Case Report

Primary renal hydatidosis

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ABSTRACT

Echinococcosis or hydatidosis caused by the tapeworm, *Echinococcus granulosus*, has the highest prevalence in endemic regions and sheep farming areas. The most common organ involved is the liver (50–75%) followed by the lungs (15–20%) and other organs (10–20%). Primary involvement of the kidney without the involvement of the liver and lungs, i.e., isolated renal hydatid disease is extremely rare even in endemic areas. The incidence of renal echinococcosis is 2–4%. Renal hydatid cysts usually remain asymptomatic for many years and are multiloculated. A 63-year-old male presented with left loin pain. Computed tomography scan abdomen revealed a presumptive diagnosis of renal hydatid disease. The nephrectomy specimen received in histopathology confirmed the diagnosis. We describe a rare case of primary renal hydatidosis.

Key words: Echinococcosis, isolated renal hydatid disease, kidney

INTRODUCTION

Echinococcosis or hydatidosis is a parasitic disease that affects both humans and mammals such as sheep, dogs, rodents, and horses. In humans, it is caused by the larval stage of *Echinococcus granulosus* and *Echinococcus multilocularis*. The liver (75%) and the lung (15%) are more commonly affected. Though hepatic hydatidosis is common, primary renal involvement is uncommon and seen in 2–4% of cases.[1] A rare case of a primary renal hydatid cyst discovered incidentally during the evaluation of left loin pain is presented.

CASE REPORT

A 63-year-old male presented with left loin pain for 3 months. The physical examination did not reveal any significant findings. Renal and liver function tests were within normal range. An abdominal ultrasound showed enlargement of the left kidney with cystic spaces with moderate dilatation of the pelvicalyceal system with cyst containing internal daughter cysts. Computed tomography scan abdomen revealed dilated pelvicalyceal system with large nonenhancing hypodense cyst with well-defined internal daughter cysts in the left kidney, and a presumptive diagnosis of renal hydatid disease was done and left nephrectomy was planned as a modality of treatment.

The nephrectomy specimen received in histopathology showed a cystic and dilated kidney measuring 16 cm × 15 cm × 15 cm. Cut section showed multiple pearly white, small cysts with areas of necrosis [Figure 1]. Microscopic examination showed a lamellate fibrochitinous wall with brood capsules and scolices [Figure 2] bearing lanceolate hooklets of a hydatid cyst [inset in Figure 2]. The adjacent renal tissue showed compression and thyroidization changes with focal glomerulosclerosis [Figure 3], and a diagnosis of hydatid kidney was offered.

DISCUSSION

Human echinococcosis is a cyclozoonotic parasitic infestation caused by the larval stage of the tapeworm *Echinococcus*.[2] The two most important forms, in humans, is the cystic echinococcosis caused by *E. granulosus* which

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Figure 1: Cut opened specimen of cystically dilated kidney showing multiple pearly white small cysts

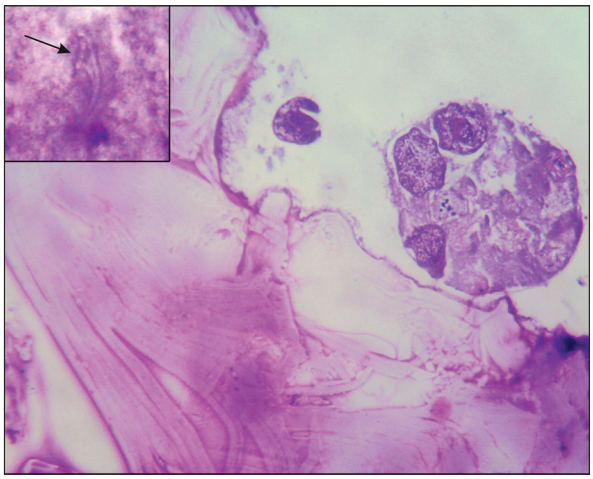

Figure 2: Acellular laminated membranes of hydatid cyst with brood capsules (H and E, ×10). Inset showing brood capsules with scolices and lanceolate hooklets (shown by arrow, ×40)

