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Case Report

Pathology Section

Primary Renal Hydatid Cyst: A Rarity

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ABSTRACT

Echinococcosis or hydatidosis which is caused by the tapeworm, Echinococcus granulosus, has the highest prevalence in cattle raising countries. Hydatid disease mainly affects the pulmonary and the digestive systems and it rarely involves the renal system. This case emphasizes the need for a better detection and evaluation of such rare cases which involve the kidney.

Key Words: Hydatidosis, Kidney, Hydatid cyst

INTRODUCTION

Echinococcosis or hydatidosis is caused by the tapeworm, Echinococcus granulosus (E.granulosus). The highest prevalence of hydatidosis is in the countries where the common intermediate hosts, sheep and cattle are raised, such as the Middle East, central Europe, Australia, Asia and South America. Hydatid disease mainly affects the pulmonary and the digestive systems [1]. The liver (75%) and the lung (15%) are more commonly affected. A multisystem involvement which affects the kidney is a rare clinical scenario and it comprises of only 2 to 3% of all the cases. An isolated involvement of the kidney is even rarer. The patient may be asymptomatic or he/she may present with the symptoms of lumbar region pain, haematuria, and hydatiduria [2,3]. We are presenting a rare case of a primary right renal hydatid cyst which presented with right lumbar pain.

CASE REPORT

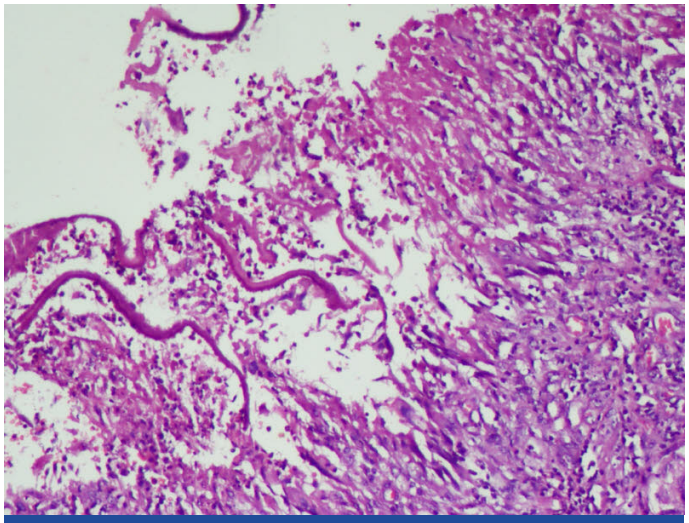
A 65-year old female patient, a resident of Karnataka, India, presented with the passage of white bleb- like urine since 3 months, along with tea colored urine. The patient also had a history of right lumbar pain of the same duration, with no history of dysuria. The physical examination did not reveal any significant findings. An abdominal ultrasound showed enlargement of the right kidney with multiple cystic spaces. CT scan showed a multilocular cystic lesion with well calcified areas in the lower pole of the right kidney, which caused hydronephrosis. The routine haematological investigations of the patient showed low haemoglobin levels with eosinophilia and the serological tests were negative. In view of the history which was suggestive of hydatiduria and the radiological findings, a clinical diagnosis of a renal hydatid cyst was rendered. Right nephrectomy was performed and the specimen was sent for a pathological examination.

The gross examination of the kidney showed a cyst which measured 9 x 6.5 cm. The cut section showed a multiloculated grey white cyst [Table/Fig-1]. The microscopic examination revealed a fibrochitinous cyst wall which was focally lined by granulation tissue which overlay on the compressed renal parenchyma, with dense chronic inflammation and interstitial fibrosis. The cyst showed a lamellate fibrochitinous wall which contained scolices and brood corpuscles [Table/Fig 2 and 3]. A focal granulomatous response with a dystrophic calcification was seen in the wall. Following the nephrectomy, the patient was put on Albendazole.

