches the liver, where a bladder-like hydatid cyst usually develops. Although the liver is the most commonly affected organ in up to 75% of cases, in 15% of cases, lungs are also involved following migration via systemic circulation.[2] However, renal hydatid disease is a rare entity, occurring in about 2-4% of all cases of hydatid disease.[1] The pathogenesis of primary renal hydatid disease is controversial, but it is postulated that it must pass through the portal system into the liver and retroperitoneal lymphatics.[2]

Renal hydatid cysts can remain asymptomatic for years and or present with lumbar pain and/or lumbar or abdominal mass. Abdominal distension, vomiting, and hematuria may also be seen. Cystic rupture into the collecting system may lead to acute renal colic and hydatiduria, which is considered to be a pathognomonic sign.[3,4] Diagnosis is based upon the combination of the clinical picture, radiological exploration, and immunological studies. Microscopic examination of fluid and histology may reveal protoscoleces.[5]

Ultrasonography is the basis of diagnosis of cystic echinococcosis, which may demonstrate daughter cyst and hydatid sand. CT scan is superior to USG in doubtful cases and has a sensitivity of 98% to demonstrate the daughter cyst.[3] Serological tests such as Immunofluorescence; Indirect hemagglutination, and Enzyme-linked immunosorbent assay (ELISA) are available.[5]

There are a variety of treatment options available for Cystic Echinococcosis in the liver and lungs, ranging from percutaneous treatment, surgery, anti-infective drug treatment, or 'wait and watch'. None of the treatment modalities has a clear superiority, and no clinical trial has compared them.[6] For renal hydatid cysts in particular, although PAIR (puncture- aspiration-injection -reaspiration) has been a successful method in recent years, surgery is still considered the best

therapeutic intervention.[1] Removal of hydatid cyst with pericystectomy is possible in most cases (75%), and nephrectomy (25%) must be reserved for non-functioning kidneys. During dissection and removal of hydatid cysts, major risks include cyst rupture and dissemination. Thus, pre-and post-operative one-month courses of Albendazole should be considered to reduce the risk of intra-operative spillage and associated anaphylaxis.[2,4]

In a retrospective analysis of eighteen patients with isolated renal hydatid cysts reported from Turkey, fourteen patients had undergone cystectomy, and four had undergone nephrectomy.[7] One case managed using a combination of surgical and medical treatment was reported recently in a 24-year-old female from Humla, Nepal.[8] Another similar case report described a 22-year-old female with isolated renal hydatid disease managed with nephron-sparing surgery.[9]

There are only a few cases reported describing the medical management of renal hydatid cysts, none of which are from Nepal. In one case study of a 14-year-old male from Portugal, this approach was used for renal hydatid disease complicated by bleeding secondary to trauma. Surgery was avoided to preserve clinical and hemodynamic stability. He was given four cycles of Albendazole (400mg/day divided in two doses), with each cycle lasting for four weeks. Treatment resulted in a considerable decrease in the size of the cyst (from 9x9x6.8 cm to 3.6x3.4x2.3 cm).[10] However, in another report of a 79-year-old veterinarian with multilocular renal hydatid cyst, who received treatment with Praziquantel (800mg three times a day) and Albendazole (400mg three times a day), recurrence occurred after fourteen months of therapy and same treatment had to be repeated for another 15 months. Finally, cyst became inactive and calcified. In this case, medical treatment was considered due to patient's refusal of surgery.[11]

In cases such as ours, where surgical intervention is denied or can be complicated, the patient can be started with oral anti-parasitic agents and kept on follow-up with close monitoring of cyst size. This choice of treatment is only feasible with the collaboration of treatment providers and patient's caregivers, regular long-term follow-up, and the availability of facilities for early detection in the event of disease recurrence.

CONCLUSIONS

Isolated primary renal hydatid cyst without liver or lung involvement is rarely described in the literature. Although surgical interventions are the primary modality of treatment, medical management can be a useful alternative, provided regular long-term follow-up can be ensured.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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