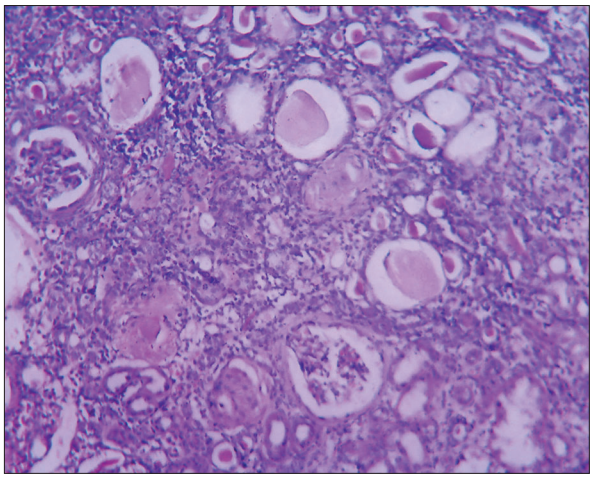

Figure 3: Adjacent renal tissue with features of chronic pyelonephritis (H and E, ×10)

is more common, and rare alveolar echinococcosis, which is a severe form caused by *E. multilocularis*. Humans are the accidental intermediate hosts infected through contact with a definitive host or ingestion of the contaminated water or vegetables or by handling the soil or dirt that contains eggs. In humans, the common sites involved are liver (75%) and lung (15%).[3] Renal involvement is rare (2–3%). The isolated renal hydatid disease is extremely rare even in endemic areas.[4] It is not clear how the hydatid embryo reaches the kidney in cases of primary hydatid disease, but it is postulated that it must pass through the portal system into the liver and retroperitoneal lymphatic.

Renal hydatid cysts usually remain asymptomatic for many years. As the lesion progresses, manifestations such as dull flank pain, hematuria, palpable mass, pelvi-ureteric junction obstruction, hydronephrosis, and chronic renal failure results.[1] Vijaya Nirmala *et al*.[5] and Nayal and Mathew,[6] has reported cases of primary renal hydatid cyst discovered incidentally during the evaluation of loin pain, similar to our case. Mongha *et al*. have reported a rare case of a primary hydatid cyst of kidney and ureter with gross hydatiduria in a 23-year-old male with a history of the intermittent passage of small, white, balloon-like, grape shaped structures in urine for 3 months.[7] The rupture of a hydatid cyst into the collecting system results in hydatiduria in 10–20% of the cases.

Renal hydatid cysts are usually multiloculated consist of the single large cyst and smaller daughter cysts of varying sizes.[8] Histologic examination of the cyst wall shows an outer chitinous layer and an inner germinal layer. The cyst wall may be surrounded by granulation tissue or a fibrous capsule called "pericyst layer." In patients with hydatiduria, since the cysts passed in the urine are daughter cysts they lack the third layer pericyst, contributed by the host around the mother cyst. The viable cyst is filled with colorless fluid, which contains daughter cysts and brood capsules with scolices. In some patients, daughter cysts are found outside the chitinous layer of the cyst and are referred to as extracapsular or satellite cysts. The scolices can be easily identified after macerating a portion of the germinal layer in the saline solution. They have lanceolate hooklets of 20–40 μm length. Calcification signifies that the cyst is dead. The adjacent renal parenchyma often shows pressure atrophy and chronic pyelonephritic changes and an infiltrate in which eosinophils may be prominent.

In general, surgery is the treatment of choice in the renal hydatid cyst. Removal of hydatid cyst with pericystectomy-kidney-sparing surgery is possible in most cases. Nephrectomy must be reserved for destroyed kidney. Very few cases of laparoscopic removal of renal hydatid are reported. Since there is a risk of cyst rupture and dissemination during dissection, entrapment, and removal of the hydatid cyst during laparoscopy, utmost care should

be taken during the surgery to prevent spillage and resultant disseminated hydatidosis. In this case, extensive hydatidosis resulted in an enlarged nonfunctioning kidney. Hence, nephrectomy through retroperitoneal route was done and the postoperative period was uneventful.

CONCLUSION

There are no specific clinical symptoms or signs that will reliably confirm the diagnosis of renal echinococcosis. Routine blood investigations are usually normal except for eosinophilia, which is found in 50% of the cases. Radiological studies have a more important place in the preoperative diagnosis of renal hydatid disease.[9] Sometimes, it is difficult to differentiate between a unilocular hydatid cyst without mural calcification and a simple renal cyst. Despite its rarity, hydatid disease should be included in the differential diagnosis of cystic lesions in solid organs or other anatomic sites, especially in endemic areas. Though hydatidosis is not uncommon among the rural population associated with farming and cattle rearing in this part of the country, primary renal hydatidosis still remains a rarity.

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Conflicts of interest

There are no conflicts of interest.

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