CASE REPORT

RENAL HYDATID CYST-ULTRASOUND AND CT SCAN FINDINGS

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ABSTRACT: We report a case of Echinococcal (Hydatid cyst) of kidney. We also present salient diagnostic feature of renal hydatid cyst. Renal involvement of hydatid disease is rare, present only in 2% cases. We will demonstrate salient radiological findings of renal hydatid cyst.

KEYWORDS: Echinococcosis, Hydatid disease, Ultrasonography, Computed tomography.

INTRODUCTION: Echinococcus or hydatid cyst is a cyclozoonotic parasitic infestation, caused by cestodes echinococcus. Among four species, two main type affecting human are - *E granulosus* (Cystic hydatid disease) and *E multilocularis* (Alveolar hydatid). Human infestation is caused by larval form not adult form, which is found in small intestine of dogs and other canines (Definitive host). Kidney involvement is rare (2%), third commonest organ after liver and lung. Usually renal hydatid are secondary but can be primary. Diagnosis of hydatid cyst of kidney in absence of hydatiduria, is usually radiological as most patient have negative immunological test.

CASE REPORT: A 22 years old male patient present with low grade right lumbar pain for 10-12 days. Pain was not associated with vomiting. There was no history of similar type of pain previously. Haematological investigations were normal. Urine examination was normal. No history of passage of grapes like thing noted in urine. X-ray chest PA View and X-ray abdomen PA and lateral view were normal. USG of abdomen shows cystic lesion with peripherally arranged daughter cysts seen in right kidney. Similar findings were present on CT scan. No evidence of contrast enhancement noted in the cyst in post contrast study.

DISCUSSION: Echinococcosis is worldwide zoonosis, produced by larval stage of Echinococcus. Adult worms live in proximal small bowel of definitive host, attached by hooklets to mucosa. Eggs are released into host's intestine and excreted in the feces. Human may become intermediate hosts through contacts with definitive hosts (Usually a domesticated dog) or ingestion of contaminated water or vegetable.⁽¹⁾

No organ is immune from Echinococcus but organs usually affected are liver (63%), lungs (25%), muscles (5%), bones (5%), kidney (2%), spleen (2%), heart, brain and pancreas (1%).⁽²⁾

Secondary involvement is due to haematogenous dissemination and may be seen in almost any location. It is not clear how hydatid embryo reaches the kidney in case of primary hydatid disease but it is postulated that it must pass through portal system into liver and retroperitoneal lymphatics. Renal hydatid usually remains asymptomatic for many years. Most common sign and symptom are flank pain, flank mass and dysuria. Complications of renal HC include infection and rupture either in renal sinus or perinephric space. Cyst rupture into collecting ducts causing acute renal colic and hydatiduria which is pathognomonic, though seen only in 10-20% of renal hydatidosis and usually microscopic.⁽³⁾

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Radiological investigations have important role in diagnosis of hydatid disease. Plain X-ray is usually nonspecific and mostly non revealing.

A thin rim or thin arc shaped calcification in wall of cyst is usually suggestive of HC, compared with heterogenous and more or less diffuse calcification.⁽⁴⁾

Diagnosis of hydatid cyst using USG is more reliable and is specific up to 80%. USG is most sensitive in detection of membrane, septa and hydatid sand within cyst. (Fig. 1). However USG is operator dependent.

USG appearance of hydatid cyst varies with stage evolution and maturity.

Hydatid cyst is classified into four types on the basis of their appearance.⁽⁵⁾

Type I: Simple cyst with no internal architecture: Well defined anechoic mass with or without hydatid sand. Unilocular cyst is considered to be initial stage in development of parasite. Rolling of patient during evaluation disperses the sand creating small echogenic foci or falling snowflakes.

Type II: Cyst with daughter cyst(s) and matrix: Daughter cyst are seen inside mother cyst. Floating membrane or vesicles can also be seen in the cyst. Sometimes multiple cysts and echogenic area within single cyst give rise to racemose or wheel spoke appearance.⁽⁵⁾

Type III: Calcified cyst: This type of cyst is dead cyst with total calcification.

Type IV: Complicated cyst: Includes rupture and super infection may be seen in both type I and type 2 hydatid cyst.

Computed tomography remains mainstay in diagnosis. CT scan has accuracy of 98%. CT is best for showing cyst wall calcification, cyst infection and peritoneal seeding. CT findings are usually same as USG. (Fig: 2).

Central part of cyst has attenuation of 30-35 HU, in contrast to much lower attenuation in fluid of cyst that are peripherally arranged (5-15HU). Attenuation coefficient of renal HC is not modified by contrast agent injection.⁽³⁾

USG and CT cannot always show HC as specific lesion. Differentiation between unilocular type I HC and simple renal cyst may be difficult. A unilocular HC mimic renal cell carcinoma due to concomitant presence of calcification in later. Multilocular HC can be misdiagnosed as a simple cyst, cystic nephroma and cystic variant or renal cell carcinoma. Infected HC can be diagnosed as renal abscess. In these cases, diagnosis can be made only with percutaneous puncture in most cases.⁽¹⁾

In general, surgery is treatment of choice in renal HC. Kidney sparing surgery (Removal of HC with pericystectomy) is possible in most cases (75%). Nephrectomy (25%) must be reserved for destroyed kidney. Utmost care should be taken during surgery to prevent spilling and resultant dissemination of HC.⁽³⁾

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Fig. 1: Longitudinal sonogram of right kidney shows a cyst at lower pole of with multiple peripherally arranged daughter cysts

Fig. 2: Axial CT scan taken after oral and i.v. contrast shows a hypodense cyst in right kidney with peripherally arranged multiple daughter cysts

In conclusion, renal hydatid disease is rare entity and it is one of the differential diagnoses of unusual cystic lesion in kidney. Radiological imaging play important role in diagnosis of renal hydatid disease by USG and CT (CT scan has accuracy rate of 98%) and MRI.

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