CASE REPORT

Primary renal echinococcosis with gross hydatiduria

Archit Gupta, Jagdish Gupta, Bhavesh Devkaran, Arun Gupta

Department of General Surgery,
Indira Gandhi Medical College,
Shimla, Himachal Pradesh, India

Correspondence to
Dr Archit Gupta,
archit9th@gmail.com

Accepted 17 August 2017

SUMMARY

Renal echinococcosis is a rare disease. It is usually asymptomatic but may present with pain, lump or in rare cases hydatiduria. Diagnosis is mainly by imaging but serology is usually false negative. We present a patient of renal echinococcosis who presented with passing of grape skin like structures in urine and was diagnosed to be a case of renal echinococcosis on the basis of positive serology, ultrasonographic and CT findings. The patient underwent a nephroureterectomy and was given albendazole preoperatively and postoperatively.

BACKGROUND

Hydatid cyst of the kidney or renal echinococcosis is a rare disease constituting only 2%–4% of all the hydatid cyst cases.¹ Primary involvement of the kidney without involvement of any other visceral organ is even rarer. Hydatiduria is present only in 10%–20% of cases of renal echinococcosis.² We present a case of primary renal echinococcosis presenting with hydatiduria. The patient was taken up for surgery and nephroureterectomy was done. We present this case for its rarity.

CASE PRESENTATION

A 60-year-old man, farmer by profession, presented with a history of occasional passage of small, white, grape skin like structure in urine since last 7 years. There was history of a continuous dull aching pain in right flank for 1 month. No lower urinary tract symptoms were present. General physical examination revealed no abnormality. Abdominal examination showed no lump or organomegaly.

INVESTIGATIONS

Routine blood investigations were normal with no eosinophilia. Renal function tests were normal. Hydatid serology was positive. Plain X-ray chest and abdomen revealed no abnormality. Ultrasonography revealed unilocular hypoechoic shadow in right kidney which was suggestive of Gharbi type III hydatid disease. No other visceral involvement was seen. Contrast-enhanced CT (CECT) showed a sharply marginated lesion measuring 11×11×14 cm showing postcontrast enhancement present in right renal fossa with spoke wheel pattern (figure 1). Multiple hypodense daughter cysts were present inside the single large cyst. There was non-functioning right kidney and parenchyma in lower pole showed positive beak sign (figure 2). Communication was present between the mass and pelvicalyceal system (figure 2). Compression of right lobe of liver with no invasion of the latter was present.

TREATMENT

With a diagnosis of renal echinococcosis, patient was taken up for surgery. On exploration through the flank, extra peritoneal approach, a huge, white, cystic mass was seen in the middle and upper pole of the right kidney. Dense adhesions were present all around the cyst. Pelvis and upper ureter were dilated. Rest of the abdomen showed no abnormality. After instillation of 1% cetrimide, the contents of the cyst were aspirated. Right simple nephroureterectomy (including ureter until vesico-ureteric junction) was done. The resected specimen showed thinned out parenchyma with a large thick-walled pericyst with numerous daughter cysts in the kidney, and the cyst was communicating with dilated renal pelvis (figure 3).

OUTCOME AND FOLLOW-UP

Patient was started on 400 mg albendazole twice a day for three courses postoperatively. Histopathology was consistent with hydatid cyst. On follow-up after 1 month, a postoperative ultrasound showed the patient to be disease free. On repeat follow-up after 1 year, the patient was disease free with no complaints of hydatiduria or pain with a normal ultrasound.

DISCUSSION

Hydatid cyst caused by parasite *Echinococcus granulosus* can involve any tissue or organ of the body. It is most common in the liver and lungs.³ Kidney involvement is extremely rare comprising only 2%–3% cases of all hydatid disease cases.¹

Most commonly the patients remain asymptomatic, though it might present with a dull aching pain in lumbar area or back, a renal lump, haematuria, hypertension, passage of whitish grape skin-like structure—collapsed daughter cyst in urine (hydatiduria), obstructive uropathy or rarely renal failure.² Hydatiduria, which is usually because of cystic rupture into collecting system, is a pathognomic feature seen in only 10%–20% cases of renal hydatids and is usually microscopic. Gross hydatiduria as seen in our patient with renal hydatid cyst is a rare presentation.⁴

Renal hydatid cysts are usually multiloculated with a single large cyst having small daughter cysts of different sizes. Hydatid cyst of kidney can be closed or exposed. Closed renal hydatid cyst has pericyst in addition to ectocyst and endocyst, while in exposed hydatid cyst no pericyst is present. When all the three layers rupture, it is called as open or communicating cyst.²

Eosinophilia is seen only in about 50% cases and hydatid serology is mostly false negative in

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To cite: Gupta A, Gupta J, Devkaran B, et al. *BMJ Case Rep* Published Online First: [please include Day Month Year]. doi:10.1136/bcr-2017-220502

Figure 1 Contrast-enhanced CT showing unilocular hydatid cyst with spoke wheel pattern.

these cases.⁵ Imaging plays a huge role in diagnosis of renal echinococcosis. On ultrasonography floating membranes, daughter cysts and hydatid sand may be seen.⁶ Based on ultrasonographic features, Gharbi classification is used to classify hydatid cyst. CECT is a more sensitive, and accurate investigation and may also reveal any calcification or any intracystic gas. It can also give more detailed information about anatomy of tract and extrarenal disease.⁷ MRI also shows cysts accurately but has no advantage over CECT.² Dimercaptosuccinic acid (DMSA) or diethylenetriaminepentaacetic acid (DTPA) scan can be done and provides assessment of renal function.⁸

The treatment is mainly surgical. A kidney sparing surgery which involves removal of hydatid cyst with pericyst is usually done but nephrectomy may be done in cases of destroyed kidney.⁹ Care should be taken to avoid spillage while doing

Figure 2 Contrast-enhanced CT showing thinning out of renal parenchyma and the resultant beak sign at lower pole of kidney (red arrow). Also seen is communication of hydatid cyst with the collecting system (white arrow).

Figure 3 Postoperative cut section of the specimen showing completely destroyed renal parenchyma because of the cyst.

surgery. Scolicidal agents like hypertonic saline and cetrimide may be used during surgery.² Recently, ultrasound or CT-guided percutaneous drainage of cysts have been described but are associated with higher recurrence rate, infection dissemination and even anaphylaxis.¹

Medical treatment in form of preoperative and postoperative albendazole should be given to reduce risk of anaphylaxis and recurrence.³

Our patient underwent nephroureterectomy due to involvement of pelvicalyceal system and was given albendazole for 4 weeks preoperatively and 3 weeks postoperatively. Cetrimide was used to prevent anaphylaxis and spread of disease.

Learning points

- ▶ Renal echinococcosis is a rare disease and is usually asymptomatic.
- ▶ Hydatiduria is a pathognomonic feature of renal hydatid cyst but is present only in 10%–20% cases. Gross hydatiduria is even rarer.
- ▶ Diagnosis is mainly based on imaging. Contrast-enhanced CT is the accurate and sensitive investigation for diagnosing this disease.
- ▶ Treatment is mainly surgical in form of kidney-sparing surgery or nephrectomy or nephroureterectomy in advanced cases.

Contributors AG and JG collected the data. AG wrote the manuscript. JG, BD and AG2 reviewed the literature and the manuscript.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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