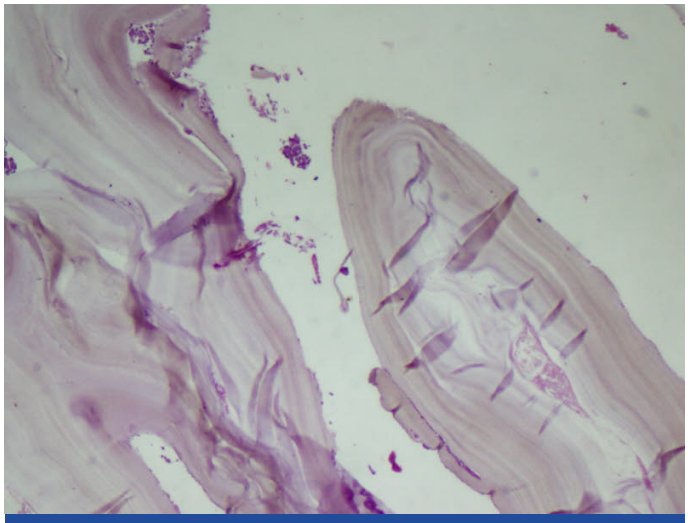
DISCUSSION

Echinococcosis is zoonoses which are produced by E. granulosus. Humans act as the intermediate hosts and they acquire this infection from contacts with definitive hosts (usually dogs) or from the ingestion of soil, water or vegetables which are contaminated

[Table/Fig-1]: Large grey white multiloculated cyst in the kidney



[Table/Fig-2]: Necrotic renal parenchyma with cyst wall (H & E, 100X)



[Table/Fig-2]: Lamellated fibrochitinous hydatid cyst wall (H & E, 100X)

with the larval stages of E. granulosus. The adult worm attaches to the mucosa of the small intestine of the definitive host by means of hooklets, where it releases the infective eggs.

The parasitic embryo reaches the portal venous system or the lymphatic system and it affects the liver, which acts as the first line of defense and is most commonly involved (75%), followed by the involvement of the lungs (15%). Any organ may be secondarily involved, following a haematogenous spread. However, the involvement of the kidney is rare and it comprises of only 2–3% of the total cases [3]. We are presenting one such case of an isolated renal hydatid cyst.

The patients with renal hydatid cysts commonly present with loin pain and haematuria. The rupture of the hydatid cyst into the collecting system results in hydatiduria in 10–20% of the cases and it is usually detected microscopically. A gross hydatiduria is rare and it is diagnostic for the disease. Eosinophilia is also noted in these patients. Radiological techniques aid in the confirmation of the diagnosis [2,4]. On ultrasonography, the hydatid cyst may be seen as unilocular (type 1), mimicking a simple renal cyst or multiseptate daughter cysts (type 2), with pathognomonic multiple echogenic foci which are produced by the hydatid sand, giving a “falling snowflake” appearance or type 3 cysts which exhibit a bright echogenic focus with a strong posterior acoustic shadowing [5]. The diagnostic CT findings of renal hydatid disease reveal a unilocular cyst (type 1), a multilocular cyst (type 2) and a completely calcified cyst (type 3) [6]. A thick calcified cyst wall may be observed in the type 1 and the type 2 cysts [3]. The present case revealed the features which were suggestive of a type 2 hydatid cyst on radiology, with a multiloculated cystic lesion and calcified areas.

The wall of a hydatid cyst is composed of 3 layers. The outermost per cyst which is formed by modified host cells, the middle laminated a cellular membrane and the inner germinal layer where the infectious larval forms are produced. The cystic fluid is a clear transudation and when it is released into the circulation, it causes eosinophilia and anaphylaxis [3,6]. Histopathologically, the cysts are described to be of the closed type (noncommunicating) or of the open (communicating) type. The closed type is characterized by an adventitia which is produced as a result of the inflammatory and the fibroblastic responses in the adjacent renal tissue, and a laminated membrane. A continued fluid secretion in such a closed cyst results in its rupture, thus causing the formation of an open cyst. The rupture may be in a calyx or in the renal pelvis, it may be intraperitoneal or retroperitoneal or in the pleural cavity through the diaphragm [4].

A renal hydatid cyst is treated surgically by a kidney sparing hydatid cyst removal (75%) or by nephrectomy (25%). Kidney sparing surgeries like enucleation, marsupalization and cystectomy have been described. Albendazole is recommended pre and postoperatively to sterilize the cyst and to prevent anaphylaxis and recurrence [5,7,8].

CONCLUSION

An isolated renal involvement which is caused by a hydatid cyst is a rare occurrence. However, a meticulous clinical examination, along with radiological findings, aids in its diagnosis.

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